2016

The Effect of an Email Intervention Tailored to Highly Ambitious Students on University Retention

Lauren Bahls
Minnesota State University Mankato

The Effect of an Email Intervention Tailored to Highly Ambitious Students on University

Retention

By

Lauren Bahls

A Thesis Submitted in Partial Fulfillment of the

Requirements of the Degree of

Master of Arts

In

Industrial and Organizational Psychology

Minnesota State University, Mankato

Mankato, Minnesota

May, 2016

The Effect of an Email Intervention Tailored to Highly Ambitious Students on University Retention

Lauren Bahls

This thesis has been examined and approved by the following members of the student's

committee:

_____

Kristie Campana, Ph.D.

Advisor

_____

David Jones, Ph.D.

Committee Member

_____

Shawna Petersen-Brown, Ph.D.

Committee Member

Title: The Effect of an Email Intervention Tailored to Highly Ambitious Students on University Retention

Bahls, Lauren M., Minnesota State University, Mankato

This study sought to increase student retention through the use of email interventions tailored to a specific group of ambitious students as determined by the Hogan Personality Inventory. Previous literature shows the relationship between ambition, the similar constructs of work drive and achievement seeking, and positive academic outcomes such as higher GPA, higher ratio of credits earned to credits attempted and increased likelihood of returning to the same institution. Focusing on students who rated high on ambition according to the Hogan Personality Inventory, the treatment group received emails with activities that may be of interest to help them build their resumes and meet other students with similar interests. The intervention did not have an effect on GPA or retention, but did show an increased ratio of credits earned compared to attempted. Results may have been due to the small sample size, ceiling effect, or the ratio of credits earned to attempted may have masked performance by encouraging students to complete courses they otherwise may not have.

Table of Contents

Introduction

Student retention is an important variable for universities and students alike. Low retention rates contribute to financial loss and lower ratings for universities. For students, dropping out of college can mean lower salary throughout their lifetimes and higher unemployment rates.

Lower retention rates may translate into financial loss for the universities. Johnson (2001) calculates the cost of student attrition by calculating the money the university would have earned if the student had stayed four years minus the amount they paid for the semester or year they attended the institution. For example, Minnesota State University, Mankato calculates their tuition and fees (not including books, room, etc.) to be $7,836. At this price, a student who attended for four years would pay $31,344. If the student drops out after one year, the institution loses the remaining $23,508.

This number is somewhat misleading, as students who transfer into the college or university after the first semester do help to make up this deficit, so the university is not necessarily out $23,508 for each student who leaves after a year. There is still an overall loss though, because recruiting new students is more expensive than retaining current students, so when students do not come back for a second year the institution must spend more money recruiting students to fill that gap in funds (Astin, 1993). In 2013, the median cost a four-year public institution spent on recruiting one undergraduate student was $457, with $268 at the 25th percentile and $750 at the 75th percentile (Noel-Levitz, 2013). This becomes expensive very quickly when considering recruiting costs in addition to money lost from students who left and were not replaced immediately. The resources spent on recruiting students who only attend the

institution for a year also contribute to overall administrative waste (Alarcon, & Edwards, 2013).

Low retention rates can make it difficult for institutions to remain financially stable, and to

continue offering a wide range of strong academic programs (Fike & Fike, 2008).

College and university rankings heavily weight retention, so institutions may lose status

due to low retention rates. Retention rates factor into ratings for institutions in the U.S. News and

World Report's rankings, contributing about 20-25% to the overall rating (Alarcon, & Edwards,

2013). Students may miss future job opportunities, if they are dropping out as opposed to

transferring to a different school. Information collected by the ACT shows that in Minnesota in

2011, 34% of college graduates attended multiple institutions. Among four-year public schools

in Minnesota, the retention rate (measured by re-enrollment status) was 86%, compared to a

national average of 89%. In comparing Minnesota institutions to the national average they do a

decent job of retaining students, there is still a significant percentage of students who do not re-

enroll at the same university (ACT, 2013b).

Retention is also an important issue for students. For those who drop out of college

entirely, unemployment rates are 9% higher than for those with a bachelor's degree (ACT,

2014). In 2011, the median annual salary for someone with a bachelor's degree was $56,500

compared to $40,400 for those with some college, but no degree and $35,400 for students with

only a high school degree. The difference in earnings between high school graduates and

earnings for those whose highest degree is a bachelor's is 60% for full-time workers and 73% for

all earners (College Board, 2013). When students leave an institution, whether they leave school

entirely or transfer to another school, it usually occurs during the first year, so focusing retention

efforts on first year students allows for the most impact on students in retaining students

(Jamelske, 2009).

