

ACADEMIC AND SOCIAL INTEGRATION IN CYBERSPACE:

A QUALITATIVE STUDY

by

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ABSTRACT

This study was designed to gain a better understanding of whether electronic mail (email) was replacing traditional behaviors in which college students engage to achieve academic and social integration. Data consisted of printouts of email records, and corresponding logsheets detailing the relationship of the participant to the sender/receiver of each message and the general nature of the message. Additional data included answers to email survey questions and lists of traditional academic and social integration behaviors against which the email behavior categories were compared.

Specifically, this study was designed to explore the following research questions:

1. For what purpose do students use email?
2. Do college students use email in lieu of traditional behaviors that lead to social integration?
3. Do college students use email in lieu of traditional behaviors that lead to academic integration?

#### 4. Does students' use of email differ by gender?

Two samples were selected for this study. The first consisted of a comprehensive list, compiled from nationally normed survey instruments, of traditional behaviors that students use to achieve academic and social integration. The second sample consisted of 23 traditional-aged freshmen who used email (11 males and 12 females).

Results were based on an analysis of 4,603 messages sent or received by the participants and revealed several important findings. First, while the participants did use email for some academic and social integration purposes, the bulk of their email activity did not relate to either form of integration. Second, participants seemed to be using email to communicate extensively with family members and high school friends. Third, there were no major differences in either the extent of email use or the nature of that use by gender. Finally, the participants spent a considerable amount of time every day checking, writing, composing and sending email messages. These trends suggest that email has become an integral part of college student life and that college administrators need to explore new and effective ways to ensure that the use of email is beneficial, not detrimental, to the overall development of college students.

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## CHAPTER 1

### INTRODUCTION

Student retention is increasingly important at many institutions of higher education. A successful student retention program typically involves the cooperation of numerous campus constituencies. One group that is often involved in retention efforts on campus is student affairs professionals.

Student affairs professionals have looked to theory to understand ways in which to increase student retention. Theory suggests that one way to increase retention is to make students feel like they are connected to someone or something at their institution (Astin, 1978; Pascarella & Terenzini, 1991; Tinto, 1987). These connections are described as “academic integration” and “social integration” (Tinto,1987).

Academic integration is broadly defined as behaviors that students can engage in on an academic level, such as: meeting with faculty and advisors, using the library, and attending out-of-class academic activities. Social integration can be defined as behaviors related to social involvement, including: meeting other students, making friends in extra-curricular activities, and attending social and cultural events on campus. Students who do not engage in behaviors that lead to social and academic integration are less likely to persist in college and more likely to drop out (Tinto, 1987).

The more active and involved students are, the more academically and socially integrated they become, which leads to higher student satisfaction (Astin; 1978, 1993). Students who are satisfied persist at higher levels than those who are not satisfied.

It is reasonable to suggest, therefore, that two of the reasons students persist in college are related to academic and social integration. Indeed, Tinto (1987) identified four important factors related to student persistence in college. The first (pre-entry characteristics) includes family background, skills and attributes developed prior to college, and high school education of the student. The second, institutional characteristics, looks at the institution of higher education in which the student is enrolled and its attendant goals, commitments, and intentions. The third characteristic (academic integration) includes academic performance and interaction between the student and faculty and staff. The fourth factor, social integration, relates to a student's peer-group interactions and extra-curricular activities. The combined effect of these four factors contributes to students' persistence in college.

The first two Tinto factors cannot be influenced to any great extent by the student, especially once they are enrolled in college. Students have little control over their family's background or the characteristics of the institution they attend. However, students can influence their achievement with respect to the last two factors (academic and social integration). Consequently, Tinto focuses on specific student behaviors that could lead to academic and social integration. He argues that students can enhance academic integration by having "rewarding interactions" (p.

118) with faculty and staff both in- and out-of-class. Students can also achieve social integration if they gain leadership positions in extra-curricular activities.

Studies have been conducted to examine traditional behaviors associated with academic and social integration (Abrahamowicz, 1988; Alperin, 1990; Bauer, 1992; Beil & Shope, 1990; Cooper, Healy, & Simpson, 1994; Mohammadi, Lee, & Shaffer, 1996; Nettles, Theony, & Gosman, 1984; Niles, Sowa & Laden, 1994; Pascarella & Terenzini, 1991; Tinto, 1987). In all instances the scholars have defined behaviors in ways that involve face-to-face contact among students and between students and faculty. Research has not examined whether technology has changed the behaviors student engage in, and whether there are new behaviors that students use to achieve academic and social integration.

It seems evident that these studies of academic and social integration, and the behaviors students can engage in to achieve such integration, were developed before the infusion of technology into higher education. The infiltration of technology into higher education has resulted in a broad array of changes in the way in which education is delivered to students (Holden & Mitchell, 1993; Kurshan, 1990; Wilson, Ryder, McCahan, & Sherry, 1996; Zhu, 1996). For example, administrators use technology not only to admit students, but to advise them, and assist them in making career choices. Faculty use technology in designing class presentations, creating assignments, and developing laboratory classes. Students have also utilized technology in new and different ways on campus, including: accessing the internet;

participating in on-line chatrooms; and, engaging in listserv discussion groups (Farquhar, McGinty, & Kotcho, 1996; Russell, 1996; Swartz & Walters, 1995).

One form of technology that could be explored in relationship to achieving academic and social integration is electronic mail (email). Email is a fairly recent phenomenon and its use in higher education has brought about a number of changes in the way people communicate. Administrators, students, and faculty have all been affected by the changing and rapidly advancing technology of email (Wishnietsky, 1991).

Numerous studies have been conducted on the uses of technology in general, and email in particular. In a study done by Holden and Mitchell (1993), results revealed that using email in conjunction with an academic class increased the amount of communication between faculty and students. This study also found that email was an effective way for people to communicate and that it was most beneficial when all involved had easy access to and free use of the necessary technology.

A related study (Wilson, Ryder, McCahan, & Sherry, 1996) suggested that there are a number of hurdles that both students and faculty must overcome before they are willing to start using technology in general, and the Internet and email specifically. First, they need a reason to start using new technology. Second, they need to overcome any fear they have about using new technology properly.

Other researchers have conducted studies on the effectiveness of using Internet technology to improve course offerings. One study (Eggers & McGonigle, 1996) focused on the effects of using email to continue discussions outside of class. Others

(Farquhar, McGinty, & Kotcho, 1996) looked at graduate level courses that used email and listserves to facilitate out-of-class discussions. Zhu, (1996) examined two classes that were linked to each other through the use of email. All of these studies concluded that it was essential that the technology be easily accessible to students and that restrictions on access to technology be eliminated.

Studies on the degree of electronic communication have also been conducted. Deloughry's (1993) results revealed that students enrolled in a Chemistry class asked more questions of the instructor over email than they did in class. Students also asked questions that they were reluctant to ask in class, but felt safe asking via email. The impersonal nature of asking questions electronically enables students to ask a broader array of questions. A related study by DeLoughry (1996) revealed that while overall technology growth has slowed on campuses across the country, the use of email continues to increase at a significant rate.

It seems that research on the use of email in conjunction with teaching in higher education has been fairly extensive. There have been studies on using technology in the classroom, including: using email to facilitate communication between faculty and students (Holden & Mitchell, 1993; Wilson, Ryder, McCahan, & Sherry, 1996); using the internet as a classroom tool (Eggers & McGonigle, 1996; Farquhar, McGinty & Kotcho, 1996); distance learning (Zhu, 1996); and the positive effects of email in the classroom setting (DeLoughry; 1993;1996).

However, there has been little research on developmental outcomes associated with the use of email among college students. Research on how to use email is fairly

extensive (Caswell, 1988; Trudell, Bruman, & Oliver, 1984; Wilson, 1983; Wishnietsky, 1991), but studies on the impact email has on the people who use it is limited. A review of the literature revealed only two such investigations. One focused on how faculty use and perceive email (Kandies, 1994). The second (Carter & Elasmr, 1996) found that students who use and like their computers tend to use email more than students who do not use and dislike computers. An extensive search of the literature revealed no studies on outcomes associated with student use of email.

Not only is research on how college students use email limited, but no research has been conducted on how that use varies by gender. What little literature can be found focuses on the differences in general use of technology by gender, not use of email. For example, studies have shown that males tend to have a more positive attitude toward computers than females (Wilder, Mackie & Cooper, 1985) and that men use computers more than women (Nickell, Schmidt, & Pinto, 1987). A review of the current literature revealed no research specifically on gender and email, however. The present study was designed to explore these gaps in the existing literature, and to examine the outcomes for students associated with use of technology on campus.

#### Purpose of the Study

The purpose of this study was to examine how college students use email in general. Specifically, the researcher examined if email is used in lieu of traditional behaviors that help students achieve social and academic integration in college. Students' email communications were examined to see if they could be linked to traditional behaviors associated with academic and social integration.



The data consisted of printouts of students email records; corresponding logsheets detailing the relationship between participants and the sender/receivers of messages; the general nature of messages; and, answers to email survey questions. The results of the analysis of these data were compared to lists of traditional behaviors that students engage in to achieve academic and social integration. These lists were developed through an analysis of items on three reliable and valid instruments that have been used extensively in previous research to measure academic and social integration among students.

Specifically, the present study was designed to explore the following research questions:

1. For what purpose do students use email?
2. Do college students use email in lieu of traditional behaviors that lead to social integration?
3. Do college students use email in lieu of traditional behaviors that lead to academic integration?
4. Do students' use of email differ by gender?

#### Significance of the Study

The present study had significance for both practice and research. In terms of practice, faculty might use the results to examine if their approaches to teaching which use technology in the classroom are effective methods for enhancing the learning experience for students. Such a study might provide insights into student use of email for academic purposes.

Students affairs professionals might use the results to gauge if email impacts the social life of students. Such insight might enable professionals to design programs and services to integrate the use of email into various social and out-of-class educational activities. For example, the amount of access to email available to students could be examined to see if more or less access is desirable. The location of access sites in residence halls and other community buildings might be examined to determine if such sites provide reasonable and sufficient access.

Administrators on college campuses might use the results to make email more or less available to all on their campuses, create or amend policies regarding its use, and maintain an awareness of the hazards of such access. For instance, total student time using email might be monitored yearly. This data could be used to examine how much, how often, and from which sites students are using email. This information could aid in the formation of policy for email use.

This study also had significance for future research. Future studies may wish to examine differences in the extent of email use by students at various academic levels (e. g., lower-division versus upper-division versus graduate students). Such research might reveal whether use varies over time.

Professionals might wish to examine whether accessing email in community settings, like computer labs, leads to different outcomes than when access is provided in more isolated settings like individual rooms. This type of research might lead to changes in the way campuses provide access to technology.

Finally, scholars may wish to study student use of email at different types of campuses. For example, students at small liberal arts schools may use email in a very different way than their counterparts at community colleges or large public universities.

### Limitations

Like all research, the present study was not without some limitations. First, the research only examined first year students who lived in residence halls that had ethernet connections. Limiting the sample to on-campus students with one specific type of email access may have skewed the results.

Second, the sample included only students who had access to computers and email. If the study had been conducted with students who didn't have computers or easy access to computers the results may have varied.

Third, this study used volunteers as participants. The participants who volunteered for this study may have differed in some way from non-volunteers. This possibility could have skewed the results in some unforeseen way.

A fourth limitation was the timeframe for data collection (October-November). This timeframe may have been inconvenient for some students who, therefore, chose not to volunteer for the study. This might have excluded some potential respondents whose participation could have altered the results.

Fifth, the study was designed to examine 24 participants over a three week timeframe. A larger sample, or a longer data collection period might have produced different results.

Despite these limitations, however, the study examined an emerging element of technology and one not examined extensively in previous research. This study was also valuable in that it provided data about what students use email for, and what types of academic and social integration they achieve while doing so. This study also provided a methodology that future researchers might replicate or modify to further explore this topic.

#### Organization of the Study

This study is organized in five chapters. The Introduction presented the background behind, and purpose of the study. The second chapter reviews the current research on the topics of email and social and academic integration of college students. Sample selection, instrumentation, and procedures used to gather and analyze data are discussed in Chapter Three. The fourth chapter summarizes the results of the study. These results, and their implications for future practice and research are discussed in Chapter Five.

## CHAPTER 2

### LITERATURE REVIEW

The present study had several objectives. First, the researcher analyzed instruments frequently employed to measure academic and social integration. This analysis led to the development of lists of traditional behaviors that lead to such integration. Second, the researcher collected data on how students use email. These uses were compared to the lists of traditional behaviors to explore how students might be using email to achieve academic and social integration. Differences in email use by gender were also explored.

To this end, the literature review was organized around the objectives of the study. First, three instruments that are frequently used to measure academic and social integration are described. Then, research that employed these instruments to study academic and social integration is examined. Attention is then directed to the second objective. The researcher examined the literature on the use of technology in general, the use of technology among campus constituencies and the use of technology and gender. This is followed by a discussion on the particular component of technology which formed the focus of the present study, email. Email as a form of technology is examined, followed by a review of the literature on email use among college students.

#### Academic and Social Integration Instrumentation

Since academic and social integration are elusive concepts to measure, a number of instruments have been created by researchers to examine such

integration across time and constituencies. The instruments developed by these researchers in their studies all measure a wide variety of student outcomes. The instruments are all organized around multiple sections, and some measure one outcome, while others measure multiple outcomes. For purposes of the present study, three instruments are reviewed. It was necessary to describe each instrument, the purpose of the instrument, how it was developed, and its reliability.

The Student Developmental Task and Lifestyle Inventory (SDTLI) (Winston, Miller, & Prince, 1987) measures student outcomes in the areas of career, emotional, intellectual, physical, and social development. It was designed for use among traditional-aged (17-23 year old) undergraduate college students. Its main goal was to provide an instrument that measured specific behaviors that students acquire while in college.

The instrument consists of 140 true-false questions divided into three developmental task categories: Establishing and Clarifying Purpose; Developing Mature Interpersonal Relationships; and, Academic Autonomy. The SDTLI (Winston, Miller, & Prince, 1987) measures the number of behaviors that students engage in to further their development in these categories. It has a high degree of reliability and validity and was normed on data collected from undergraduates at 20 different colleges and universities in North America. Short-term test-retest coefficients ranged from .70 to .87, and one-year (long-term) coefficients ranged from .53 to .80.

The Student Opinion Survey (SOS) (American College Testing Program, 1990) measures student outcomes in the areas of emotional, intellectual, and social development. Additionally, it measures involvement in college life, and satisfaction with that experience. Targeted for use among traditional aged college students, the purpose of this instrument is to measure student satisfaction with their college experience and their perceptions of their college's programs, services, and environment.

The instrument contains 42 multiple-choice questions, a rating scale, and checklist items. These are divided into sections that include: biographical information; frequency of use of college services; and, satisfaction with college environment. The instrument has high degrees of reliability. The reliability coefficients on test- retests ranged from .90 to .98. Validity is based on the literature, consultation with content experts, and a pilot test of the instrument.

The College Student Experiences Questionnaire (CSEQ )(Pace; 1979, 1990) was designed to measure: social and intellectual development, involvement in college life, and satisfaction with the college experience. Pace designed this instrument to examine how students spend their time while in college, and the nature and quality of their activities.

The instrument is comprised of 190 items measured on a Likert-type scale. The items are organized into five sections: biographical information, college activities, opinions about college, college environment, and estimate of gains. Items seek to measure student effort or involvement in a wide variety of academic and

social areas. Reliability and validity testing has been conducted, and a recently revised (1990) set of normative data based on over 20,000 test administrations reported the alpha reliability as ranging from .79 to .90 for all scales.

All three instruments include items that elicit data regarding student behaviors. Some of these items pertain to behaviors that lead to academic integration. In some instances, items regarding behaviors that lead to academic integration are contained in one or two sections of the instrument. In other cases, they are scattered throughout the instrument. For example, on the SOS (American College Testing Program, 1990), items related to academic integration behaviors are located in the College Services section and the College Environment section. On the SDTLI (Winston, Miller, & Prince, 1987), items regarding academic integration are located in the Education, Career, and Lifestyle section and the Relationships and the Academic Environment Scale. On the CSEQ (Pace; 1979, 1990), most items related to academic integration are in sub-sections of the College Activities section, such as Experiences with Faculty, and Course Learning.

These instruments also elicit data about behaviors that lead to the development of social integration skills. These items tend to be more extensive, and more widely scattered throughout the instruments. For example, on the SOS (American College Testing Program, 1990), items related to social integration behaviors are located in the College Services section, and the College Environment section. On the SDTLI (Winston, Miller, & Prince, 1987), items regarding social integration are located in all three sections of the survey: the Education, Career, and



Lifestyle section; the Intimate Relationships section; and, the Relationships and the Academic Environment Scale. On the CSEQ (Pace; 1979, 1990), items related to social integration are in sub-sections of the College Activities section, such as: Art, Music, Theater; Athletic and Recreation Facilities; Student Union; Clubs and Organizations; Student Acquaintances, and Campus Residence.

### Research on Academic and Social Integration

Given this overview of the three instruments most widely used to measure academic and social integration, it was important to exam the research that has employed the instruments. These studies can be organized in two sections: those that focus on academic integration and those that focus on social integration.

#### Research on Academic Integration

Researchers (Nettles, Theony, & Gosman,1984) used the SOS (American College Testing Program, 1990) to measure differences in college performance among students of different racial groups. The researchers found that White students earn their degrees at faster rates and have higher grade point averages than African-American students. Results also revealed that a high rate of faculty contact increases students' grade point averages.