According to the American College Test (ACT), retention rates are calculated by finding the percentage of students who come back for their second year at the institution in which they completed their first year (ACT, 2013b). Technically, retention refers to coming back to the institution year to year and persistence refers to coming back between semesters. However, the literature does not use these terms consistently. For example, Alarcon & Edwards (2012) measured retention each quarter, by calculating the percent of students who enrolled in credit hours for the next quarter at the same institution. For the purposes of this paper, when saying retention I am actually referring to persistence.

Interventions and Retention Strategies

To improve retention rates, for the benefit of both the students and the universities, many institutions implement interventions and other strategies to encourage students to re-enroll the next semester and year at the same school. These interventions include creating first-year orientation classes, academic counseling and advising, or other strategies to help students feel they fit in and that the school is meeting their needs and interests.

Instructional interventions. Instructional interventions are those aimed at improving retention through improvement or changes in courses. These include courses, seminars, orientations, and workshops that strive to encourage persistence and foster success. Courses and seminars may be changed to align with student interests and goals to ensure the institution is meeting the academic needs of the students. The goal of orientation is to inform students about the school, as well as to help students get to know each other and feel more connected. Workshops are beneficial for students either to improve in academic skills to do well in classes, or to help students find direction in choosing a major, classes, or finding internships. Specific

examples of these workshops include study skills, critical thinking skills, and grade point average improvement (Braxton, Briar, & Steele, 2008).

Other instructional interventions include learning style interventions aimed at helping students learn how to study and meet their goals based on their specific learning styles. The goal of instructional courses is to better cater to the needs and interests of students to encourage them to stay at the institution through modifying existing courses or hosting relevant workshops to be more engaging. Course modification often comes in the form of incorporating more active and participative learning in large classrooms to help with student development and interaction (Braxton, et al., 2008; Hanger, Goldenson, Weinberg, Schmitz-Sciborski & Monzon, 2012). Ruffalo Noel Levitz, LLC (2015) conducted a poll of campus officials for two-year and four-year institutions to determine effective ways undergraduate programs increased student retention. Ratings were based on official census data. They found that the top ten most effective interventions for public four-year institutions included two practices specifically for first-year students: programs designed specifically for first-year students and mandatory first-year or orientation courses. Of these institutions, 94.3% rated programs designed specifically for first-year students as very or somewhat effective, and 96.4% were using these interventions.

Non-instructional interventions. Not all interventions are implemented through classes and structured programs. The remaining ones are non-instructional and many fit into the category of support services. These services include advising, counseling, and tutoring, and they cover academic, personal and career development (Braxton, et al., 2008; Hanger, et al., 2012). In their poll, Ruffalo Noel Levitz (2015) found the intervention rated by campus officials as "most effective" was honors programs for academically advanced students. This was followed by

academic support, such as tutoring. Similarly, 87.3% of polled institutions rated academic

support as very or somewhat effective and 100% of the institutions had this in place.

Braxton and colleagues (2007) recommend professional practice guidelines to increase

student retention rates. The non-instructional guidelines include demonstrating respect for the

students by encouraging faculty to listen to them and address their needs and concerns. Building

on this, another guideline is to "develop and foster a culture of enforced student success" by

treating all students as though they are at risk and continuing to offer support beyond the

mandatory first-year programs. Third, the institutions should also work to "foster the

development of student affinity groups and student friendships". When students feel that other

students share their values, beliefs and goals, it fosters social integration and may facilitate

retention. Development of these sub-groups can occur through residence halls, learning

communities, intramural sports and other extracurricular activities that get students involved and

interacting with one another. Themes in these non-instructional guidelines include continued

support for the students and a focus on helping to meet student's individual needs, working one

on one, or guiding them to find and get involved in groups or organizations that will introduce

them to others with similar interests. Echoing this sentiment, a meta-analysis done by Robbins,

Lauver, Davis, Langley & Carlstrom (2004) found that helping to meet individual student needs

or cater interventions to targeted groups, such as academic goals, social support, social

involvement, academic self-efficacy, and academic-related skills, were positively correlated with

retention.