The SOS (American College Testing Program, 1990) has also been used to examine factors that contribute to student persistence. A single sample of participants was surveyed as first year students and again four years later. A positive experience with an academic advisor was the only variable identified in both

administrations of the instrument as an important factor in contributing to persistence (Beil & Shope, 1990).

Other researchers have used the CSEQ (Pace; 1979, 1990) to evaluate academic integration of students. One study (Sell, 1988) examined over 1,200 undergraduates at a large state university. The results revealed that the more conversations students have with both other students and with faculty regarding their course work, the more they gain academically.

Students who have a high degree of faculty contact and those who discuss career plans with faculty report a greater enthusiasm about their institution than those who do not engage in those behaviors. Among students with limited faculty contact there is a diminished sense of community (Pfnister, 1988).

Another study (Mohammadi, Lee & Schaffer, 1996) surveyed community college students using the CSEQ (Pace; 1979, 1990) and found that respondents who use the academic services provided by the college have a greater persistence rate. Academic services included both faculty assistance and academic advising. In a related study, Bauer (1992) used the responses to the CSEQ (Pace; 1979, 1990) to examine persistence and academic integration. Results revealed that women and those with high grades report the highest rates of persistence and academic integration.

The SDTLI (Winston, Miller, & Prince, 1987) is the third instrument selected for inclusion in the present study. As with the SOS (American College Testing Program, 1990) and the CSEQ (Pace; 1979, 1990), the SDTLI (Winston, Miller, &

Prince, 1987) has been used in numerous studies. For example, this instrument was administered to 173 students at a large state university. The findings indicated that involvement in academic learning is a more significant influence on academic success than is commitment. This implies that being involved and active in learning are more important than simply being committed to doing well. In other words, actions speak louder than words (Niles, Sowa, & Laden, 1994) .

### Research on Social Integration

Research has also been conducted on social integration among college students using these same three instruments. The SOS (American College Testing Program, 1987), CSEQ (Pace; 1979, 1990), and SDTLI (Winston, Miller, & Prince, 1987) were designed to measure not only academic integration behaviors but also to examine student behaviors that lead to social integration.

In a longitudinal study conducted by Beil and Shope (1990) using the SOS (American College Testing Program, 1990), results revealed that first year students identify satisfaction with their social life as a factor that contributes to their persistence. The same group of students completed the SOS (American College Testing Program, 1990) a second time, four years later, and reported that membership in a social organization contributes to persistence.

Other researchers (Nettles, Theony & Gosman, 1984) administered the SOS (American College Testing Program, 1990) to examine the difference in persistence rates between White and African-American students. They found that African-American students need greater social integration than White students do

to persist in college. A sample of social integration behaviors as defined by the SOS (American College Testing Program, 1990) included: being involved in residence hall services and programs; attending cultural programs; attending new student orientation; and, participating in recreational and intramural programs.

Other scholars have used the CSEQ (Pace; 1979, 1990) to study social integration and persistence among college students. Abrahamowicz (1988) studied whether involvement in a student social organization contributed to greater levels of satisfaction in college. He found that students involved in organizations report higher levels of persistence and satisfaction as well as a greater feeling of being connected with the institution.

Results of the CSEQ (Pace; 1979, 1990) revealed that women make greater gains than men in social skills in college. Additionally, those women with high grade point averages make greater gains than men in social skills while in college (Bauer, 1992).

In another study (Mohammadi, Lee & Schaffer, 1996) that employed the CSEQ (Pace; 1979, 1990), the researchers found that students who take advantage of the social organizations on campus are more likely to persist. Also, students who utilize the leadership opportunities afforded them persist at higher rates.

Involvement in social organizations, rather than commitment to those organizations, is a more significant influence in achieving social integration. What a student actually does is much more important than how they feel (Niles, Sowa, & Laden, 1994).

The SDTLI (Winston, Miller, & Prince, 1987) was employed to survey students who were either employed by, or volunteered for, a student union extra-curricular group. Results suggested that there are no differences in the experiences and growth of student employees versus student volunteers. All students gain from being involved in the group, and social integration and satisfaction with the institution are enhanced (Alperin, 1990).

Other researchers (Cooper, Healy, & Simpson, 1994) administered the SDTLI (Winston, Miller, & Prince, 1987) in a longitudinal study of students involved in extra-curricular groups. They examined what students gained from their involvement and found that the more involved a student is in a student group the more social growth they experience. Students who hold leadership roles in student groups experience the most social growth.

Given this overview of the literature on traditional behaviors that promote academic and social integration, attention was turned to the second objective of the present study. Literature on technology in the field of higher education is reviewed by the researcher.

### Technology in Higher Education

Technology has made rapid advancements in recent years. Technology is changing the world as we know it and changing the way that the world communicates. The term “Infostructure” has been coined to reflect the rapid exchange of information that can occur instantaneously thanks to technology (Day & Horner, 1994). Since the present study was designed to examine one form of

technology, it was first necessary to review the literature on technology in general. This review focuses on two topics: the use of technology among campus constituencies; and, the use of technology and gender.

### Use of Technology Among Campus Constituencies

Students who are academically and socially integrated spend time communicating with faculty, staff and peers. This communication takes place both in-class and out-of-class, and in the other venues where extra-curricular activities are held (Pascarella & Terenzini, 1991). The advent of new methods of communication through technology has broadened the traditional definitions of communication, especially in higher education.

For example, groups of students from two different campuses who were taking a graduate seminar, co-taught by two instructors, were examined in one study. The students were connected by video and audio and used technology as a tool to promote discussion outside of class. Evaluations revealed that students believed they had more control over their own learning by deciding on their own participation level (Zhu, 1996). This is an important factor in becoming academically integrated because it acknowledges how students play a role in their own academic development.

Another study (Foa, 1993) found that full professors and those at executive levels in higher education had the hardest time taking the lead in using technology, perhaps because they belong to the pre-computer generation. This would suggest

that students, who have grown up using computers, may experience an easier transition to using technology than those who teach them.

Researchers have also studied computer confidence as a component of academic persistence among 543 traditional aged community college students. They found that the more comfortable students are with computers, the higher their academic persistence. This study suggested that it is important to make students comfortable with the technology specific to a particular campus. This should be done during a new student orientation program, or as early as possible in the students' first year (Sherry & Sherry, 1996).

Technology separates people into two groups: people who are comfortable with technology and its use; and, those who are intimidated by technology and uncomfortable using it. This separation seems to extend to peoples' use of other forms of technology (Muffo & Connor, 1987).

### Use of Technology and Gender

The present study examined differences in the use of one particular form of technology (email) and gender. An extensive review revealed no studies on that particular form of technology and gender. However, the scholars have examined gender differences and the use of technology in general.

For example, Wilder, Mackie and Cooper (1985) found that elementary and secondary school students perceive using computers to be more appropriate for boys than for girls. The same study found that males have more positive attitudes toward computers than females.

Another study (Nickell, Schmidt, & Pinto, 1987) examined computer use of college students and found that males use computers more frequently than females. Males also expect more positive outcomes from their computer use, such as: making it easier to complete their undergraduate degrees; helping them obtain jobs after graduation; and, earning more money in the future.

Trends that suggest that men prefer technological fields while women shy away from them. If these trends are not reversed, it may present future occupational problems for women in technology fields (Lockheed, 1985). Wilder et al. (1985) found that science and math were perceived as subjects more appropriate for and more liked by boys, while writing was more appropriate for and more liked by girls. The researchers suggested that this finding helped to explain some of the gender differences with respect to computer use. But these findings also raise an intriguing question with respect to gender and email use. Email is a combination of computer use and writing. If males are more likely to prefer computers, but females are more likely to enjoy writing, what differences by gender might be revealed in an examination of students' use of email? This led to a review of the literature on the particular form of technology examined in the present study, email.

#### Email as a Form of Technology

Email is one application of technology that provides a community network through which people can correspond and communicate. Since technology tends to isolate people, it is important that people continue to communicate. Email provides



that unique opportunity to reach out and stay connected, while at the same time still using technology.

Email has introduced a new form of communication. Caswell (1988) offered the following definition of email:

Electronic mail is the generic name for non-interactive communication of text, data, image or voice messages between a sender and designated recipients by systems utilizing telecommunication links. Although the heart of electronic mail may be non-interactive communications, its soul is people communicating with people. (p. 2)

Scholars argue that this new form of communication will impact the future in unforeseen ways. Wishnietsky (1991) predicts that:

today's students will soon find themselves in a society in which the computer will be more common than the telephone....The computer has quickly become one of the most powerful forces molding society, and it will have an enormous impact on the lives of our students. (p. 7)

In general, email is a new form of communication that has its own characteristics, requires users to employ a new set of social skills, and generates communications that might otherwise not occur (Wilson, 1983).

Although email is a fairly recent phenomenon, Kinsley (1996) suggested that 1996 was the year people stopped asking, "Do you have email?" and started asking, "What is your email address?" He argues by the end of 1997, people will be

outraged with those who do not have an email address for business purposes. It has become as commonplace as having a telephone number.

Email, however, differs from other forms of communication. It tends to be less formal, and more like a written conversation. Dolle (1994) calls it a combination of phone calls, written messages, and CB-radio chatter. It is also a form of communication that, unlike most others, takes place at a time and location of one's own choosing (Wilson, 1983).

Consequently, the widespread availability of email networks has changed the way many students and professors communicate, conduct research, design courses and complete course work (Kurshan, 1990). Faculty and students communicate about coursework in different ways due to the invention of email (Holden & Mitchell, 1993; Wilson, Ryder, McCahan & Sherry, 1996).

However, there are certain email features that both students and faculty require before they will engage in its use. Holden and Mitchell (1993) found that both faculty and students require 24-hour access from both home and office, as well as low cost access. Other studies found that when compared to regular U.S. Mail, most people actually consider email to be more private, secure, and less invasive and therefore regard it as a more personal form of communication (Swartz & Walters, 1995).

Other researchers (Muffo & Connor, 1987) found there is a social effect of email (e.g., humor, one-up-manship) that can leave non-users feeling left out. They also reported that email users tend to congregate in similar places (i.e., around

computers), a behavior that also contributes to separation between users and non-users.

Although email is a fairly recent addition to communication in higher education, there has been a relatively extensive amount of research conducted on how college students use it. One study (Wilson, Ryder, McCahan & Sherry, 1996) examined seven professors and 66 students and found that most of the participants are online from both home and office and that the participants have good email access. Results also revealed that the participants have different reasons for using email, which tend to cluster in four groups: local access and communication; academic research; collaboration with colleagues; and, sharing information.

Hawley, Moore, Chuang, and Angeli (1996) studied 12 faculty and graduate students to determine their use of, and feelings about email. All of the participants were categorized as frequent users. The researchers found three major categories of use: personal, class use, and collaboration. These results were similar to Wilson's (1983) findings on the same topic. In that study, subject feelings about email fell into positive and negative categories. Positive characteristics about email included its unobtrusive nature, convenience, efficiency. On the negative side, participants reported that email sometimes is overwhelming due to the number of messages received and that it is hard to communicate feelings and complex issues through email.

Russell (1996) studied how older, non-traditional students acquire technology skills. The study found that the more familiar participants are with technology, the

less anxiety they have and the more they learn. This study suggested that professors may need to pay special attention to the needs of adult learners.

Another study looked at the concept of “dialog momentum” and email use (Farquhar, McGinty & Kotcho, 1996). Dialog momentum was defined as the ability to access e-mail and respond to messages in a timely fashion. Results revealed that the expected dialog momentum did not occur because participants did not have convenient access to technology. The conclusion of the study was that accessibility is key to student use of technology.

### Conclusion

Despite the relatively extensive research on academic and social integration, technology in general, and email in particular, a thorough review of the literature revealed no research on the use of email as it relates to academic and social integration of college students. While academic and social integration have been examined in terms of traditional communication methods such as out-of-class meetings and amount of time spent socializing with peers, no research has been conducted on achieving academic and social integration through the use of email. The present study sought to address this gap in the existing literature on academic and social integration among college students. With the advent of email technology, and the fact that students are using this technology in ever increasing numbers, research on this topic is both timely and relevant.

## CHAPTER 3

### METHODOLOGY

The purpose of this study was to examine first year college students' use of email, and how students use email to achieve academic and social integration. To examine students' use of email, email messages were gathered from a sample of participants who also completed an email survey about their email practices and the purposes for which they used email.

To explore whether students use email to achieve academic and social integration, a several instruments used to measure academic and social integration was analyzed. This analysis resulted in a list of traditional behaviors employed by students to achieve academic and social integration. This list of traditional behaviors was employed to guide the analysis of the email messages.

Specifically, the research questions explored in this study included:

1. For what purpose do students use email?
2. Do college students use email in lieu of traditional behaviors that lead to social integration?
3. Do college students use email in lieu of traditional behaviors that lead to academic integration?
4. Do students' use of email differ by gender?

#### Sample Selection Procedures

Given the nature of this study, two samples were selected. The first sample included instruments which have been used in research to measure academic and

social integration. These instruments were analyzed to identify traditional behaviors that students have used to achieve academic and social integration. The second sample included the student participants who collected data on their email messages and responded to an email survey.

### Selection of Instruments

For purposes of the present research, a comprehensive list of traditional behaviors associated with academic and social integration needed to be identified. The researcher elected to compile that list from nationally normed instruments that measure academic and social integration. A panel of three experts was consulted to identify instruments that measure academic and social integration. Additionally, these experts were consulted regarding their knowledge about research using the instruments they recommended. The researcher then selected instruments that all three experts mutually agreed upon as good measures of academic and social integration. Three instruments were chosen, as that seemed a reasonable number to analyze.

### Participant Selection

#### Profile of Potential Respondents

The population to be examined in this study were first year students at a large, public, research institution enrolling 26,000 students, of whom 18,000 were undergraduates. There were over 8,300 students who lived on campus at the time of the study. All first year student students at the institution under study are required to live on campus. In the fall of 1997, there were approximately 4,000 first year

students residing in the 23 undergraduate residence halls. The sample for this study included traditional-aged (17-19 years old), first year students. All participants resided on campus and all used email.

### Sample Recruitment

Twenty (20) traditional-aged, first year students were recruited to participate in the present study. First year students were selected because it was assumed that they would be less integrated (academically and socially) into the campus. Hence, first year students might be more likely than their upper division classmates to engage in behaviors to achieve such integration.

For purposes of this study, students who graduated from high school in the spring of 1997 and who matriculated at the institution under study in the fall of 1997 were defined as traditional aged. Since the institution under study requires all first year students to live on campus, all of the participants in the study were on-campus residents.

The number of academic units earned by a student was not a factor in participant selection. Rather the number of years spent on campus was examined. Some students enter college with college credits that they have earned in high school. For the purpose of this study, the time spent in college was a more important factor than actual academic units earned by a student.

Volunteers were solicited through flyers that were posted in selected residence halls on campus (see Appendix A). Flyers were posted in only residence

halls that were equipped with ethernet access. This approach was taken so that all participants had the same type of access to their email.

### Sample Selection

The study required participants to be first year, on-campus students who used email through an ethernet connection. Students were also required to consistently check their email on a single computer so that they were able to keep a complete log of their email messages on a single machine. In most cases, this meant participants had their own computers.

The recruiting flyer asked students to contact the researcher by telephone if they were interested in participating in the study. All students who telephoned were screened to see if they met the requirements for the study. The researcher asked all callers a series of questions to see if they met the requirements for the study (e.g., did they live on campus, did they use email). The researcher also verified that the callers were traditional aged first year students, that they had graduated from high school in the spring of 1997, and that they enrolled at the institution under study in the fall of 1997.

Further questions were asked of the callers to ensure that they either had their own computer or were able to access their email account from one site throughout the data collection period (October 29 through November 18, 1997). The researcher verified that callers would be available to monitor their email activity during the data collection period and that they would agree to keep all incoming and outgoing email messages and maintain a log regarding those same messages for



the purpose of this research. See Appendix B for details on the protocol used when screening potential participants.

If callers answered “No” to any of the screening questions, they were informed that they did not meet the qualifications for the study. The researcher thanked them for their interest and did not select them for the study.

Callers who met the qualifications for inclusion in the sample and were interested in participating were selected to participate. The screening process was repeated until 20 participants were selected, 10 first year males, and 10 first year females. An equal number of males and females was chosen for the study so gender issues related to email could be analyzed. A total sample size of 20 was chosen because the researcher believed that such a sample size would yield a significant amount of data yet still be manageable. Two additional male students and two additional female students were chosen as alternates in case there was attrition over the course of the study.

At the time of the telephone screening, students were asked to select one of two initial informational meetings to attend. Attending one of the two meetings was a requirement for participation in the study.

#### Data Collection Procedures

Two separate data collection procedures were conducted for purposes of this research. First, data were collected on traditional behaviors associated with academic and social integration. Second, participants collected data on their email use.

### Instrument Data Collection

The first data set related to the present study included lists of traditional behaviors associated with academic and social integration. These lists were compiled by conducting an analysis of the items on the three instruments selected for inclusion in this sample. Originals of each of the survey instruments were obtained from the Academic Assessment Program Office at the institution under study.

### Participant Data Collection

Participant data was collected in four stages: Initial Preparations and Participant Solicitation and Screening; Informational Meetings; Collection of Data by Participants; and, the Compilation of Participant Data.

#### Initial Preparations and Participant Solicitation and Screening

In the first stage, the researcher made initial preparations and solicited participants. Approval to conduct research was obtained from the Institutional Review Board for Research Involving Human Subjects (IRB) at the institution under study. Once the participants were selected, and IRB approval had been obtained, the researcher was ready to conduct the informational meetings.