As can be seen in the polling by Ruffalo Noel Levitz (2015) and research by Braxton et

al. (2007), retention plans focusing on increasing student involvement or integration may be

particularly effective. One major contributor to withdrawal from universities is students not

fitting in academically or socially (Sieveking & Perfetto, 2001), which would explain why

programs tailored to specific individuals or groups of individuals may increase involvement or

integration and eventually retention. To support this, Montgomery et al., (2009) found effective

retention interventions evaluate the specific characteristics and needs of the students, and

recommend creating retention plans accordingly. Non-academic factors, such as social and

emotional efforts, are also important for successful retention interventions. In addition to using

these non-academic factors to help students fit in, these successful retention plans are tailored to

individuals or individual groups (Montgomery et al., 2009). Similarly, the ACT (2004) found

that incorporating non-academic factors into the creation of new programs to ensure they are

socially inclusive and supportive helped to address student needs. Other effective programs that

incorporated inclusion activities to increase student involvement were first-year learning

communities, integration of academic advising and programs for honors students.

   Another study found that creating more individualized plans for students may help

increase their feelings of fitting in at the school, which, regardless of academic performance,

increases student retention. For some of these students, social integration or their feelings of fit

seemed to compensate for poor academic performance in keeping them at the school. This

suggests that encouraging students to get involved and be engaged in university activities may

help with retention by affecting students' positive self-perceptions and feelings of successful

adaptation, which contribute to social integration (Kennedy, Sheckley, & Kehrhahn, 2000).

   In support of tailored interventions, the ACT (2013a) found that some of the highest

rated retention intervention practices for public four-year colleges include supplemental

instruction, advising interventions catered to selected student populations, and programs for

honor students. Similarly, Bruning (2002) found that successful retention plans focus on

relationship-building, which can be done in ways such as maximizing opportunities for social

engagement and providing a variety of recreational activities. These strategies fulfill relationship

and satisfaction needs, which are shown through increased retention. Overall, research shows

that one element of successful retention plans are that they are specific to individual students or

groups of students, which may help increase feelings of fitting in, which leads to increased

retention.

Ambition and Related Constructs

The research on interventions, specifically on non-instructional interventions, shows that

effective interventions are catered to specific students, or groups of students, through helping

them with their goals, study habits, or school involvement meeting their needs. One variable we

may want to study more specifically is ambition. As defined by Hogan, ambition "measures the

degree to which a person appears socially self-confident, leader-like, competitive, and energetic"

(Hogan & Hogan, 2007, p. 109). Individuals who score high on this trait are results- and success-

driven. They are prepared to initiate steps to get classwork or work assignments started by taking

actions such as being the first to reach out to a client, begin research or start team coordination or

project organization.

Ambitious individuals are also more likely to persist and put in the extra effort to

overcome obstacles or barriers that get in the way of their assignments or goals. In contrast, those

who score low on ambition prefer to follow rather than lead, and work well in teams and

supporting roles (Hogan & Hogan, 2007, p. 109). Ambitious people are goal-driven and

energetic enough to accomplish their goals. This may be manifested through discontent with

one's current situation, which acts as a motivator to continue working and accomplish something

more. At the extreme, some ambitious individuals are goal-driven, confident and competitive to

the point of aggression, and may search for ways to self-promote and boast of their

accomplishments (DiPiro, 2009).

There are a number of constructs in the educational and industrial-organizational

psychology field similar in definition to ambition. Because relatively little research has been

done specifically on ambition and university retention, these related variables are worth

discussing. To make up for this lack of evidence, the current study uses research on the

relationship between both work drive and achievement striving and retention. Table 1 shows the

similarities in definitions and measure items between the three constructs.

Table 1: *Definitions of the ambition, work drive and achievement striving*

Construct	Definition	Example Item
Ambition	"Measures the degree to which a person appears socially self-confident, leader-like, competitive, and energetic" (Hogan & Hogan, 2007)	"I have always wanted to work hard in order to be able to be the best in whatever I do" Response scale: 1 (*Very Strongly Disagree*) to 7 (*Very Strongly Agree*) (Bennet, 2007)
Work Drive	"Being hard-working, industrious, and inclined to put in long hours and much time and effort to reach goals and achieve at a high level" (Lounsbury, Saudargas, & Gibson, 2004)	"I don't mind putting in very long hours of study if it helps me make good grades" Response scale: 1 (*Strongly Disagree)* to 5 (*Strongly Agree)* (Taylor et al., 2009)
Achievement Striving	"In an academic setting, …Ambitious, highly involved, and hard-working" (Nonis, & Wright, 2003)	"Compared with other students, the amount of effort you put forth on college work is:" Response Scale: 1 (*Much More*) to 5 (*Much Less)* (Nonis & Wright, 2003)

One of the related variables that abounds in the literature is *work drive*. Work drive can be defined as "being hard-working, industrious, and inclined to put in long hours and much time and effort to reach goals and achieve at a high level" (Lounsbury, Saudargas, & Gibson, 2004). It is the characteristic of pushing oneself to succeed or having a strong need to get things done well and get them done efficiently (Taylor, Scepansky, Lounsbury, & Gibson, 2009). People with a high work drive are more likely to work long hours, exhibit higher energy levels, and take on extra responsibilities (Lounsbury, Gibson, & Hamrick, 2004).

Another variable present in the literature and that is related to ambition is *achievement striving*. Achievement striving can be defined as "ambitious, highly involved, and hard-working" in an academic setting (Nonis & Wright, 2003). A less context specific definition by Bluen, Barling, and Burns (1990) states that those who rate high on achievement striving work hard, are active and put the necessary time and effort into their work. In a professional context, achievement striving has been associated with job satisfaction, job performance, and other positive organizational outcomes (Barling, Cheung, & Kelloway, 1996).

As can be seen in the definitions and example questionnaire items in Table 1, ambition, work drive and achievement striving are all related constructs. Before going into details, it is important to recognize that ambition is a more general construct, often having to deal with career success. Work drive and achievement striving, on the other hand, are more focused on student success. Because this study takes place in an academic setting, this difference in specificity should not be an issue.

A focus of all three definitions is that the individual is hard working. The items sampled for each construct also include this element of the definition. The items for all three constructs focus on the willingness to put in extra time or effort to be the best, or excel. Individuals high on

these three constructs are motivated to do the necessary and possibly extra work to meet goals, or surpass their goals. Similarly, these individuals spend a large amount of time working on homework, or a project, or a way to better themselves as evidenced by the terms active, industrious, and highly involved across the three definitions (Bluen et al., 1990; Lounsbury et al., 2004; Nonis & Wright, 2003). Because the three constructs have similar definitions and are measured by similar items, it follows that outcomes associated with work drive and achievement striving are also associated with ambition.

Ambition is key factor of success in both academic and workplace settings. In a student population, ambition is highly correlated with academic, social, and personal adjustment in undergraduate students. Martin, Montgomery, & Saphian (2006) also found that ambition may be associated with better grades due to greater task engagement.

In the professional world, ambition positively relates to job performance (Martin, et al., 2006; Hogan & Holland, 2003). Ambitious students are more likely to enter a professional or managerial career upon completion than their less ambitious counterparts (Schoon & Parsons, 2002). Ambition was also a strong predictor of advancement in managers in a study done at AT&T, which mirrored the results of other studies conducted with managers and executives (Judge, Cable, Boudreau, & Bretz, 1995).

Previous Research on the Effectiveness of Interventions Tailored to Personality

Because retention is so important to institutions, and can have a lasting financial effect on students who drop out, it is key to look at tailored intervention and retention strategies, which have been proven to have positive effects on improving retention. Montgomery, et al., (2009) used student personality traits to cater interventions to specific groups at Missouri University of

Science and Technology. They found this to be an effective method to improve student retention rates.

Within the health field, research has recently demonstrated positive effects for tailored interventions, where participants' personal characteristics are used to match them to a more effective intervention (Lustria, Noar, Cortese, Van Stee, Glueckauf, & Lee, 2013). A meta-analysis of tailored vs. nontailored web-based interventions on health behaviors found positive changes in health behavior outcomes at the posttest, and that the tailored interventions may lead to more lasting behavioral changes than the nontailored interventions (Lustria, et al., 2013). Similarly, a meta-analysis by Noar, Benac and Harris (2007) found that tailored messages led to more positive health behavior changes compared to comparison messages. Finally, a third meta-analysis found that tailored interventions aimed at addressing several health behaviors led to greater improvements than the generic newsletters did (De Vries, Kremers, Smeets, Brug, & Eijmael, 2008). The research shows that interventions tailored to individuals or groups based on specific characteristics are more effective than generic messages. This idea has very recently been applied to the education field in studies such as Montgomery and colleagues'.