#### Informational Meetings

Participants agreed to attend one of two informational meetings during their telephone screening with the researcher. As an additional reminder, several days before the meetings the researcher sent all participants an email message reminding them of the location, date and time of the meeting.

Two meetings were conducted and the same protocol was followed at each meeting. While holding two meetings meant that not all participants were trained in the same session, the researcher felt that meeting with smaller groups would provide an atmosphere where participants would receive more individual attention and would feel more comfortable asking questions. This advantage outweighed any disadvantage that was incurred as a result of holding two participant meetings, rather than one.

Each meeting began with a review of the requirements and responsibilities of the participants. These responsibilities included: being available to collect data during the research timeframe; agreeing to keep all email messages sent and received during that timeframe and maintain logs about those messages; and answering the email survey questions sent to them by the researcher.

Participants were required to provide two sets of data to the researcher; one related to email messages they sent out and one related to email messages they received. Each data set consisted of two elements. The first element was a printout of all messages sent (or received) during the data collection period. The second element consisted of a log on which the participants elaborated on each message sent (or received). Specifically, participants logged information regarding the nature of their relationship with the recipient (or sender) of all their email messages. They also logged details about the general nature of each message. These data allowed the researcher to categorize how students were using email in their lives, and examine

whether participants were using email in lieu of traditional behaviors associated with academic and social integration.

Participants also were required to answer a series of six email survey questions that provided the researcher further data about the research questions posed in the study. The survey questions related to the research questions and were sent out every three days during the data collection time period. The email survey is described in greater detail below.

The researcher then described the procedures for gathering the data on both incoming and outgoing email messages. Samples of both incoming and outgoing email mailbox printouts were distributed (see Appendices C and D). Instructions detailing the steps necessary to program the participants' computers to produce printouts of incoming and outgoing mailboxes were also distributed and discussed (see Appendix E). Instructions for both IBM and Macintosh computers were available.

The researcher provided directions for maintaining the log sheets which were required of participants. A supply of log sheets was distributed and participants were instructed where they could pick up additional copies of log sheets if needed. The logsheets required participants to note their relationship to the people with whom they corresponded and the general nature of their messages to/from others.

Procedures for identifying the relationship of the email sender or recipient were discussed. A list of possible categories of email senders and recipients was distributed (see Appendix F). The list was designed to suggest general categories of

relationships and illustrate subgroups within each general category. The main categories included: Family; Friends; Faculty; Classmates; and, Extra-curricular contacts. Subgroups identified specific individuals within that category. For example, subgroups in the “Family” category included: Mother, Father, and Grandparents. The categories and subgroups were designed to demonstrate to participants the wide range of people with whom they correspond via email. Students were encouraged to expand upon this list if necessary and to be as detailed as possible in describing their relationship to the senders and recipients of their email messages.

The researcher instructed the participants about logging the general content of each message sent or received. For example, if a participant had received a lengthy email from a parent about siblings, relatives, and travel plans for a visit, the corresponding entry in the logsheet should reflect that these topics were covered in that particular incoming message. Respondents were asked to be as detailed as possible in their logs to facilitate the analysis of data.

A laminated card reminding the participants about their involvement in the study was distributed to all participants (see Appendix G). This card had adhesive on the back and could be fastened to the participants’ computers as a visual reminder to save all email messages for the duration of the study.

The researcher then described the steps participants would take to respond to the email survey portion of the study. Participants were told that survey questions would be sent every three days during the data collection period. The researcher

explained that the survey questions were included in the study to gather further information regarding the participants' feelings and attitudes about email use, and how they perceived its role in their lives. While the participants were urged to respond to the survey questions as quickly as possible, no deadline for their responses were set. This was a purposeful decision. By not setting a response deadline, the researcher could analyze how quickly students responded to the questions, which might offer insight into how often they were checking their email during the data collection period.

Each participant also signed an agreement to complete the study, supply the agreed upon printouts and logs of both incoming and outgoing email messages, and answer periodic survey questions sent to them by the researcher. If any of the requirements was not completed, the participants agreed to return the initial incentive of \$10 and were not eligible to receive the remaining \$30 incentive. Participants also signed informed consent forms before leaving the meeting.

The incentive for participating in the study was a cash award of \$40. An initial payment of \$10 was made to the participants at the conclusion of the informational meeting. The remainder of the incentive was issued at the conclusion of the study, once all relevant documents were submitted to the researcher. See Appendix H for details on the protocol used at the information meetings.

#### Collection of Data by Participants

Once the participants had received instructions, the third stage, data collection began. Data were collected for a period of three weeks beginning at 12:00 a.m. on

Wednesday, October 29, 1997 and concluding at 11:59 p.m. on Tuesday, November 18, 1997. This time period was chosen by the researcher for a number of reasons. First, it provided the researcher sufficient data to adequately address the research questions posed in the study. The researcher attempted to obtain data from the office of Computer Network Services (CNS) on the average number of student messages sent and received on a daily basis. This information was not available from CNS. However, the CNS Office does maintain records of the number of email messages delivered to all users on campus (i.e., faculty, staff, and students). The time of year selected to collect data (late-October to mid-November) is one of the times email delivery is most heavy on campus. Appendix I provides details about messages delivered on a monthly basis. It was hypothesized, therefore, late-October to mid-November was also a time that many email messages were sent.

Second, by October 29, 1997 participants (who were all first year students) had been on campus long enough to have become comfortable using the university's email system. This meant that during the data collection period they had already established a pattern to their email usage and were knowledgeable about how to use their computer and software.

Third, participants had a reasonable amount of time to become adjusted to their new environment and their studies. They were not just beginning to cope with these issues, a fact that may have influenced the study or their email usage.

Fourth, the timeframe allowed for some social and academic adjustment to have occurred for participants, but not enough time for students to have completely

adjusted. This meant that while students could have started academically and socially adjusting, they were capable of engaging in these behaviors both in traditional ways and through email during the data collection timeframe.

Finally, the data were collected before the Thanksgiving Break so as not to compete with final exams or the stress usually associated with the semester's end. Collectively, these reasons provided compelling support for the selected data collection time period.

During the three weeks participants were keeping records of their incoming and outgoing email messages, the researcher emailed the participants every three days to make sure that they were following the research protocol. Each email from the researcher contained one question from the email survey. Asking survey questions throughout the data collection timeframe provided the researcher insight into whether the participants were checking and responding to their email in a timely fashion.

The survey questions were designed to elicit further information from the participants about how they incorporated email into their lives, and how they used email to achieve academic and social goals. The first four survey questions were designed to gain information on what students used email for, while the last two questions were aimed at finding out how students used email in relation to their academic and social lives. Appendix J provides details on each of the survey questions, when they were sent to participants, and how they related to the research questions posed in the study.



### Compilation of Participant Data

Three days prior to the end of the data collection period, a final email message was sent to all participants that provided details about when and where they should submit their collected data. Participants were asked to bring all printouts and completed logs to the researcher during a two-day time period. The researcher was available at a central campus location for at least six hours on each of the two days. If none of these times were convenient for the participants, they were able to make other arrangements to meet the researcher.

When participants arrived with their materials, the researcher checked the printouts and logs for accuracy and legibility. The researcher also ensured that responses to all survey questions had been submitted, and clarified any questions she had about the responses. After confirming the accuracy of the participants' current telephone number and email address in case further follow-up was needed during the data analysis, the final incentive payment of \$30 was dispensed.

### Data Analysis Procedures

Data analysis was undertaken in a systematic and thorough manner to answer the research questions posed in this study. Two sets of data were analyzed at this stage of the research. The first set of data (instrument data) consisted of the three instruments used to generate lists of traditional behaviors associated with academic and social integration. The second set of data (participant data) consisted of all printouts, logs and survey responses submitted by participants.

### Analysis of Instrument Data

The data analysis from the survey instruments was conducted in two stages. First, all of the instruments were analyzed to identify the sections and items that related to traditional behaviors students engage in to gain academic integration. Second, all instruments were analyzed to identify sections and items that related to traditional behaviors students engage in to gain social integration. Analysis of each of these areas is discussed below.

#### Academic Integration

The researcher examined all three instruments and identified sections of the survey that related to behaviors student engage in to become academically integrated. Content analysis of the items in these sections was conducted. The researcher looked for repeated words, phrases, and ideas in the items listed on the surveys. Then similar words, phrases, and ideas were assigned to a theme.

For example, on the CSEQ (Pace; 1979, 1990), in the section “College Activities,” and the sub-section “Experiences with Faculty,” were identified as containing descriptions of academic integration behaviors. Some of the items listed in this section are: "talked with faculty member"; "visited informally and briefly with instructor after class"; "made appointment with a faculty member in his/her office"; and, "asked instructor for comments and criticism about your work." These items were all assigned to the theme “Contact with Faculty.”

Once all relevant items had been analyzed, the researcher generated a list of the types of behavior associated with each theme of academic integration. This list

was used as a guide to determine if the purposes for which participants were using email were similar to the behaviors traditionally associated with academic integration.

### Social Integration

The researcher examined all three instruments and identified sections that related to behaviors student engage in to become socially integrated. Content analysis of the items in these sections was conducted. The researcher identified repeated words, phrases, and ideas in the items on the surveys. Then similar words, phrases, and ideas were assigned to a theme.

For example, on the CSEQ (Pace; 1979, 1990), the section “College Activities,” and the sub-section “Clubs and Organizations,” was identified as containing descriptions of social integration behaviors. Some of the items listed in this section are: "read or asked about a club, organization, or student government activity"; "discussed reasons for the success or lack of success of student club meetings, activities, or events"; "met with a faculty advisor or administrator to discuss the activities of a student organization." These items were all assigned to the theme “Student Organizations.”

Once all relevant items had been analyzed, the researcher generated a list of the types of behavior associated with each theme of social integration. This list was used as a guide to determine if the purposes for which participants used email were similar to the behaviors traditionally associated with social integration.

### Analysis of Participant Data

The analysis of printouts and logs was conducted in five stages. In the first stage, the mailbox printouts and handwritten logs were compared for accuracy. The researcher checked to ensure that for every message listed on the mailbox printout there was a corresponding entry on the handwritten log. Once this was verified, the mailbox printouts were set aside, and the researcher focused only on the information contained in the handwritten logs.

The second stage of the analysis explored how participants used email. To examine students' use of email, a series of frequencies and means were calculated. Each participant's handwritten log was evaluated, and the total number of messages received was calculated, as was the total number of message sent. The total number of messages received by all participants was calculated, as was the total number of message sent by all participants. Total numbers of messages sent and received by women, and sent and received by men were calculated.

Then the average number of messages received per person was calculated, as was the average number of messages sent per person. The average number of messages received by all men was calculated, as was the average number of messages received by all women. The average number of messages sent by men, and the average number of messages sent by women were calculated. Finally, the researcher calculated the average daily number of messages sent, and the average daily number of messages received for all participants.

In the third step of the analysis, the logs were analyzed for information regarding the relationship between the participants and the senders/recipients of the messages. All outgoing and incoming messages were assigned to a category that described a certain type of relationship between the participant and the sender/recipient. For example, all email sent to or messages received from friends were assigned to a “Friends” category while all messages sent to or received from family members or relatives were assigned to a “Family” category. Then, each message assigned to a category was further assigned to a subcategory. For example, within the category of Friends, there were sub-categories such as: College Friends at the institution under study; College Friends Attending Other Colleges or Universities; and, Friends still in High School.

Once all messages were assigned to categories and subcategories, for each participant the total number of messages received in each category was calculated, as was the total number of messages sent in each category. The total number of messages received by all participants, by category, was calculated, as was the total number of messages sent by all participants, by category. The total number of messages sent and received by men in each category, and the total number of messages sent and received by women in each category were calculated.

Then the average number of messages received per person, by category, was calculated, as was the average number of messages sent per person, by category. The average number of messages received by all men, by category, was calculated, and the average number of messages received by all women, by category, was calculated.

Finally, the researcher calculated the average daily number of messages sent by category, and the average daily number of messages received by category for all participants.

In the fourth step of analyzing participant data, the general content of the messages was examined. The researcher looked for key words in the participants' descriptions of their messages. These key words were compared to the lists of behaviors generated from the analysis of the three instruments. If the key words matched the description of a traditional behavior, it was assigned to a category called "Match" indicating it matched a theme on the list of traditional behaviors, and which theme it matched. For example, if the content of a message was described as "message to professor asking for feedback on paper turned in last week" that message was assigned to the "Match" category, since it matched the traditional behavior of "asked instructor for comment and criticism about your work."

If the key words did not match a behavior on the list of traditional behaviors, but did suggest a behavior associated with academic or social integration, it was assigned to a category called "Addition" and a note was made about the specific behavior and type of integration (academic or social) that behavior might address. For example, if the content of a message was described as, "question sent to listserv for Chemistry class" that message would be assigned to the "Addition" category for academic integration. Clearly the content of the message was academic in nature, but did not match any item on the list of traditional academic integration behaviors generated from the three instruments.

If the key words did not match any of the behaviors on the list, and could not be considered behaviors to add to either list, they were assigned to a category called "No Match". For example, if the content of the message was described as, "forwarded joke to my mother", the message was assigned to the "No Match" category as it had no relationship to either academic or social integration.

Once all key words in each message had been assigned one of the three categories, the researcher examined the extent to which email was being used in lieu of traditional behaviors that lead to academic and social integration. This was achieved by calculating the percentages of messages assigned to each of the three categories (Match, Addition, No Match) for all themes within both the Academic and Social Integration lists of traditional behaviors. The results were then sorted by gender to examine differences between male and female use of email.

It was possible that themes other than "Academic" and "Social" might emerge during analysis. The researcher was careful to look for such additional themes and to analyze them in the same fashion she used for the two pre-determined themes.

The final stage of the participant data analysis focused on the responses to the email survey questions. The researcher followed a protocol parallel to that used for the analysis of the logsheets, by looking for key words in each survey response and assigning those keywords to the categories "Match", "No Match", and "Addition."

For example, phrases like " I contact people in my Chemistry class about homework a lot" would be assigned to the "Match" category as it is similar to the

traditional behavior of “talking to classmates outside of class about homework.” A comment such as “I meet many people in chatrooms, and enjoy getting to know someone on-line. It is interesting to get to know someone that way before you meet them face-to-face.” would be assigned to the “Addition” category, since this is clearly an activity that is social in nature, but does not match any traditional social behavior on the list generated from the instruments.

The researcher analyzed the email survey responses to evaluate if students felt that they used email in ways that tended to parallel traditional academic and social integration behaviors. The researcher was careful to look for additional themes that might have emerged outside of the two pre-established themes of “academic” and “social” behaviors.

#### Trustworthiness and Authenticity

Authenticity is defined as consistency of data collection and how relevant the data are to the research questions posed in the study. Miles and Huberman (1994) describe authenticity as “truth value” (p. 278). In other words, authenticity relates to whether the researcher has ensured that he/she has gained an accurate understanding of what is really happening and tried to ensure that the study is credible and understandable. Authenticity is critical to conducting rigorous qualitative research.

Authenticity in the present study was enhanced in two ways. First, the email logs of incoming and outgoing messages were a primary source. A compilation of actual email messages was not attempted. Rather, participants were asked to keep a



log of incoming and outgoing messages, so there was little violation of their privacy and little reason for them to manipulate the records. This method of data collection enhanced the authenticity of the study because data was likely to accurately reflect the participants' use of email.

Second, data included responses to email survey questions. These questions were reviewed by a panel of experts who agreed they would elicit data relevant to the study and research questions. This approach, called "peer review," is a standard means to enhancing authenticity in qualitative research (Miles & Huberman, 1994).

Trustworthiness in qualitative research is defined as the truthfulness of the data collected. Miles and Huberman (1994) describe this as conducting the research with "reasonable care" (p. 278), and being concerned with the quality of the research conducted. The trustworthiness of the present study was enhanced in two ways. The printouts required of the participants were information most students have in their email accounts. It was possible that any number of respondents could have been involved in the study and could have supplied the same email logs. Therefore, the data were reasonably truthful and were not unique to the specific sample selected for the study.

The second method used to enhance trustworthiness involved triangulation of the data. Triangulation suggests that data extracted from two or more sources enhances the trustworthiness of qualitative studies (Russell & Stage, 1992). In this study, themes identified in mailbox printouts were confirmed by the handwritten

logs, email survey responses, and lists of traditional behaviors before conclusions were drawn. The triangulation of data enhanced the trustworthiness of the study.

### Conclusion

Email printouts, logs, and a survey were employed to elicit data about the email use of traditional-aged first year student college students. The themes identified in this analysis were then compared to traditional behaviors associated with academic and social integration that were identified through the analysis of selected instruments. These techniques were judged adequate to gather data relevant to the research questions posed in this study.

## CHAPTER 4

### RESULTS

To explore the academic and social purposes for which students use email, participants maintained logsheets for a period of three weeks. Logsheets were kept for all messages received and sent by the participants during this period. The general nature of all correspondence as well as the relationship of the sender/receiver to the participant was noted. Participants also submitted printouts of the mailboxes listing all messages received and sent which were used to verify the information provided on logsheets.

Results from the data collection are described in this chapter. First, results from the analysis of the three instruments used to create a list of traditional academic and social behaviors are described. Second, a description of the participants is provided. Finally, the results of the logsheet data analysis are detailed. This analysis is broken into four distinct areas: descriptive statistics about the general email activity of participants; analysis of relationships between participants and correspondents; analysis of academic and social behavior exhibited in email messages; and, an analysis of responses to the email survey questions.