Montgomery et al., (2009) used personality traits as determined by the Hogan Personality Inventory (HPI) to predict academic success and retention at Missouri University of Science and Technology. Missouri S&T ranked in the Top 50 Public Colleges and Universities for highest first-to-second year retention rate, and ranked in the "Plains Region" for public schools at 87%. Students took the HPI, which identified the students most at-risk for dropping out. The researchers then personalized the interventions to play up the students' strengths or help with developmental areas.

Their study looked at two personality constructs, prudence and sociability. The HPI

defines prudence as "the degree to which a person seems conscientious, conforming, and

dependable" (Hogan & Hogan, 2007). Students who rated low on prudence received emails

reminding them of upcoming deadlines or drop/add dates. The goal of the emails was to remind

students who may not plan ahead or pay attention to details about important information they

may otherwise forget. Students who rated high on sociability received information on social

activities around campus, which would help the students get involved in campus activities. The

emails increased student satisfaction at the University, and in turn increased retention

(Montgomery, et al., 2009).

The Present Study

The present study is based on the Montgomery et al. (2009) study conducted at Missouri

University of Science and Technology. This research will be conducted at Minnesota State

University, Mankato (MNSU) with first year and transfer students. MNSU is a public, four-year

university in Mankato, Minnesota with over 15,000 students and over 130 undergraduate

programs. MNSU currently has a first-year retention rate of 79.3% (Institutional Research,

Planning and Assessment, 2015), which is lower than the state average for public four-year

institutions of 86% (Kena, Musu-Gillette, Robinson, Wang, Rathbun, Zhang, Wilkinson-Flicker,

Barmer, & Dunlop Velez, 2015). The present study aims to use ratings of ambition based on the

HPI to create tailored email interventions to increase student retention.

Ambition is associated with a number of positive outcomes, both in academics and the

workplace. Retaining these students is important to universities in terms of rankings and

finances. Ambitious students may be more likely to stay if they feel they fit in, reflected in social

activities with like-minded individuals, or by opportunities to be a leader, challenge themselves

or build their résumés.

Successful retention strategies are individualized for specific groups of students or work

to increase student involvement and fit at the school (Braxton et al., 2007; Robbins, et al., 2004).

Emails developed exclusively for students who rate high on ambition should help those students

feel like they fit in better, as they may be more aware or more involved in university related

events with other similar students at the school. If the students participate in the relevant

activities included in the email, they may also feel like they fit in better because they are getting

the leadership, résumé-building activities they may value from the university. The students

would have the opportunity to meet other students who have similar interests, and to become

more involved in the campus itself through attending events and workshops through different

departments and academic groups. The activities specific to those who rate high on ambition

may help students get what they want or need from the school, which may make them feel they

fit better.

I hypothesize that students who receive the email interventions will have higher retention

rates compared to ambitious students who do not receive the emails. The proposed intervention

will be specific to individuals who rate high on ambition, which is an important factor in

successful retention plans (Montgomery, et al., 2009). Honor programs are also recognized as

being a key part of successful retention plans (ACT 2013a). Although the email interventions are

not substitutes for an honors program, they can provide opportunities for challenging and

résumé-building opportunities like an honors program can. The email interventions also give

students lists of activities where they will be social engaged and have variety in recreational

offerings. These factors contribute to the relationship-enhancement, which increases retention

via fulfillment of relationship and satisfaction needs (Bruning, 2002).

Some activities that may benefit students who are driven and competitive, and will be

included in the emails, are ToastMasters, honor societies and programs, leadership opportunities,

and self-improvement courses, among others (Goff, 2007).

Due to time constraints, student retention will be assessed by evaluating differences

between number of students rated as ambitious who received email interventions who return to

MNSU for a second semester and number of students who rate as ambitious who do not receive

email interventions and return to MNSU. GPA and credits earned compared to credits attempted

will also be assessed after the first semester.