#### Results from Analysis of Instruments

While the participants were collecting data, the researcher analyzed the three survey instruments (the SDTLI, SOS, and CSEQ) used to create lists of traditional behaviors in which students engage in to achieve academic and social integration. This was done in two stages. First, all of the instruments were analyzed to identify

items that related to traditional behaviors students engage in to gain academic integration. Second, all instruments were analyzed to identify items that related to traditional behaviors students engage in to gain social integration. Items that elicited demographic information, and that were unrelated to either academic or social integration were also identified. Results of this analysis are presented in Table 1.

### Academic Integration

The researcher conducted a content analysis of the items on all three survey instruments. The researcher looked for repeated words, phrases, and ideas in the items listed on the surveys. On the three survey instruments there were a total of 412 items. Of these, 32 items were discarded because they were items that were demographic in nature. For example, these items asked about gender, academic class and academic majors. Analysis of the remaining 380 items revealed 42 which were related to academic integration. These 42 items were then further examined to create categories of items. Similar words, phrases, and ideas among items were identified and like items were grouped into categories. Five categories emerged from the analysis: “Faculty Contact”; “Taking an Interest in Furthering My Academic Experience”; “Advising”; “Library and Research”; and, “Tutoring and Other Success Strategies.” Items assigned to the “Faculty Contact” category included, “Talked with a faculty member”, “Visited informally and briefly with an instructor after class”, and “Made an appointment to meet with a faculty member in his/her office.” For the category of “Taking an Interest in Furthering My Academic Experience” items such as “Participated in class discussions” and “Used the lounge(s) or meeting

rooms to meet with a group of students for a discussion” were assigned. The “Advising” category included items such as “I have used academic advising services” and “I have taken the initiative to set up conferences with an academic advisor within the past twelve months.” The researcher assigned items like “Asked the librarian for help in finding material on some topic” and “Used the card catalogue or computer to find what materials there were on some topic” to the “Library and Research” category. Finally, the “Tutoring and Other Success Strategies” category included items such as “Referred to a book or manual about style of writing, grammar, etc.” and “I set aside time each day to deal with schoolwork and assignments.”

A detailed list of items assigned to each of the five categories is provided in Appendix K. Each item in the appendix is coded to identify the instrument from which it came and the number of that item on that instrument.

### Social Integration

The researcher followed the same procedure to generate a list of traditional behaviors that related to social integration. The researcher looked for repeated words, phrases, and ideas in the items listed on the three instruments. Of the 338 items that were not demographic or academic in nature, 90 were assigned to the list of traditional social behaviors (see Table 1).

Further analysis revealed common words, phrases or ideas among items. Like items were assigned to categories. Ten categories emerged from the analysis: “Student Organization Involvement”; “Making and Interacting with Friends”;

Table 1

Summary of Items by Type and Instrument

Type of Item	# CSEQ Items	# SDTLI Items	# SOS Items	Total All Items
Demographic Items	16	0	16	32
Social Integration Items	59	20	11	90
Academic Integration Items	27	11	4	42
Unrelated Items	89	109	50	248
<b>Total</b>	<b>191</b>	<b>140</b>	<b>81</b>	<b>412</b>

“Interaction in Residence Halls and Dining Commons”; “Recreational Activities and Exercise”; “Self-Help Activities”; “Leadership Activities”; “Career Exploration”; “Multicultural, Fine Arts Activities, and Speakers”; “Miscellaneous Social Activities”; and, “Organization of Time.”

In the category of “Student Organization Involvement”, items such as “Read or asked about a club, organization, or student government activity” and “Attended a meeting of a club, organization, or student government group” were included. Items that were assigned to the “Making and Interacting with Friends” category included “Sought out a friend to help you with a personal problem”, “Asked a friend to tell you what he/she really thought about you”, and, “Made friends with students whose academic major field was very different from yours.”

The “Interaction in Residence Halls and Dining Commons” category included items such as “Have used food services” and “Attended social events put on by the residence unit” assigned to it. The researcher assigned items like “I plan my week to make sure that I have sufficient time for physical exercise” and “Was a spectator at college athletic events” to the “Recreational Activities and Exercise” category.

Assigned to the “Self-Help Activities” category were items such as “Read articles or books about personal adjustment and personality development” and “Talked with a counselor or other specialist about problems of a personal nature.” The “Leadership Activities” category included items such as “Worked on a committee” and “Helped plan or organize an event in the residence unit.”

The researcher assigned items like “I have used career planning services” and “I know where to find information about the prospects for employment in any occupational field” to the “Career Exploration” category. Assigned to the “Multicultural, Fine Arts Activities, and Speakers” category were items such as “Talked about music with other students at the college” and “Gone to an art gallery or art exhibit on the campus.”

The category of “Miscellaneous Social Activities” included items such as “Have used the college mass transit services” and “Voted in a student election.” Finally, items such as “I make time in my schedule for my hobbies” and “In my leisure time I regularly read novels or magazines” were assigned to the “Organization of Time.” category.

A detailed list of items assigned to each of the 10 categories is provided in Appendix L. All items in the appendix are coded to identify the instrument from which items came and the number of that item on that instrument.

Once analysis of the instruments was completed, the researcher analyzed the participants and the data provided by the participants on their logsheets. The following sections detail the results of this process.

### Participants

Participants were solicited through the procedures outlined in Chapter Three. Twelve men and 12 women agreed to participate in the study. This group of 24 included four extra participants (two men and two women) because the researcher had anticipated some attrition among the participants over the course of the study. All 24 participants attended one of the two informational meetings held prior to data



collection. One male participant failed to turn in his logsheets and printouts at the conclusion of the study and was dropped from the study. Consequently, the results reported here are based on data provided by 12 female and 11 male participants.

All participants collected data during the predetermined timeframe of three weeks.

When the data were submitted to the researcher at the end of the data collection period, all logsheets were checked for clarity and to ensure that all messages sent or received had a completed entry on the corresponding logsheet.

Once all logsheets and printouts had been collected, data analysis began. All messages were counted by participant and tallied by gender. The logsheets were analyzed next.

Finally, the email survey responses were analyzed.

### Logsheets Analysis

#### General

A total of 4,903 messages were received and sent by the 23 participants over the three week data collection period. Of these, 300 messages were generated due to the participants' involvement in the research study (e.g., sent to the researcher in response to email survey questions). These 300 messages were eliminated from the analysis to get a more accurate picture of participants' typical email use. This left a total of 4,603 messages to be analyzed. Messages received compromised 70% (3,213) of all messages, while the remaining 30% (1,390) were messages sent by the participants. See Table 2 for details on messages sent and received.

The participants' use of email varied, as evidenced by the range of email activity. For men, total messages (both sent and received) ranged from a low of 74 messages to a high

Table 2

Summary of Messages Sent and Received by Gender

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Gender	Messages Received n (%)	Messages Sent n (%)	All Message n (%)
Men	1,511 (69)	686 (31)	2,197
Women	1,702 (71)	704 (29)	2,406
Total	3,213 (70)	1,390 (30)	4,603 (100)

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of 336 messages. The range for total activity by women ranged from a low of 62 messages to a high of 367 messages. The range for messages received by men varied from a low of 45 messages to high of 252 messages, and the lowest number of messages received by women was 55 messages, with a high of 215 messages. Messages sent varied as well, with a low of 21 messages and a high of 138 messages for men. The range for women of messages sent was a low of 7 messages and a high of 158 messages.

Overall an average of 200 messages were sent and received by the participants over the 21-day collection time period. Participants received an average of 6.65 messages per day and sent an average of 2.88 messages each day, for a total activity of 9.53 messages per day.

The researcher also examined whether email was used daily, and discovered that some participants did not have any email activity on certain days during the data collection period. Email was used an average of 15.47 days over the 21 day collection period. Originally, the researcher had intended to figure percentages and averages by participant for each category and subcategory by gender as well as the average daily number of messages sent by category. However, the researcher had not anticipated the amount and quality of data participants would provide. Given the extensive amount of data rendered by the design, it seemed prudent to analyze the content of the messages. Further analysis of percentages and averages may be conducted in the future.

### Analysis of Relationships Between Participants and Correspondents

The participants were asked to record on logsheets their relationship with the sender or recipient of each message. Procedures for identifying the relationship of the email sender or recipient were discussed at the informational meetings. A list of possible categories of email senders and recipients was distributed to all participants (see Appendix F). While the list was designed to suggest general categories of relationships and illustrate subcategories within each category, the participants were not limited to the categories listed, and were encouraged to develop new ones if appropriate. Of the 28 subcategories provided, 19 were used by the participants. Eighteen new subcategories were identified by the participants, rendering a total of 37 subcategories. Of the 18 subcategories added by participants, 10 were in the “Miscellaneous” category. For example participants added “Virtual Flowers, Cards and Gifts” and “Pastor/Priest/Youth Leader”, subcategories that did not appear on the original list of possible subcategories.

Overall, relationships with correspondents were organized into five categories: “Relatives”; “Friends”, “Professors and Classmates”; “Extra-curricular”; and, “Miscellaneous.” Of the 4,603 total messages sent and received, 583 messages (12.7%) were assigned to the “Relative” category. And an additional 2,680 messages (58.2%) were assigned to the “Friends” category. The “Professors and Classmates” category accounted for 470 messages (10.2%), while 157 messages (3.4%) were assigned to the “Extra-curricular” category. Finally, 713 messages (15.5%) fell into the “Miscellaneous” category.

A majority of the messages in each of the categories were assigned to one or two of the subcategories within that group. For example, in the “Relative” category, of the

583 total messages, 300 of them were from/to the participants' mothers, 130 from/to their fathers, and 70 from/to both their mothers and fathers. That is, 86% of all messages in the "Relatives" category were correspondence with parents. Of the 2,680 total messages assigned to the "Friends" category, 1,227 (46%) of them were from/to the participants' high school friends. In the "Professors and Classmates" category, 200 of the 470 messages assigned were from/to the participants' professors, and 197 were from/to the participants' classmates, reflecting a total of 84% of all messages in this category. In the "Extra-curricular" category, 111 (71%) of the 157 messages were assigned to the subcategory of "Leader of the Organization." For the "Miscellaneous" category, which had a total of 713 messages assigned to it, 504 messages (71%) were assigned to the subcategory of "Listserves." Table 3 provides details about the number of messages sent and received by men and women for each category and subcategory.

#### Analysis of Academic and Social Behaviors Exhibited in Email Messages

The next analysis focused on the content of the messages and was based on the descriptions provided by the participants on logsheets. The participants were instructed to provide information about the general nature of each message they had sent or received. The researcher checked all logsheets to ensure each message recorded on the logsheets had a corresponding description of the nature of the message. There were no missing data, enabling the researcher to analyze all 4,603 messages recorded by participants.

The descriptions provided by the participants were then assigned to one of the following five categories: "Academic Match"; "Academic Addition"; "Social Match";

Table 3

Summary of Relationships Between Participants and Their Correspondents by Type of Message and Gender

Relationship Category	Messages Received		Messages Sent		All Messages		Total (%)
	M	F	M	F	M	F	
	<b>Relatives</b>						
Mother	82	123	16	79	98	202	300
Father	49	32	22	27	71	59	130
Siblings	11	4	15	3	26	7	33
Aunt, Uncle, cousin	6	8	14	4	20	12	32
Grandparents	13	0	5	0	18	0	18
Mother & Father	7	0	57	6	64	6	70
<b>Sub-Total</b>	<b>168</b>	<b>167</b>	<b>129</b>	<b>119</b>	<b>297</b>	<b>286</b>	<b>583 (12.7)</b>
<b>Friends</b>							
Roommate	139	13	12	26	51	77	
Best Friend	25	115	29	34	55	149	204
Virginia Tech Friends	45	86	10	43	55	129	184

Table 3 (continued)

Summary of Relationships Between Participants and Their Correspondents by Type of Message and Gender

Relationship Category	Messages Received		Messages Sent		All Messages		Total (%)
	M	F	M	F	M	F	
	Acquaintance	67	40	27	28	84	
High School Friends	434	426	161	206	595	632	1,227
Friends from the internet	21	47	18	29	39	76	115
Friends of parents	7	7	6	0	13	7	20
Boyfriend/Girlfriend	67	98	66	93	133	191	324
Ex-boyfriend/Ex-girlfriend	76	3	55	12	131	15	201
Friend from church	21	14	6	13	27	27	54
Residence Hall friends	69	24	30	31	99	55	154
Self	2	1	0	3	2	4	6
Sub-Total	848	907	421	504	1,269	1411	2,680 (58.2)
Professors & Classmates							
Professor	62	103	18	17	80	120	200
Classmate	69	93	18	17	87	110	197

Table 3 (continued)

Summary of Relationships Between Participants and Their Correspondents by Type of Message and Gender

Relationship Category	Messages Received		Messages Sent		All Messages		Total (%)
	M	F	M	F	M	F	
	T. A.	1	17	3	3	4	
Advisor	3	27	2	2	5	29	34
College Administrator	8	3	2	2	10	5	15
Sub-Total	143	243	43	41	186	284	470 (10.2)
Extra-Curricular							
President of club I'm in	44	60	5	2	49	62	111
Fellow member of club	9	7	17	9	26	16	42
Ex-member of a club	0	2	0	0	2	2	4
Sub-Total	55	69	22	11	77	80	157 (3.4)
Miscellaneous							
Listserves/ mailing lists	250	221	29	4	279	225	504
Returned mail	1	16	0	0	1	16	17



Table 3 (continued)

Summary of Relationships Between Participants and Their Correspondents by Type of Message and Gender

Relationship Category	Messages Received		Messages Sent		All Messages		Total (%)
	M	F	M	F	M	F	
	Unsolicited mail	11	21	1	1	12	
High School Teacher	4	1	3	0	7	1	8
RDP	2	5	0	0	2	5	7
Boss of on-campus job	2	2	1	4	3	6	9
Pastor/Priest/Youth Leader		4	6	0	8	4	14 18
Former Co-worker	2	22	0	10	2	32	34
VT Tech Support	18	2	36	1	54	3	57
Virtual Flowers/cards	3	20	0	0	3	20	23
Administrative Offices	0	0	1	1	1	1	2
Sub-Total	297	316	71	29	368	345	713 (15.5)
Total	1,511	1,702	686	704	2,197	2,406	4,603 (100)

“Social Addition”; or, “No Match.” The researcher looked for key words in the participants’ descriptions of their messages. These key words were compared to the lists of behaviors generated from the analysis of the three instruments (see Appendices K and L). If the key words matched the description of a traditional academic behavior, the message was assigned to the “Academic Match” category. Messages that did not match a traditional academic behavior but were of an academic nature that would contribute to the participants’ academic integration were assigned to the “Academic Addition” category. If the key words matched the description of a traditional social behavior, the message was assigned to the “Social Match” category. Messages that did not match a traditional social behavior but were social in nature and would contribute to the participants’ social integration were assigned to the “Social Addition” category. Messages that did not fall into any of the four categories above, and were neither academic nor social in nature were assigned to the “No Match” category.

Of the 4,603 total messages analyzed, 94 messages (2.1%) were assigned to the “Academic Match” category and 274 messages (6.0%) were assigned to the “Academic Addition” category. An additional 188 messages (4.1%) were assigned to the “Social Match” category and 476 messages (10.3%) were assigned to the “Social Addition” category. The remaining 3,571 messages (77.5%) were assigned to the “No Match” category, and were neither academic nor social in nature. Table 4 summarizes the behaviors exhibited in the messages by type of message and gender.

Table 4

Summary of Behavior Exhibited in Participant's Correspondence by Type of Message and Gender

Behavior	Messages Received		Messages Sent		Messages Total	
	M	F	M	F	n	(%)
	Academic Match	24	50	8	12	94
Academic Addition	96	104	25	49	274	(6.0)
Social Match	29	110	14	35	188	(4.1)
Social Addition	144	162	80	90	476	(10.3)
No Match	1,218	1,276	559	518	3,571	(77.5)
Total	1,511	1,702	686	704	4,603	(100.0)

## Academic Behaviors

Behaviors that were academic in nature were assigned to either the “Academic Match” or the “Academic Addition” category. If the researcher could match the behavior with one on the list of traditional academic behaviors, it was assigned to the “Academic Match” category. While five subcategories of academic integration behaviors had been identified in the instrument analysis, the analysis of the email messages revealed only “Academic Match” messages related to three of these categories (“Faculty Contact”, “Advising”, and “Tutoring and Other Success Strategies”). Messages in the “Academic Match” category were further assigned to one of these three subcategories.

For example, the statement “suggestions for an English paper I’m having trouble with” (sent by a professor to a female participant) was assigned to the “Academic Match” category and the subcategory “Faculty Contact.” Another message assigned to “Faculty Contact” was “outline for a speech” (sent by a male participant to a professor).

Other messages were assigned to the “Advising” subcategory. For example, “when can I schedule an appointment?” (sent by a male participant to his advisor) and “about an upcoming meeting “ (sent by a female participant’s math advisor to her) were both assigned to this subcategory.

An example of a message assigned to the “Tutoring and Other Success Strategies” subcategory was “asking about French homework” (sent by a female participant to a classmate). The message “Advice about an English paper” (sent to a male participant by

a friend) was also assigned to this subcategory. Table 5 summarizes the number of messages in the “Academic Match” category by subtheme and gender.

Messages that were not assigned to the “Academic Match” category but were clearly academic in nature were assigned to the “Academic Addition” category. Analysis revealed that messages in the “Academic Addition” category reflected all five of the subthemes of academic integration identified in the analysis of the three instruments.

An example of a message that was assigned to the “Academic Addition” category, and then specifically assigned to the subcategory “Faculty Contact” was “requesting questions for review from the listserv members” (sent by a female participant to a class listserv). The message “help preparing for class assignment the next day” (sent by a male participant to a professor) was also assigned to the “Faculty Contact” subcategory.

Other messages were assigned to the “Taking an Interest in Furthering my Academic Experience” subcategory. For example, “Econ 10 Digest 9Nov97 to 11Nov97” (sent by the economics listserv to a female participant) and “reply to message I sent about class” (sent to a male participant by a classmate) were both assigned to this subcategory. The “Advising” subcategory also had messages assigned to it, including “a new study program” (sent to a female participant by a professor). “Giving me a date for co-op orientation” (sent to a male participant by his honors advisor) was also assigned to this subcategory. Messages like “asking about undergrad research” (sent to an honors faculty member by a female participant) were assigned to the subcategory “Library and

Table 5

Summary of Academic Matches to Instruments by Subtheme and Gender

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Subtheme	M	F	Total	(%)
Faculty Contact	30	52	82	(87.3)
Furthering Academic Experience	0	0	0	(0.0)
Advising	1	1	2	(2.1)
Library & Research	0	0	0	(0.0)
Tutoring/Success Strategies	1	9	10	(10.6)
<b>Total</b>	<b>32</b>	<b>62</b>	<b>94</b>	<b>(100.0)</b>

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Research”. Another example of a message assigned to this subcategory was “research opportunities” (sent to a male participant by the honors listserve).

An example of a message assigned to the “Tutoring and Other Success Strategies” was “sending encouragement to study” (sent by a male student to a classmate). Another message assigned to that same subcategory was “Asking for volunteers to help host high school students” (sent by honors faculty to a female participant). Table 6 summarizes the “Academic Addition” messages by subtheme and gender.

### Social Behaviors

Messages that were social in nature were assigned to either the “Social Match” or the “Social Addition” category. If the researcher could match the message with an item on the list of traditional social behaviors generated by analyzing the three instruments, that message was assigned to the “Social Match” category. Ten subcategories of social integration behaviors were identified in the instrument analysis and used. For example, the statement “information about next meeting” (sent by a club president to a male participant) was assigned to the “Social Match” category and the subcategory “Student Organization Involvement.” Another example of a message that was assigned to “Student Organization Involvement” was “information about the agenda of an upcoming meeting” (sent to a female participant by the leader of an organization).

Table 6

Summary of New Academic Behaviors by Subtheme and Gender

Subtheme	M	F	Total (%)
Faculty Contact	28	64	92 (33.6)
Furthering Academic Experience	21	11	32 (11.7)
Advising	1	1	2 (.7)
Library & Research	3	1	4 (1.4)
Tutoring/Success Strategies	68	76	144 (52.6)
<b>Total</b>	<b>121</b>	<b>153</b>	<b>274 (36.5)</b>



A message that was assigned to the subcategory “Making and Interacting with Friends” was “asking me out on a date” (sent to a female participant by a new friend). Another message assigned to that subcategory was “learning about each other” (sent by a male participant to a new friend made over the internet).

Other messages were assigned to “Interacting in Residence Halls and Dining Commons” such as “making plans to eat dinner” (sent by a female participant to a friend). Interestingly, there was no correspondence by male participants assigned to this subcategory.

The subcategory “Recreational Activities and Exercise” included messages such as “says she’ll come to intramural volleyball game” (sent to a male participant by a friend) assigned to it. There was no correspondence by female participants assigned to this category.

Some messages were assigned to the “Self-Help Activities” subcategory. For example, “on-line personality test” (sent to a female participant by a friend) was included in this group. There was no correspondence by male participants in this category.

The “Leadership Activities” subcategory had messages assigned to it like “social committee meeting” (sent by a club president to a male participant). There was no correspondence by female participants in this category.

Messages like “information on internships” (sent by Engineering club president to a female participant) were assigned to the subcategory “Career Exploration”. “Asking

for information” (sent by a male participant to Career Services) was another message typical of those assigned to this group.

An example of a message assigned to the “Multicultural, Fine Arts Activities, and Speakers” was “asking how concert was” (sent by a female participant to a friend). Another message assigned to that same subcategory was “music concert” (sent by a male participant to a friend).

The “Miscellaneous Social Activities” subcategory included messages like “discussing tutoring high school students” (sent by a female participant to a friend). Another message assigned to this subcategory was “questions about Blacksburg Transit” (sent by a friend to a male participant).

Finally, messages like “telling me how jealous he is that I asked for and got an extension on an assignment“ (sent by a friend to a female participant) were assigned to the “Organization of Time” subcategory. There was no correspondence by male participants in this category. Table 7 summarizes the “Social Match” behaviors exhibited in the messages by subtheme and gender.

Messages that were not assigned to the “Social Match” category, but were clearly social in nature were assigned to the “Social Addition” category. Messages in the “Social Addition” category were assigned to nine of the 10 subcategories identified in the analysis of the instruments. Analysis revealed no messages that could be assigned to the tenth subcategory (Miscellaneous Social Interaction).

The subcategory “Student Organization Involvement” included messages such as “free T-Shirt giveaway” (sent by a club president to a male participant).

Table 7

Summary of Social Matches to Instruments by Subtheme and Gender

Subtheme	M	F	Total (%)
Extra-curricular Involvement	15	48	63 (33.5)
Making & Interacting with Friends	11	55	66 (35.1)
Interaction in Residence Halls/Dining	0	2	2 (1.0)
Recreational Activities	6	9	15 (8.0)
Self-Help Activities	0	11	11 (5.9)
Leadership Activities	1	0	1 (0.5)
Career Exploration	3	12	15 (8.0)
Multicultural/Fine Arts	5	6	11 (5.9)
Miscellaneous Social Activities	2	1	3 (1.6)
Organization of Time	0	1	1 (0.5)
Total	43	145	188 (100.0)

Another message assigned to that subcategory was “a notice on the weekly activities” (sent by a student organization to a female participant).

An example of a message that was assigned to the “Making and Interacting with Friends” subcategory was “check for a romantic dinner date” (sent by a boyfriend of a female participant). The message “telling her how I felt about her” (sent by a male participant to his girlfriend) was also assigned to the “Making and Interacting with Friends” subcategory of the “Social Addition” category.

Other messages were assigned to “Interaction in Residence Halls and Dining Commons” such as “verifying information about housing contract for next year” (sent by Residential and Dining Programs to a female participant). Another message assigned to that subcategory was “about housing contract for next year” (sent by Residential and Dining Programs to a male participant).

The “Recreational Activities and Exercise” subcategory had messages assigned to it like “how basketball tryouts went” (sent to a female participant by her best friend). “Reminder of football game” (sent by a church listserv to a male participant) was also assigned to this subcategory.

Other messages were assigned to the “Self-Help Activities” subcategory. For example, “tutoring positions for spring ‘98 “ (sent by an Engineering listserv to a female participant) and “information about campus crime and drunk driving “ (sent by a professor to a male participant) were typical of messages in this group.

An example of a message assigned to the “Leadership Activities” was “information about upcoming Leadership Conference” (sent by a club president to a

male participant). There was no correspondence by female participants in this category. An example of a behavior that was assigned to “Career Exploration” was “information about Co-op Orientation” (sent to a male participant by the Engineering listserv). Another message assigned to this category was “announcing meeting with employers” (sent by an Engineering listserv to a female participant).

Messages like “poem he wrote about life” (sent by a friend to a female participant) were assigned to the subcategory “Multicultural, Fine Arts Activities, and Speakers. The message “information on concert tickets” (sent by a male participant to a friend) was also typical of the messages assigned to this group.

Finally, messages like “telling me to make sure I get all my work done before break” (sent by a friend to a female participant) were assigned to the “Organization of Time” subcategory. Also assigned to this group were messages like “must do labs now” (sent to a friend by a male participant). Table 8 summarizes the “Social Addition” behaviors exhibited in the messages by subtheme and gender.

#### Behaviors That Were Neither Academic Nor Social in Nature

Some messages did not match any of the four major categories (“Academic Match”, “Academic Addition”, “Social Match”, and “Social Addition”). These messages were assigned to the “No Match” category. While the present study was not designed to further evaluate these messages, the researcher noticed several trends in the nature of these messages.

The messages that were assigned to the “No Match” category seemed to reflect a large number of forwarded jokes, lists and chainletters. For example, almost all

Table 8

Summary of New Social Behaviors by Subtheme and Gender

Subtheme	M	F	Total	(%)
Extra-curricular Involvement	42	1	43	(9.0)
Making & Interacting with Friends	151	209	360	(75.6)
Interaction in Residence Halls/Dining	2	9	11	(2.3)
Recreational Activities	9	5	14	(2.9)
Self-Help Activities	3	5	8	(1.7)
Leadership Activities	1	0	1	(0.2)
Career Exploration	14	14	28	(5.9)
Multicultural/Fine Arts	1	8	9	(1.9)
Miscellaneous Social Activities	0	0	0	(0.0)
Organization of Time	1	1	1	(0.2)
Total	224	252	476	(100.0)

participants reported forwarded jokes from and to friends. In fact, the researcher noticed that a number of participants reported identical messages that were forwarded, such as “Why Barney is the Devil” and “How to tell the difference between a freshman and a senior.”

The researcher also noted several series of messages that related to fighting and apologizing. For example, a series of five or six messages sent within a short span of time (a day or two) would be labeled “fighting” or “having a fight about our relationship” or “fighting about phone bill.” A number of messages also were labeled “apologizing” or “apologizing for yelling on the phone.”

Additionally, a large number of the messages assigned to the “No Match” category were from listserves. Participants were signed up for special interest listserves such as: “Chicken Soup for the Soul”, “USA Today”, “Joke-of-the-Day”, “Quote-of-the-Day”, “Dave Matthews Fan Club”, “Snowboarding News”, among others. The participants with the greatest amount of email activity were also the participants who received the greatest number of messages from listserves.

A final trend noted among the “No Match” messages were informally labeled as “Ritual Messages” by the researcher. Ritual messages included items like those from parents making sure that the participant was up every morning, or messages from boyfriends/girlfriends sending the participants “a kiss goodnight” every evening.

#### Analysis of Responses to Email Survey Questions

All participants answered all six email survey questions. The responses to the email survey questions were analyzed in a manner similar to the email messages

described above. The researcher examined each sentence in a response for key words and assigned those key words to the categories of “Academic Match”, “Academic Addition”, “Social Match”, “Social Addition”, or, “No Match”. Table 9 Summarizes the responses to the email survey questions by type and gender.

#### Academic Match and Academic Addition Responses

Survey responses that were academic in nature were assigned to either the “Academic Match” or the “Academic Addition” category. If the researcher could match the response with an item on the list of traditional academic behaviors then it was assigned to the “Academic Match” category. If the response could not be matched but indicated a new academic behavior, it was assigned to the “Academic Addition” category. The following statements illustrate responses to the email survey questions that were assigned to the “Academic Match” category:

I use e-mail on a regular basis to communicate with my professors. This is especially true for my engineering professor. I get e-mail from him constantly updating us on our homework, and other topics of importance to us. (Male Participant)

I have used email occasionally to communicate with professors about a class that I will be missing or about an assignment which I do not understand. Also I have used email to communicate with other students whom I do not know very well, but who are working with me on a group project. (Female Participant)

Survey responses that were not assigned to the “Academic Match” category but were clearly academic in nature were assigned to the “Academic Addition” category. For example:

My other professors don't really use e-mail, but they do have web pages that are useful. (Male Participant)



**Table 9**  
**Summary of Responses to Email Survey Questions by Type and Gender**

Question	Academic Match		Social Addition		Social Match		No Match Addition		Total		n	(%)
	M	F	M	F	M	F	M	F	M	F		
	Use of email	7	15	4	4	3	2	11	11	47		
Role of email	1	3	0	0	0	1	4	6	50	51	116	(18.2)
Benefit of email	0	5	0	0	1	0	2	2	21	28	59	(9.3)
Drawback of email	0	0	0	0	0	0	0	1	47	51	99	(15.6)
Academic needs	22	26	8	2	0	0	0	1	19	24	102	(16.1)
Social needs	1	0	0	0	0	5	5	4	24	45	84	(13.2)
Total	31	49	12	6	4	8	22	25	208	270	635	(100.0)

One neat thing is that I can post my questions for my government class on the class listserve and my fellow classmates [sic] or teacher will reply.  
(Female Participant)

### Social Match and Social Addition Responses

Survey responses that were social in nature were assigned to either the “Social Match” or the “Social Addition” category. If the researcher could match the response to an item on the list of traditional social behaviors, it was assigned to the “Social Match” category. If the responses could not be matched but indicated a new social behavior, it was assigned to the “Social Addition” category.

For example, responses assigned to the “Social Match” category included:

It (email) also keeps me [sic] to date with volleyball practices and meetings for bible study. (Female Participant)

For example, if a leader of a club wants to let everyone know about a function, the leader can easily send out an e-mail to all the students in the club. (Male Participant)

Survey responses that were not assigned to the “Social Match” category but were clearly social in nature were assigned to the “Social Addition” category. The following quotations are typical of the responses assigned to this category.

I’ve even been able to make new friends through email. (Male Participant)

I can use email to talk with my friends here as well and figure out times to meet or things to do. (Female Participant)

### Summary

The results summarized in this chapter reflect some interesting patterns and trends which correspond to the research questions posed in this study. A discussion

of the results and their implications for future practice and research are offered in the following chapter.

## CHAPTER 5

### DISCUSSION AND IMPLICATIONS

The purpose of this study was to investigate the purposes for which college students use email and to further examine the social and academic purposes for which students may or may not be using email. Furthermore, this study proposed to examine any gender differences in email use among college students. Data were collected in the form of logsheets detailing students email messages for a period of three weeks, and a series of email survey questions answered by all participants. The results of this study revealed several interesting trends.

A discussion of these results is organized around five sections in this chapter. First, the general findings revealed in the study are discussed. Second, the research questions posed in this study are examined in light of the results. The findings of this study relative to findings of previous research are presented in the third section. In the fourth section the implications of these results for both future research and practice are discussed. Finally, the limitations to the study are examined.

#### General Findings

The general findings of the study seem to fall in five categories. These include overall activity, academic and social integration correspondence, other types of correspondence, gender comparison, and data on the relationship of the correspondents to the participants.

Of all messages recorded by participants, 70% of messages were received, and only 30% were sent. These figures would suggest several things. First, a large

amount of information is being inflicted on the participants that may not necessarily be appreciated. For example, listserv postings and forwarded jokes and chain letters require no response in most cases. These figures may also indicate that the messages sent by participants are much more important data and should be more closely examined than messages received by participants.

Participants total email activity was 9.53 messages (6.65 messages received, and 2.88 messages sent) per day. Not all participants used email every day of the study. Email was used an average of 15.47 days over the 21 day collection period. These data seem to suggest that email has been thoroughly integrated into the lives of the participants, all of whom are freshmen and many of whom may not have had easy or any access to email before attending college. One participant offered the following observation:

Before I arrived at Virginia Tech I had never used email. I was very nervous around computers in general....Needless to say, when my friends from home started asking me for my email address, I was reluctant to give it out, considering the fact that I thought I would never learn to use it. However, since then, I have become fairly comfortable with the system. (Female Participant)

It follows then, that if email induces students to use and become comfortable with that specific form of technology, it may induce them to explore other forms of technology that they may not have considered using before. Given the emphasis in higher education on graduating technologically literate students, this unexpected side effect of email may be beneficial to the overall education of students.

The data also suggest that some time is spent almost every day reading and sending email messages. All of the participants lived on campus and had ethernet access to their email, making for a quick or constant connection. Participants offered the following observations on their email use.

I eagerly check my email many times a day, just to see if I received any new stories from [my friends]. I probably spend an hour on e-mail each day. (Male Participant)

Okay, this may sound pathetic, but getting e-mail is like Christmas. I check it whenever I get back from class and before I go out again. (Female Participant)

I use email for a lot of things. I use it at least seven times a day on average, spending approximately two hours with it a day. I check my email in the morning when I get up, in between classes, and at night I check it a few times. (Female Participant)

This means that a somewhat significant amount of time is spent by college students checking, sending, writing, and responding to email messages. What are the implications for this? How was this time used by students before email was available? Does email provide a more effective method of communication for students, or does it consume their time in a non-productive manner? Email represents only one form of technology. Students may also be spending time on other forms of technology, like the World Wide Web or online chatrooms. At issue here is the fact that most of the activity related to email did not reflect behaviors designed to promote academic or social integration, two key components of success in college. If other forms of technology limit time spent on academic and social integration, the implications for students who use technology extensively may be significant.

A second general finding of the study related specifically to academic integration. Of the total email activity among participants, only 8% of messages fell into the “Academic Match” or “Academic Addition” categories, as noted in Table 4. So, while email is used in some limited ways for academic purposes, it is clearly not the primary purpose for which students use email. As indicated in Tables 5 and 6, the participants’ correspondence fell most frequently into the subthemes of “Faculty Contact” and “Tutoring and Other Success Strategies”. This data seems to suggest that when the participants did use email for academic integration purposes, it was to contact faculty and classmates about a specific issue or question regarding a class.

The researcher noted in examining the email messages that when faculty members required or suggested that participants use email for a class in some way, participants also started to use email to correspond with faculty. For example, if a participant had to submit email journals to a faculty member as a class requirement, then that participant was more likely to use email to correspond with the faculty member for other reasons (notification of sickness, missing class, or questions regarding an assignment). Participants also offered the following observations regarding email and academics.

I don’t use it to meet my academic needs. If anything, it takes away from my work, because I would rather read/write e-mail than do my work. (Male Participant)

I sit in front of the computer for hours, wasting away important homework time, to read and send emails. (Female Participant)

For me, e-mail is worse than television. Once I get into my room, I usually head straight for the computer to check my e-mail messages. If I have new messages, then that's when trouble begins. I will then sit down and return everyone's messages, even if I have tons of homework to get done! (Female Participant)

These comments by participants suggest that not only is email not used for academic integration purposes, but it is actually a distraction to academic work.

A third trend among the general findings of this study related to social integration among students. While email was used on a limited basis for academic integration purposes, it was used slightly more for purposes of social integration. Of the total messages sent or received by participants, only 14.4 % of them fell into the "Social Match" or "Social Addition" categories (see Table 4). As indicated in Tables 7 and 8, the participants' correspondence fell most frequently into the subthemes of "Making and Interacting with Friends". These data seem to suggest that when the participants did use email for social integration purposes, it was largely to interact with friends and not to interact with the other nine categories of people that had been identified in the analysis of the three instruments.

In order for students to become socially integrated into the college setting, they need to be interacting with other students, faculty and staff at the institution they attend. The analysis of the relationships between the participants and their correspondents revealed that of the friends with whom the participants corresponded, few were on-campus friends and the vast majority were friends from high school (see Table 3). This finding may indicate that while participants use email to correspond with college friends, they use it most often to correspond with



friends from high school or who attend other colleges. This behavior is not seen as a social integration behavior, because students are not investing themselves in their own college experience, and not making and interacting with new friends at their college.

Gender was the focus of another general finding of this study. The results of the data analysis revealed that there was very little difference in email use by gender. Men's correspondence was 47.8% of the total 4,603 messages analyzed, while women accounted for 52.2%. Of the total messages for men, 69% (1,511) were received and 31% (686) were messages sent. Women had very similar numbers with 71% (1,702) of their messages being received, and 29% (704) messages being sent (see Table 2). The data did not reveal any major differences by gender in the number of messages assigned to the "Academic Match", "Academic Addition", "Social Match", or "Social Addition" categories. The lack of gender differences in the use of email is surprising, given the stereotype about men using technology and women shying away from such use.

Perhaps the most enlightening result of the present study, however, was the extent to which email use among participants was not related to either academic or social integration. The most extensive number of messages by far (77.5%) were assigned to the "No Match" category in the data analysis. Within this category there were a number of interesting trends that the researcher noted. While this was not the main focus of the research, since such a large portion of the email messages were assigned to this category it bears some discussion.

Social purposes seemed to be the prominent reason to use email, but these purposes were not necessarily related to social integration. Participants offered the following comments regarding how they used email.

Essentially the only use I have for e-mail is to socialize. It is an excuse to goof off when doing work on the computer or just to catch up on the times between seeing each other. (Male Participant)

E-mail is a great venue for humor. I've always been kind of the court jester whenever a group of my friends get together, so e-jokes are a natural extension for me. (Male Participant)

A lot of my email consists of forwards. They are all from these [high school] friends. (Female Participant)

The researcher also noted a significant number of messages labeled as “apologizing”, “fighting”, or “making up” by the participants in the study. One participant even re-established a relationship, in part, with an ex-girlfriend over email. What are the implications for these sorts of behavior being played out over email? Do students use email as a less confrontational way of dealing with issues or are they dealing with these issues only because they can do so over email? And what does this say about their ability to perform these sort of social functions face-to-face? The development of social skills that culminate in mutually rewarding personal relationships among students is a goal of higher education in general, and student affairs administration in particular. If students rely on email to meet many of their social needs, this may suggest a need for practitioners to rethink the social development needs of students.

Another trend observed in the “No Match” category was the “ritual message”. Since these messages, for the most part were performed every day, some sort of

attachment was formed. But were these “ritual messages” some sort of correspondence that only occurred because of email? Or would participants have found some other way of performing these rituals if email had not been available to them? Do these rituals provide some sort of essential support and foundation for students? Again, the results suggest a need for further studies that explore the implications of email and the social development of college students.

Finally, the results of this study revealed some interesting trends with respect to the relationships between participants and their email correspondents. Clearly participants corresponded with high school friends (26.7% of all messages) and parents (11% of all messages) more than with any other groups of people. Since the participants were all freshman, these results may not be totally unexpected. Parents and high school friends are the people with whom the participants are probably most comfortable, and to whom participants consider themselves to be closest at the beginning of their college career. However, according to traditional definitions of academic and social integration, correspondence with high school friends and parents does not contribute to students’ integration into their college experience. Specifically, Chickering and Reisser (1993) suggest that developing autonomy is based on developing emotional independence from family and hometown friends and creating bonds with college peers. If students are using email to maintain relationships with home, does this somehow hamper their development in college? What is clear in the data is that staying in contact with parents and high school

friends plays some important role for them. Participants in the study offered these observations.

Emails have helped me cope with the change of coming to college, too. I have a direct line to some of my old friends that I can still talk with... (Female Participant)

Then again, if it wasn't for email, I would probably be a lot more homesick and wasting my time being depressed. (Female Participant)

These comments seem to suggest that email does indeed play a role in helping students adjust to college life by providing a link to friends and family who are important to them. The question for practitioners may be to explore the point at which maintaining such links becomes detrimental rather than helpful for students.

#### Responding to the Research Questions

Given these general findings of the study, it was important to analyze the results in terms of the research questions posed in the study. The first question explored the general purposes for which students use email, and the results provided data that might be used to respond to this question. Clearly, the participants used email to communicate with very distinct groups of people: parents (8.7% of all messages), high school friends (26.7% of all messages) and to some extent professors and classmates (8.6% of all messages). Listserves (11% of all messages) account for a significant number of messages in the total. While these were the four major purposes for which participants used email, 36 distinct groups of people were identified with whom the participants communicated. These data

seem to suggest that while most messages are sent to certain groups of people, there is also great breadth in the type of people with whom participants correspond.

It is also important to examine what participants corresponded about. The second research question posed in this study asked whether students used email to achieve academic integration. The data revealed that participants did use email to achieve both traditional (2.1%) and new (6.0%) academic integration outcomes, but seemed to use the technology for some academic purposes more than others. While there were five subcategories of academic behavior identified through the analysis of the three instruments, 87.3% of all messages assigned to the “Academic Match” category were in the subcategory of “Faculty Contact”. Messages assigned in the “Academic Addition” category fell into two main subcategories, with 52.6% of the messages being assigned to the “Tutoring and Other Success Strategies” subcategory and 33.6% of the messages assigned to the “Faculty Contact” subcategory.

What these data suggest is that students are finding email a convenient and productive method of communicating with faculty members. Furthermore, to some extent they are finding ways of using email to enhance and further their studies, as evidenced by the number of messages assigned to the “Tutoring and Other Success Strategies” subcategory in the “Academic Addition” category. The majority of messages assigned here dealt with class listserves, group work coordinated or conducted over email, and assignments and grades distributed over email. So, while students do seem to use email to achieve academic integration,

they are not doing so to a great extent. Messages related to academic integration represented only 8% of the total email activity of participants.

A larger percentage of email activity seems related to social integration, the focus of the third research question posed in the study. There is some indication that the participants used email for both traditional (4.1%) and new (10.3%) social behaviors. The subcategories with the greatest percentage of messages activity were “Extra-curricular Involvement” and “Making and Interacting with Friends”, but messages were assigned to seven other subcategories as well. While most of the messages were concentrated in two areas, there was still a great breadth to the social messages.

The one thing that should be noted about the social messages is that such messages were a much more passive form of social integration than the traditional social integration behaviors. For example, reading the minutes of a club meeting over email is a much more passive behavior than actually attending a meeting of that club. One could also argue that it takes a lot more commitment on the student’s part to make the effort to attend organizational meetings. However, given the possibility that the student might not be involved in an organization at all if not for email communication, technology in this case may serve a positive purpose.

Perhaps the most surprising outcome of the present study was the discovery that the vast majority of email activity among participants (78%) related to neither academic or social integration (“No Match” category). Participants seemed to

appreciate some of the unique qualities associated with email over any other form of communication. They consider it to be an effective, easy, convenient communication tool. Participants offered the following observations on email's unique qualities:

The biggest benefit of email for me is cost. Without it, I would not be able to talk to my friends from home. I also appreciate the convenience. That is, I can get a letter from someone and respond when I have time. This is easier than dropping everything to talk on the phone. (Female Participant)

I feel it is very convenient to be able to communicate with someone with a few simple clicks...Email has become the way the world works, and I am glad this has occurred, as email is quick efficient, and most importantly, convenient. (Male Participant)

While participants expressed positive comments about the efficiency and effectiveness of email, the implications that using email has with respect to academic and social integration remains to be seen.

The data also seems to suggest that email has been integrated into the participants lives quite thoroughly in a short matter of time. Since all the participants were freshmen, and the data was collected from the end of October until mid-November, the participants had only a couple of months to adjust to using email at college before the data collection commenced. Even given this fact, the participants were sending and receiving an average of almost ten email messages a day, and, as evidenced by their responses to the email survey, spending a significant amount of time checking, reading, composing and sending email messages every day.

The final research question posed in the present study examined the use of email and gender differences. Interestingly, there was almost no difference in the use of email between men and women. They sent and received almost identical numbers of messages overall. The participants' messages were assigned to the academic and social categories and subcategories in almost equal numbers. While these results offer very little insight into the differences of email use by gender, they do reflect some other interesting points.

The data seem to suggest that perhaps there are no gender differences in cyberspace. If there are no gender differences, there may be no differences due to race, handicap or other traditional forms of discrimination when using email as a form of communication. Due to its nature, it may be that email is a neutral form of communication, revealing nothing about its senders or receivers other than what is deliberately communicated in a message. While further research is needed to explore this possibility, the results of the present study suggest that traditional stereotypes with respect to gender and technology may not be supported. In this case, both men and women used email and expressed comfort with using this form of technology.

#### Relation to Previous Literature

It is important to examine the results of the present study in light of previous research. As noted in Chapter Two, there was no current literature on how college students use email. It was not possible therefore, to compare the findings of this



study to previous research. However, there are some individual aspects of this study that can be compared to specific findings of other studies.

For example, Sherry & Sherry (1996) reported that the more comfortable students are with computers, the higher their rates of academic persistence. Since the participants of this study seemed to be very comfortable with using email after only two months, it might be inferred that regardless of what students are using email for, the simple act of learning to use email and computers contributes to their academic persistence.

Previous research has also revealed that both faculty and students require 24-hour low cost access to email if they are to be expected to use it (Holden & Mitchell, 1993). The participants in this study all had free, 24-hour access to email, which seemed to contribute to their frequent use of this form of technology.

Two previous studies looked at the purposes for which students and faculty were using email. One study (Wilson et al., 1996) identified four purposes: local access and communication; academic research; collaboration with colleagues; and, sharing information. Hawley et al. (1996) found three major purposes: personal, class use and collaboration. The present study neither confirmed nor contradicted those findings. Rather, it looked at email activity from a different perspective and identified many more categories than previous studies. This form of analysis provides a more complete picture of the purposes for which college students are using email for in their daily life.

Perhaps the most relevant connection between the present study and previous research relates to technology and gender. Nickell, Schmidt, & Pinto (1987) examined computer use among college students and found that males use computers more frequently than females. A study conducted by Wilder et al. (1985) found that science and math were perceived as subjects more appropriate for and more liked by boys, while writing was more appropriate for and more liked by girls. The researchers suggested that this finding helped to explain some of the gender differences with respect to computer use. The present study revealed no such differences when comparing men and women with respect to their use of email. The earlier studies examined gender differences in general computer use, and the present study examined gender differences in the use of email specifically. While a direct comparison cannot be made, the patterns revealed in the present study seem to contradict those of previous research.

### Implications

Given this comparison with previous research, it is important to examine the implication of the present study. This study had implications for both future research and practice. While the investigation did not examine every aspect of students' email use, the results provide a basis for further research on the topic.

For example, the present study examined what college students use email for at one large, public research institution. An investigation of students' email use at other types of institutions (e.g., liberal arts colleges, community colleges) might reveal different results that would strengthen the body of research on the topic

While this study was designed to specifically examine students' email use in conjunction with academic and social integration, other studies might be conducted with a broader focus. Research that explores other outcomes associated with the use of email among college students (e.g., development of critical thinking skills) might prove valuable.

Another area not examined in this research was the amount of time students spend using computers and the patterns of usage by college students. Such a study might be valuable in that it would examine the extent to which students spend time using email and whether that time falls on weekdays, weeknights, or weekends. Information like this might provide further insight into the developmental implications associated with email use.

Finally research into the use of email by academic standing or residency status might also be valuable. This study focused on the email use of on-campus freshmen. A natural extension of this study would be to conduct research comparing email use among freshmen and upper division students, or on-campus students and off-campus students. Literature in this area would also build upon the knowledge gained through this study.

This study also had implications for future practice. The results revealed that while students are using email for purposes of academic and social integration, they are doing so on a limited basis. However, students do seem to be using email extensively, and spend a significant amount of time every day in email related activities. They seem to be both intrigued and comfortable with the technology, and

they use email to communicate with a wide variety of people on a wide variety of topics. All of these findings have a number of implications for future practice.

With more and more campuses installing highspeed computer connections in residence hall rooms, and more students than ever bringing computers to campus, the possibility of students spending a considerable amount of time using email and other forms of technology is highly likely. Given this trend, student affairs professionals need to concentrate programming efforts to insure that students do not isolate themselves socially or academically. Programs on face-to-face communication skills, how to interpret body language and facial expressions may become important if students fail to develop these skills because they are spending time communicating in a one-dimensional environment.

Students seem willing to communicate on a wide variety of topics to a wide variety of people using email. Such communication may be taking place because of the safe anonymous nature of email. Faculty, administrators, campus groups and others on campus may wish to encourage communication by students with their organizations and offices via email. Staff who deal with sensitive issues such as personal counseling, health information, and financial aid may find email an effective way for students to communicate with their office.

Faculty members should also note that the data suggested if they initiate contact with students, or require email use for class in some way, students expand upon the original request and use email to communicate with the professor and/or

classmates more frequently. This trend could enhance in- and out- of-class learning for students.

Professionals who work with freshmen should note that email seems to be one of the first new technologies that students start using in college. Once they find out how easy this technology is to use, they may want to explore other forms of technology. Students who are provided with software and instruction on the use of email may adjust to campus more readily and start using other forms of technology sooner than their classmates who are not comfortable with email or technology.

### Limitations

As with all research, the present study was not without some limitations. Some of these were noted in Chapter One. For example, the research only examined first year students who lived in residence halls that had ethernet connections. Limiting the sample to on-campus students with one specific type of email access may have skewed the results.

The sample included only students who had access to computers and email. If the study had been conducted with students who didn't have computers or easy access to computers the results may have varied.

This study used volunteers as participants. The participants who volunteered for this research study may have differed in some way from non-volunteers, a fact that could have influenced the results.

Another limitation was that data were collected in late October and mid-November. This timeframe may have been inconvenient for some students who,

therefore, chose not to volunteer for the study. This might have excluded some potential respondents whose participation could have altered the results.

Finally, the study examined 23 participants over a 21-day timeframe. A larger sample, or a longer data collection period might have produced different results.

However, after completion of the study several other limitations were noted by the researcher in regard to the design of the study. First, this study was limited because only students at one four-year institution were studied. Additionally, the institution at which the participants were enrolled regards itself as one that is on the forefront of technology in both teaching and providing technology opportunities for students. Therefore, the email behaviors of the participants in this study might not reflect the email activities of students at other colleges and universities where technology is not as much a part of the campus culture.

Second, the study was designed so that participants provided only brief descriptions of the nature of their email messages to the researcher. Had the actual messages been submitted for analysis, the results of the study might have been different.

Finally, the bulk of the messages analyzed were assigned to the “No Match” category. While this fact was an interesting finding in and of itself, it also meant that 78% of the data were not subject to close analysis, which might have influenced the results.

Despite these limitations, the results of this study revealed some interesting trends about college students and their email use, specifically email use of an

academic and social nature. First, while the participants did use email for some academic and social integration purposes, the bulk of their email activity did not relate to either form of integration. Second, participants seemed to be using email to communicate extensively with family members and high school friends. Finally, the participants seemed to spend a considerable amount of time every day checking, writing, composing and sending email messages. These trends demonstrate that email has become an integral part of college student life and that college administrators need to explore new and effective ways to ensure that the use of email is beneficial, not detrimental, to the overall development of college students.

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**Appendix A:**  
**Flyer to Solicit Participants**

# Would you like to earn \$40?



Are you a freshman?



Do you use e-mail?

Do you live in Cochrane, EAJ,  
M. Eggleston, E. Campbell, Miles, New  
O'Shag, Payne, Pritchard, Slusher Tower  
Slusher Wing, W. Eggleston or WAJ?

I'm a master's student looking for volunteers to participate  
in research for my master's thesis.

If you are interested please call me at 961-7691  
after 7:00 p.m. Thanks, Lisa

---

Research Project  
Lisa @ 961-7691

Research Project  
Lisa @ 961-7691

Research Project  
Lisa @ 961-7691

Research Project  
Lisa @ 961-7691

Research Project  
Lisa @ 961-7691

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Research Project  
Lisa @ 961-7691

Research Project  
Lisa @ 961-7691

Research Project  
Lisa @ 961-7691

Research Project  
Lisa @ 961-7691



Appendix B:  
Screening Questions for Possible Participants

Thank-you for calling. I appreciate your interest in participating in my research. In order to make sure that you meet the parameters of my study, I will need to ask you a series of screening questions, that will take about five minutes. Is that okay?

Name \_\_\_\_\_ Caller Number # \_\_\_\_\_  
 Male  Female

1. Are you a freshman ?  No  Yes [if answer is yes, proceed to next question]

2. Did you graduate from high school in the spring of 1997?  No  Yes  
[if answer is yes, proceed to next question]

3. Did you enroll at Virginia Tech in the fall of 1997?  No  Yes  
[if answer is yes, proceed to next question]

4. Is this your first year in college?  No  Yes [if answer is yes, proceed to next question]

5. Do you live on-campus?  No  Yes [if answer is yes, proceed to next question]

6. What residence hall do you live in?  Cochrane  O'Shag  
 EAJ  Pritchard  
 E. Egg  Payne  
 E. Cam  Slusher Tower  
 M. Egg  Slusher Wing  
 Miles  WAJ  
 Newman  
[if residence hall is on list, proceed to next question]

7. Do you use email?  No  Yes [if answer is yes, proceed to next question]

8. Do you have your own computer?  Yes  No [if answer is no, proceed to next question, if answer is yes, proceed to question #10]

9. Do you have access to a single computer where you could check your email for a period of three weeks, and keep a record of all incoming and outgoing messages?

No

Yes [if answer is yes, proceed to next question]

10. For the purpose of this study, and to receive the \$40 compensation, you will be asked to:

-attend an informational meeting that will last about an hour

-answer six email survey questions throughout the course of the three week data collection time period

-keep all incoming and outgoing messages and printout your mailboxes of those messages

-keep corresponding logs that record the nature of the relationship between you and the sender/receiver of all your email messages

-keep corresponding logs about the general nature of the email messages you send and receive

-submit your printouts and logs to me at the end of the data collection period

-attend a final meeting with me at which you turn in the printouts and logs, and answer any questions I may have about these materials.

Are you still interested in being a participant in this study?  No  Yes

[if answer is yes, proceed to next question]

11. The research will be conducted from October 19th until November 8th. Will you be available to monitor your email during those dates?  No  Yes [if answer is yes, proceed to next question]

12. Which informational meetings can you attend?

October 15 @ 10:00 pm

October 16 @ 10:00 pm

both meetings will take place in: Newman Hall, CA Office.

[If the caller is unable to make one of these meetings, inclusion in the study is not possible.]

13. Would you be willing to participate in this study, print out a copy of your email logs for a period of three weeks, answer periodic email questions during the three weeks, and sign a consent form?  No  Yes [if answer is yes, proceed to next question]

14. Congratulations, you have met the qualifications for the study. Are you still interested in participating?  No  Yes [if answer is yes, proceed to next question]

15. Campus Address \_\_\_\_\_ Mail Code

-----

Phone Number\_\_\_\_\_ Email address

-----

Type of Computer \_\_\_\_\_ Operating System

-----

What email software do you use? \_\_\_\_\_

version#\_\_\_\_\_

IP Address \_\_\_\_\_

<input type="radio"/> SELECTED	<input type="radio"/> NOT SELECTED
--------------------------------	------------------------------------

**Appendix C:**

**Samples of Incoming Email Printout, Completed Incoming Mail Log Sheet,  
Blank Incoming Mail Log Sheet, and Instructions to Complete Incoming Log Sheet**

## Sample of Incoming Email Printout Printout

File Edit Mailbox Message Transfer Special Window						1:26 PM	
IN							
	Karin Horstmann	5:00 PM 6/24/97 -0400	1				
	Tom Brown	2:00 PM 6/25/97 -0400	2	pick-up truck			
	Don Gatz	8:24 AM 6/26/97 -0500	4	From MOM			
F	roheaan ostle	1:24 AM 6/27/97 +0100	1	Vidal Dickerson			
	Tom Brown	1:35 PM 6/26/97 -0400	1	team leader besper #			
	Jessica Byrne	10:56 PM 6/26/97 +0600	2	Hi			
	Tom Brown	1:26 PM 6/27/97 -0400	1				
	Tom Brown	1:51 PM 6/27/97 -0400	2	wage payroll entry			
	Andrew Wilson	4:04 PM 6/27/97 +0600	3	Engagement Joke			
	Tom Brown	5:32 PM 6/27/97 -0400	2				
	Tom Brown	5:53 PM 6/27/97 -0400	3	misc for Monday and Tuesday			
	Jessica Byrne	12:45 AM 6/28/97 +0600	2	Car			
	Andrew Wilson	2:32 PM 6/28/97 +0600	2	Purchase			
	Joan Hirt	5:01 PM 6/29/97 -0400	1	papers			
	Jennifer B Poet	4:55 PM 6/30/97 -0500	1	buddy			
	Andrew Wilson	2:29 PM 7/2/97 +0600	3	Fwd: Judge Has a Clue			
	Tom Brown	5:13 PM 7/3/97 -0400	3	misc O stuff			
	Andrew Wilson	9:26 AM 7/6/97 +0600	16				
	Tammy Metzler	3:31 PM 7/7/97 +0600	1	Orientation Cards			
R	Don Gatz	2:07 PM 7/8/97 -0500	2	From Mom			
	Tom Brown	12:57 PM 7/9/97 -0400	2	Happy Families			

**INCOMING MESSAGES LOG SHEET**  
(sample)

#	Date	Relationship	General Content of Message
1	6/24	College friend	Setting a time to go out socially
2	6/25	On-campus employer	Pick up truck from motor pool
3	6/26	father	Letter from mom @ her weekend
4	6/27	College friend	Something to do for a group I'm vp of.
5	6/26	On-campus employer	Beeper # for on-call Orientation ldr.
6	6/26	College friend	Asking for a favor
7	6/27	On-campus employer	Stats on people coming to Orientation
8	6/27	On-campus employer	More of the above
9	6/27	College friend	Forwarded jokes
10	6/27	On-campus employer	RE: first 2 days of Orientation
11	6/27	On-campus employer	More of the above
12	6/28	College friend	Continuation of favor in #6
13	6/28	College friend	What he'd done that day
14	6/29	Academic advisor	Info re: paper due date
15	6/30	College friend	Response to request for a group/VP
16	7/2	College friend	Forwarded jokes
17	7/3	On-campus employer	Details on first day of Orientation
18	7/6	College friend	Critique paper attached for me?
19	7/7	Work relate contact	Please follow this procedure
20	7/8	father	Letter from mom @ her weekend
21	7/9	on-campus employer	passing on congrats on a good job.






## Printout Instructions to Complete Incoming Log Sheet

1. To keep a mail log of your incoming messages, simply save them all and do not delete any messages between October 29-November 18, 1997.
2. I would suggest printing out your incoming mailbox about every fifteen messages.
3. After you have a printout on paper, number each email message. Start at the top of the list with 1, and proceed to number down the sheet in order. When you start the next logsheet, make sure that the numbers continue in order. For example, if you had messages numbered 1-15 on the first logsheet, the second log sheet would start with the number 16.
4. Fill out a “Incoming Messages Log Sheet” (copies distributed to you at the information session) for each mailbox printout. For each message on the printout, number corresponding line on the logsheet. Please write legibly!
5. For each individual email you receive, you will fill out a corresponding line on the handwritten log that will provide me with more information. You will have copies of your message on your computer to refer to when doing your handwritten logs. Please refer to them if you cannot remember the content of the message. I’m not concerned with the exact content of your messages, but I will need to know who you sent them to you, what relationship that person has with you, and the general content of the message.
6. Staple the corresponding logsheet with its printout. Keep these all in date order.

**Appendix D:**

**Samples of Outgoing Email Printout, Completed Outgoing Mail Log Sheet,  
Blank Outgoing Mail Log Sheet, and Instructions to Complete Outgoing Log Sheet**

## Sample of Outgoing Email Printout

File Edit Mailbox Message Transfer Special Window Help <span style="float: right;">Mon 1:22 PM</span>				
Out				
	Who	Date	K	Subject
	lgatz	5:20 PM 01/8/97	1	meet anyway?
	lgatz	5:23 PM 01/8/97	1	Re: parent survey
	lgatz	9:19 PM 01/8/97	1	Re: parent survey
	lgatz	9:19 PM 01/8/97	1	meet anyway?
	Matt E.	0:15 PM 01/9/97	2	hay...
	mitzi lowe	12:20 AM 01/10/97	1	Re: Joke (fwd)
	Karin Horstman	12:27 AM 01/10/97	1	Re:
	Andrew Wilson	11:20 AM 01/10/97	1	Re: Good morning, good morning
	jennp@iastate.edu	11:21 AM 01/14/97	1	Re: Hi
	Andrew Wilson	11:22 AM 01/14/97	2	Re: mojo
	Don Gatz	11:24 AM 01/14/97	2	Winning Hawaii Contest Story
	Matt E.	0:14 PM 01/14/97	4	Recipe 
	Andrew Wilson	11:51 AM 01/15/97	2	Re: mojo
	jbhirt	10:08 PM 01/21/97	1	authenticity/trustworthiness..
	wawilson	5:15 PM 01/22/97	1	
	Don Gatz	5:27 AM 01/23/97	1	Re: From Mom
	msikes, lfattori, spillma	5:28 AM 01/23/97	3	Spell Checkers
	alma cardenas	5:28 AM 01/23/97	1	Re: bowling
	khorstma	5:24 PM 01/24/97	1	Sorry...
	jennp@iastate.edu	10:55 PM 01/29/97	1	Vidal Dickerson
2291302K.13K				

## OUTGOING MESSAGES LOG SHEET (sample)

#	Date	Relationship	General Content of Message
1	6/8	sister	@ meeting a friend of hers
2	6/8	sister	@ a surprise planning for parents
3	6/8	sister	More of #1
4	6/8	sister	More of #2
5	6/9	Best friend	What I did over weekend
6	6/10	acquaintance	Forwarded joke
7	6/10	College friend	Work details (working together summer)
8	6/10	College friend	What I did over weekend
9	6/14	College friend	Thanks for summer email address
10	6/14	College friend	@ money for research project
11	6/14	Best friend	Recipe he'd been asking for
12	6/14	father	Answering mom's questions @ my life
13	6/15	College friend	More of #10
14	6/21	Academic advisor	question about paper I'm writing
15	6/22	College friend	Sending info about paper
16	6/23	father	Thanks for the \$\$
17	6/23	classmates	Passing along info on a research tool
18	6/23	College friend	Can't go bowling
19	6/24	College friend	Missed meeting. Sorry.
20	6/29	College friend	Please do this favor for me!



## Printout Instructions to Complete Outgoing Log Sheet

1. To keep a record of your outgoing messages, simply save them all in your “outgoing mailbox” and do not delete any messages between October 29-November 18, 1997.
2. Make sure to make a notation in the “subject” or “RE:” line when you are sending your message that will help you in the best way possible remember what the message was about. This will help you when filling out the corresponding handwritten log sheet.
3. I would suggest printing out your incoming mailbox about every fifteen messages. After you have a printout on paper, number each email message. Start at the top of the list with 1, and proceed to number down the sheet in order. When you start the next logsheet, make sure that the numbers continue in order. For example, if you had messages numbered 1-15 on the first logsheet, the second log sheet would start with the number 16.
4. Fill out a “Incoming Messages Log Sheet” (copies distributed to you at the information session) for each mailbox printout. For each message on the printout, number corresponding line on the logsheet. Please write legibly!
5. For each individual email you sent, you will fill out a corresponding line on the handwritten log that will provide me with more information. You will have copies of your message on your computer to refer to when doing your handwritten logs. Please refer to them if you cannot remember the content of the message. I’m not concerned with the exact content of your messages, but I will need to know who you sent them to, what relationship that person has with you, and the general content of the message.
6. Staple the corresponding logsheet with its printout. Keep these all in date order.

## Appendix E:


Steps to Program Software for both IBM and Macintosh Computers

## **Instructions for Macintosh Eudora Settings**

### TO KEEP A LOG OF ALL YOUR OUTGOING MAIL

1. Open Eudora and enter your password, this opens and starts the program.
2. Go to the "Special" menu at the top of your screen (See "A").
3. Go to "Settings" and open it (See "B").
4. Then go to "sending mail" and click the box to "keep copies of outgoing mail" (See "C").
5. This process will give you a complete record of any outgoing mail you send. Simply remember to put something in the "RE:" line that will explain the basic nature of the message.

### TO PRINT EMAIL LOGS:

1. Go to the top menu, once you've opened the software.
2. Go to the "Mailbox" pulldown menu. Open "IN" and/or "OUT" depending on which one you want to print out.
3. Then press  /shift/3. This makes a picture of your desktop, so make your mailbox window as large as you can on your screen. Only what you see on your screen will print out. You will hear a clicking sound. This means you've done this correctly.
4. Your computer will place an icon on your harddrive that says "Picture 1" (or 2, or 3 - - depending on how many you are taking...).
5. Open the harddrive window, and then double-click on the icon.
6. The picture of your email log will appear on your window.
7. Go to the "File" pulldown menu, and go to "Print." The regular print commands will appear. Print a copy.



# Instructions for Windows/IBM Eudora Settings

## TO KEEP A LOG OF ALL YOUR OUTGOING MAIL

1. Open Eudora and enter your password, this opens and starts the program.
2. Go to the "Tools" menu at the top of your screen.
3. Go to "Options" and open it.
4. Then go to "replying" and click the box under the "replying to all" section that says "include yourself."
5. This process will give you a complete record of any outgoing mail you send. Simply remember to put something in the "RE:" line that will explain the basic nature of the message.

## TO PRINT EMAIL LOGS:

1. Go to the top menu, once you've opened the software.
2. Go to the "Mailbox" pulldown menu. Open "IN" and/or "OUT" depending on which one you want to print out.
3. Click on the first message in the mailbox. Highlight all rows in the message (across). Then press and hold the "control" key on your keyboard. Then using your mouse, pull down with the cursor on the screen, until all the messages you want are highlighted. Let go of the "control" key.
4. Press "control/C" (to copy).
5. Click "start" in the lower left-hand corner of the computer screen.
6. Then "programs" in the pop-up menu.
7. Then "accessories" in the next pop-up menu.
8. Then choose "notepad" in the next pop-up menu.
9. Open the notepad.
10. Hit "control/V" to paste.

11. Then when you are in the notepad, neaten up what you've pasted. Adjust the tabs to the columns match up.
12. In the notepad, open "file" and then choose "page setup."
13. In the box that says "Orientation" select the box for "landscape", and hit "okay" to close the window.
14. Then select "print".
15. Print a copy.

## Appendix F:

### Categories to Identify Senders/Recipients on Email Log Sheets

Instructions: For each email message on both the Incoming and Outgoing Log Sheets list the recipient/sender in the “relationship” column as one of the following, or provide your own description. You do not need to use these exact categories exclusively, but they should give you an idea of what I’m looking for. When we meet at the end of the study, I will go over your logs to clarify anything I don’t understand. The more specific you are in identifying the relationship of the sender/receiver, the better.

## General Categories of Relationship of Sender/Recipient of Email Message

### I. Family

Mother  
Father  
Stepparent  
Sibling or step-sibling  
Uncle/Aunt/cousin  
Grandparent

### II. Friends

Roommate  
Best friend (from where???)  
On-campus friend  
Friend at another college  
Friend still in high school  
Someone I’m just getting to know/Acquaintance  
Someone I met over email, haven’t met in person  
Friend of Parents, sibling or other relative  
Boyfriend/Girlfriend  
Someone I’m dating or romantically involved with

### III. Faculty & Classmates

Professor of a class I’m taking  
Professor of a class I’m not taking  
Faculty Advisor

Classmates

Someone I'm in a group with for class

IV. People I'm involved in Extra-curricular activities with

One of the executive officers of the activity

A fellow executive officer

A fellow member

A new member

Someone the organization is trying to convince to join

Someone I'm trying to get to do something for the organization

V. Miscellaneous

Email from listserves (what listserve? Why are you part of it?)

VI. Other (please explain)

**Appendix G:**  
**Laminated Reminder Card**

Attached below is a laminated card on a piece of adhesive, to use to remind yourself that you are participating in the study, and should keep all email messages for the agreed upon timeframe. Use it if it will help!

**REMEMBER:** to save  
all incoming and  
outgoing messages  
for the research project!  
Questions: email: [lgatz@vt.edu](mailto:lgatz@vt.edu)

**Appendix H:**  
**Informational Meeting Protocol**



# **Initial Meeting Protocol**

## **I. Review requirements and responsibilities of the participants**

- o attend an informational meeting that will last about an hour (this is it!)
- o answer six email survey questions throughout the course of the three week data collection time period (Appendix J)
- o keep all incoming and outgoing messages and printout your mailboxes
- o keep corresponding log sheets that record the nature of the relationship between yourself and the sender/receiver of all messages and the general nature of all messages
- o submit your printout and logs to me at the end of the research
- o have a final meeting with me at which you submit these materials, and answer any questions I may have about your printouts and logs.
- o Be available to answer and send email during October 29th through November 18th.
- o Sign a consent form and agree to complete the study.

## **II. Discuss how the data need to be tracked and gathered for outgoing messages**

- o how to program software (Appendix E)
- o email logs should be kept and use of corresponding log sheet (Appendix D)
- o how to identify the relationship of the participant and the person sending the email message (Appendix F)
- o More logs are available from me, if needed, in the Newman Hall Basement, CA Office. Phone number 231-2778.

## **III. Discuss how the data needs to be tracked and gathered for incoming messages**

- o how to program software (Appendix E)
- o email logs should be kept and corresponding log sheet completed(Appendix C)

- o how to identify the relationship of the participant and the person sending the email message (Appendix F)
- o More logs are available from me, if needed, in the Newman Hall Basement, CA Office. Phone number 231-2778.

**IV. Have the participants sign informed consent form and agreement to complete the study.**

V. Answer any questions

VI. Distribute laminated reminder cards to participants.

VII. Issue \$10 incentive, and remind participants the remaining \$30 will be distributed at the conclusion of the study

## Appendix I

### Weekly Email Deliveries to the Virginia Tech Campus



## Appendix J

### Email Survey Questions, Dates Sent to Participants, and Relativity to Research Questions

## Email Survey Dates, Questions and Relativity to Research Questions

<u>#</u>	<u>Date to be sent</u>	<u>Survey Question</u>	<u>Research Question</u>
1	Friday, Oct 31	Describe how you use email. Give specific examples.	How do students use email?
2	Monday, Nov 3	Describe how email figures into your daily life	How do students use email?
3	Thursday, Nov 6	What is the biggest benefit of email for you?	How do students use email?
4	Sunday, Nov 9	What is the biggest drawback about email for you?	How do students use email?
5	Wednesday, Nov 12	Describe how you use email to meet your academic needs.	Do students use email in lieu of traditional behaviors that lead to academic integration?
6	Saturday, Nov 15	Describe how you use email to meet your social needs.	Do students use email in lieu of traditional behaviors that lead to social integration?

## Appendix K

### List of Traditional Academic Behaviors

## **Codes for Traditional Academic Integration**

### **Category A: Faculty Contact**

<u>CODE</u>	<u>Item</u>
AS31	I have a mature working relationship with one or more members of the academic community (faculty member, student affairs staff member, administrator).
AS41	I have formed a personal relationship (friendly acquaintanceship) with one or more professors.
AS51	Within the past three months I have had a serious discussion with a faculty member concerning something of importance to me.
AC27	Talked with a faculty member.
AC28	Asked your instructor for information related to a course you were taking (grades, make-up work, assignments, etc.).
AC29	Visited informally and briefly with an instructor after class.
AC30	Made an appointment to meet with a faculty member in his/her office.
AC31	Discussed ideas for a term paper or other class project with a faculty member.
AC32	Discussed your career plans and ambitions with a faculty member.
AC33	Asked your instructor for comments and criticisms about your work.
AC34	Had coffee, cokes, or snacks with a faculty member.
AC35	Worked with a faculty member on a research project.
AC36	Discussed personal problems or concerns with a faculty member.
AC96	Asked an instructor for advice and help to improve your writing.
AC97	Made an appointment to talk with an instructor who had criticized a paper you had written.

### **Category B: Taking an interest in furthering my academic experience**

<u>CODE</u>	<u>Item</u>
BS12	When I don't think I am learning what I should in a course, I take the initiative to do something about it.
BS21	I take advantage of opportunities to enter into class discussions.
BS62	Within the past three months I have read one or more non-required publications related to my major field of study.
BC38	Participated in class discussions.
BC42	Worked on a paper or project where you had to integrate ideas from various sources.
BC46	Did additional readings on topics that were introduced and discussed in class.
BC68	Used the lounge(s) or meeting rooms to meet with a group of students for a discussion.
BC120	Tested your understanding of some scientific principle by seeing if you could explain it to another student.
BC121	Read articles (not assigned) about scientific theories or concepts.

### **Category C: Advising**

<u>CODE</u>	<u>Item</u>
CO17	(have used) Academic advising services
CS22	I have taken the initiative to set up conferences with an academic advisor within the past twelve months.
CS72	Within the past twelve months I have discussed, <i>in depth</i> , my educational objectives or plans with an academic advisor.

### **Category D: Library & Research**

<u>CODE</u>	<u>Item</u>
DO22	(have used) Library facilities and services
DC17	Used the library as a quiet place to read or study materials you brought with you.



- DC18 Used the card catalogue or computer to find what materials there were on some topic.
- DC19 Asked the librarian for help in finding material on some topic.
- DC23 Found some interesting material to read just by browsing in the stacks.

**Category E: Tutoring & other success strategies**

<u>CODE</u>	<u>Item</u>
EO25	(have used) College-sponsored tutorial services
EO35	(have used) Computer Services
ES123	My grades are not as good as they could be because I don't like asking for help.
EC89	Used a dictionary or thesaurus to look up the proper meaning of words.
EC93	Asked other people to read something you wrote to see if it was clear to them.
EC94	Referred to a book or manual about style of writing, grammar, etc.
EC95	Revised a paper or composition two or more times before you were satisfied with it.
EC145	Studied with other students in the residence unit.
ES11	I know all the basic requirements for graduating with a degree in my academic major/academic concentration
ES18	I set aside time each day to deal with schoolwork and assignments.

## Appendix L

### List of Traditional Social Behaviors

## Codes for Traditional Social Integration

### **Category A: Student Organization Involvement**

<u>CODE</u>	<u>Item</u>
AS25	I am a member of at least one club or organization that is specifically related to my chosen occupational field.
AS40	I am actively involved in two or more different organized activities in addition to my academic studies.
AC81	Read or asked about a club, organization, or student government activity.
CA82	Attended a meeting of a club, organization, or student government group.
AC86	Discussed reasons for the success or lack of success of student club meetings, activities, or events.
AC88	Met with a faculty advisor or administrator to discuss the activities of a student organization.

### **Category B: Making & Interaction with Friends**

<u>CODE</u>	<u>Item</u>
BC61	Met your friends at the student union or student center.
BC62	Sat around in the union or center talking with other students about classes and other college activities.
BC100	Discussed with other students why some groups get along smoothly, and other groups don't.
BC101	Sought out a friend to help you with a personal problem.
BC106	Asked a friend to tell you what he/she really thought about you.
BC109	Made friends with students whose academic major field was very different from yours.
BC110	Made friends with students whose interests were very different from yours.
BC111	Made friends with students whose family background (economic and social) was very different from yours.
BC112	Made friends with students whose age was very different than yours.
BC113	Made friends with students whose race was different from yours.
BC114	Made friends with students from another country.
BC116	Had serious discussions with students whose religious beliefs were very different from yours.
BC117	Had serious discussions with students whose political opinions were very different from yours.
BC118	Had serious discussions with students from a country different from yours.
BC139	Gone out with other students for late night snacks.
BC141	Participated in discussions that lasted late into the night

### **Category C: Interaction in Residence Halls & Dining Commons**

<u>CODE</u>	<u>Item</u>
CO28	(have used) Residence hall services and programs
CO29	(have used) Food services
CC59	Had meals, snacks, etc. at the student union
CC143	Borrowed things (clothes, records, posters, books, etc.) from others in the residence unit.
CC144	Attended social events put on by the residence unit.
CC147	Worked on some community service or fund raising project with other students in the residence unit.
CC138	Had lively conversations about various topics during dinner in the dining room or cafeteria.

### **Category D: Recreational Activities and Exercise**

<u>CODE</u>	<u>Item</u>
DO21	(have used) Recreational and intramural programs and services
DS77	I plan my week to make sure that I have sufficient time for physical exercise.
DC70	Followed a regular schedule of exercise, or practice in some sport, on the campus.
DC71	Used outdoor recreational spaces for casual and informal <u>individual</u> athletic activities.
DC72	Used outdoor recreational spaces for casual and informal <u>group</u> sports.
DC73	Used facilities in the gym for individual activities (exercise, swimming, etc.).
DC76	Played on a intramural team.
DC78	Was a spectator at college athletic events.

### **Category E: Self-help Activities**

<u>CODE</u>	<u>Item</u>
EO18	(have used) Personal counseling services
EO23	(have used) Student health services
ES7	I have one or more effective techniques (not involving alcohol or drugs) that I use to help me relieve stress.
ES9	I don't hesitate to seek help in dealing with the pressures of college life
EC104	Read articles or books about personal adjustment and personality development.
EC105	Taken a test to measure your abilities, interests, or attitudes.
EC107	Been in a group where each person, including yourself, talked about his/her personal problems.
EC108	Talked with a counselor or other specialist about problems of a personal nature.

### **Category F: Leadership Activities**

<u>CODE</u>	<u>Item</u>
FS48	I have been active on at least one committee at college or in one or more college groups within the past six months.
FC85	Worked in some student organization or special project (publications, student government, social event, etc.).
FC87	Worked on a committee.
FC146	Helped plan or organize an event in the residence unit.

### **Category G: Career Exploration**

<u>CODE</u>	<u>Item</u>
GO19	(have used) Career planning services
GO20	(have used) Job placement services
GO27	(have used) Student employment services
GS3	I know where to find information about the prospects for employment in any occupational field.
GS15	In the past year I have discussed my career goals with at least two professionals in the field that interests me most.
GS43	Within the past month I have read an article or book that deals with some aspect of a career I am considering or have decided upon.
GS64	I have sought out leisure time activities for the purpose of helping me obtain an indication of my career interest.

- GS69 Within the past six months I have undertaken either an independent study or serious project on my own.
- GS74 While in college I have visited a career center or library to get information about possible careers or detailed information about a career area I have chosen.

**Category H: Multicultural ,Fine Arts Activities, and Speakers**

- | <u>CODE</u> | <u>Item</u>  |
|-------------|--|
| HO31        | (have used) Cultural programs  |
| HS32        | Within the past twelve months I have attended a lecture or program dealing with a serious intellectual subject which was not required for any of my courses. |
| HS50        | I have attended a play or classical music concert within the past year when not required for a class.  |
| HS60        | Within the past twelve months I have visited a museum or an art exhibit when not required for a class.   |
| HS70        | Over the past year I have participated in cultural activities on a regular basis (several times a month).  |
| HC47        | Talked about art (painting, sculpture, architecture, artists, etc.) with other students at the college.  |
| HC48        | Gone to an art gallery or art exhibit on the campus.   |
| HC49        | Read or discussed the opinions of art critics.   |
| HC50        | Participated in some art activity (painting, pottery, weaving, drawing, etc.).   |
| HC51        | Talked about music (classical, popular, musicians, etc.) with other students at the college.   |
| HC52        | Attended a concert or other music event at the college.  |
| HC53        | Read or discussed the opinions of music critics.   |
| HC54        | Participated in some music activity (orchestra, chorus, etc.).   |
| HC55        | Talked about the theater (plays, musicals, dance, etc. ) with other students at the college.   |
| HC56        | Seen a play, ballet, or other theater performance at the college.  |
| HC58        | Participated in or worked on some theatrical production (acted, danced, worked on scenery, etc.).  |
| HC65        | Attended a social event int he student union or center.  |
| HC98        | Submitted for publication an article, story, or other composition you had written.   |

**Category I: Miscellaneous Social Activities**

- | <u>CODE</u> | <u>Item</u>   |
|-------------|---|
| IO20        | (have used) College mass transit services   |
| IO30        | (have used)College sponsored social activities  |
| IS78        | I have made a positive contribution to my community (campus, neighborhood, or hometown) within the past three months. |
| IC60        | Looked at the bulletin board for notices about campus events.   |
| IC64        | Seen a film or other event at the student union or center.  |
| IC66        | Heard a speaker at the student union or center  |
| IC67        | Played games that were available in the student union or center (ping-pong, cards, pool, pinball, etc.)               |
| IC79        | Looked in the student newspaper for notices about campus events and student organizations.                            |
| IC80        | Attended a program or event put on by a student group.  |
| IC83        | Voted in a student election   |
| IC84        | Discussed policies and issues related to campus activities and student government.                                    |

**Category J: Organization of time**

CODE    Item

JS19    I organize my time well enough for me to get every thing that need to be done completed.

JS20    I make time in my schedule for my hobbies

JS30    In my leisure time I regularly read novels or magazines.

Lisa B. Gatz

Lisa B. Gatz

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12200 Foxridge Ln. NW - Apt. C  
Blacksburg, VA 24060  
(540) 961-7691  
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As of June 30, 1998  
407 McHenry  
Urbana, IL 61801  
(217) 367-0670

### PROFESSIONAL SKILLS

- ❖ Ten years of professional experience in higher education and student affairs
- ❖ Excellent written, verbal, advising, counseling, and communication skills
- ❖ Budgeting and account management skills
- ❖ Computer skills in word processing, spreadsheets, desktop publishing, presentation applications, web page design and implementation
- ❖ Employee Management skills in hiring, training, supervising, and evaluating

### EDUCATION

#### **Master of Arts in Education - Student Personnel Services**

Virginia Polytechnic Institute & State University, Blacksburg, VA May 1998

- ❖ **Thesis:** Academic & Social Integration in Cyberspace: A Qualitative Study

#### **Bachelor of Arts - Art, Journalism, and Education**

Valparaiso University, Valparaiso, IN

May 1985

### GRADUATE EXPERIENCE

#### EMPLOYMENT HISTORY

#### **Graduate Assistantship - Community Assistant**

Residential & Dining Programs, Division of Student Affairs, Virginia Polytechnic Institute & State University

August 1997-May 1998

- ❖ Hired, trained, and supervised staff of 100 Night Monitors, and 5 Fitness Room Monitors
- ❖ Advised 7 Hall Councils on educational and recreational programming and funding
- ❖ Acted as programming resource for 35 Resident Advisors
- ❖ Maintained programming and staff budgets for 7 residence halls and 7 Hall Councils
- ❖ Provided safety and security training to 100 Night Monitors
- ❖ Interacted with AC and 7 Head Staff Members as part of a residence community on a daily basis

**Graduate Assistantship - Transfer Counselor**

Undergraduate Admissions Office, Division of Academic Affairs, Virginia Polytechnic Institute & State University

August 1996-May 1997

- ❖ Reviewed application files and transcripts for transfer applicants
- ❖ Counseled prospective students regarding transfer requirements, articulation agreements, grade point averages, and required courses
- ❖ Developed sequential mailing program to contact prospective transfer students
- ❖ Assisted with Fall Open House, Meet Virginia Tech and Expo programs

PRACTICA

**Orientation**

Dean of Students Office, Division of Student Affairs, Virginia Polytechnic Institute & State University

January 1997-July 1997

- ❖ Co-taught Leadership Class to Orientation Leaders
- ❖ Developed class materials, handouts, tests and activities
- ❖ Worked with Team Leaders to develop a regional conference presentation
- ❖ Co-managed Check-In process for Orientation
- ❖ Lived-in supervisor of residence hall used for Orientation
- ❖ Supervised and trained 25 Orientation Leaders

RELATED

**First Year Experience - Planning Committee**

Residential & Dining Programs, Division of Student Affairs, Virginia Polytechnic Institute & State University

Spring 1997

- ❖ Created processes for application by and selection of students
- ❖ Created and marketed program to potential students

**Association for Student Development - Vice President**

Virginia Polytechnic Institute & State University

November 1996-November 1997

- ❖ Assisted President with goal and program planning and implementation
- ❖ Coordinated hosts for visiting prospective students
- ❖ Coordinated "Buddy" program for new masters students



PROFESSIONAL EXPERIENCE  
EMPLOYMENT HISTORY

**Associate Director of Admissions**

Admissions Office, Division of Student Affairs, Alma College - Alma, MI  
August 1990-July 1996

- ❖ Supervised three Assistant Directors of Admissions.
- ❖ Responsible for Junior Visitation & Pre-Orientation Programs
- ❖ Developed training program for new staff members, developed training manual
- ❖ Appointed by President to Administrative Policy Committee
- ❖ Planned and executed extensive travel for recruiting territory, conducted office interviews, visited high schools, attended college fairs and recruitment receptions
- ❖ Worked with Alma College Parent Board
- ❖ Served as Financial Aid Liaison
- ❖ Served as Public Relations Liaison, and completed Administrative Internship as Assistant Academic Catalog Editor
- ❖ Chaired and served as member of campus-wide Marketing Team
- ❖ Responsible for yearly publications budget of over \$100,000

**Admissions Counselor**

Admissions Office, Division of Enrollment & Student Affairs, Concordia College-St. Paul, MN

August 1986-August 1990

- ❖ Created Student-to-Student contact program and hired personnel
- ❖ Conducted extensive telephone contacts with prospective students
- ❖ Administered Presidential Scholarship Program
- ❖ Responsible for office mailings, including content, design, copy, and audience selection

**PROFESSIONAL AFFILIATIONS**

National Association for Student Personnel Administrators  
Association of College Personnel Administrators  
National Orientation Directors Association  
Michigan Association of College Registrars and Admission Officers  
Co-Chair and member of College Day/Night Committee (1992-96)  
Association for Student Development, Virginia Tech  
Vice-President (1996-97)

**PRESENTATIONS**

**What's happening with College Night Programs?**, MACRAO Annual Conference 1994, Shanty Creek, MI  
**Who is the class of 2001?**, Regional NODA Conference 1997, Washington D.C.  
**The Ancient Art of Student Leadership**, VASPA Regional Conference 1997, Blacksburg, VA  
**Transitioning Students Toward Leadership**, Graduate Student & Faculty Forum 1998, Columbia, SC  
**Case Study Competition Winner**, Graduate Student & Faculty Forum 1998, Columbia, SC