There is a positive relationship between work drive and retention, such that those who are

more ambitious are more likely to stay at a college or university. In a study done by Taylor,

Scepansky, Lounsbury & Gibson (2009), there was a significant negative relationship between

work drive and early departure intention meaning that those rating higher on work drive reported

they were less likely to leave the institution before graduation. Lounsbury, Saudargas, & Gibson

(2004) also found a negative correlation between work drive and withdrawal intention. Students

who have more work drive are significantly less likely to withdraw or report an intention to leave

school early. Spence, Pred, and Helmreich (1989) found that, on average, students who stayed in

school rated higher on achievement seeking than those who do not.

Hypothesis 1: Ambitious students who receive the email intervention will have a higher

retention rate than those who do not receive emails.

Because ambition is positively associated with performance, I expect that students who rate high on ambition and receive emails will have higher GPAs overall than students who do not receive the emails. One way to evaluate performance in an academic setting is by looking at GPA. Work drive has shown to account for 13% of the variance in GPA, and to predict academic performance when measured by course grade and GPA (Ridgell & Lounsbury, 2004). In an academic setting, achievement striving was moderately associated with academic performance and accounted for most of the variance in examination grades (Chamorro-Premuzic & Furnham, 2002). Achievement striving has a significant positive association GPA for the semester (Nonis & Hudson, 2010).

Hypothesis 2: Ambitious students who receive the email intervention will have a higher GPA than those who do not receive emails.

Another way performance can be measured in an academic setting is by looking at credits completed compared to credits registered for. Nonis and Wright (2003) found that achievement striving has a positive relationship with courses earned compared to courses attempted, such that students who are high on achievement striving are more likely to complete classes they began.

Hypothesis 3: Ambitious students who receive email interventions will have a higher ratio of courses completed to courses attempted.

Method

In this study, first year and transfer students received an email or a classroom visit encouraging them to take the HPI online. Students who rated high on ambition were broken into a control group and an experimental group. The experimental group received four emails throughout the remainder of the school year with a list of relevant opportunities to help build

their résumés or give them a competitive advantage (Appendix A). Retention was assessed by

comparing second semester enrollment rates for students who are rated as ambitious and

received the email interventions and those rated as ambitious who did not receive the emails.

Performance was assessed by comparing average GPA for those who received and did not

receive the emails, and comparing credits completed to credits attempted for each group.

Participants

Participants were first year and transfer students at Minnesota State University, Mankato.

There were just under 3,000 eligible participants, and after recruiting through emails and

classroom visits, 177 took the HPI. These 177 participants were split between three students

conducting similar studies. There was no specific cutoff score, but each study needed students

high on a certain characteristic, and compromises were made if students were high on multiple

characteristics. Based on their scores, 59 students were included in this study. The 59 students

were split into a matched sample based on their scores on ambition, leading to 29 matched pairs.

In terms of gender, the sample of students in this study is not representative of the

population of first year and transfer students at MSU. Age of this sample, however, is more

representative of the greater population. See Table 2 for statistics.

Table 2: *Sample vs. Population Demographics*

	Sample	Population
Female	78.8%	52.7%
Male	21.2%	46.3%

Measures

  Ambition. Based on the Five-Factor Model, the *Hogan Personality Inventory* (HPI)

assesses normal personality qualities. The seven scales include adjustment, ambition, sociability,

interpersonal sensitivity, prudence, inquisitive, and learning approach. The HPI has been normed

on more than 500,000 persons worldwide, includes 206 items and takes about 15-20 minutes to

complete. For this study, the HPI was administered online, by having participants click a link in

an email and enter their unique User ID and password.

  This study focused on the Ambition scale (Chronbach's α=.80), which included subscales

for Competitive (α=.31), Self-confidence (α=.34), Accomplishment (α=.66), Leadership (α=.76),

Identity (α=.71), and No Social Anxiety (α=.72).

  Examples of scale items:

    In school, I worked hard for my grades

    I do my job as well as I possibly can

  Participants could choose between "True" or "False" in response to each statement.

  Student Outcomes. The three outcome measures that were evaluated were retention,

GPA and credits earned compared to credits attempted. Since emails were sent during the Fall

semester, GPA and credits earned compared to credits completed was evaluated for the Fall only.

The information for all three outcomes came from institutional research at Minnesota State

University, Mankato. Retention was measured dichotomously by looking at whether or not the

student came back for Spring semester. GPA was the student's overall GPA for the first semester

of the 2015-16 school year. Finally, credits earned compared to credits attempted examined the

ratio of credits each student completed compared to how many they signed up for in the Fall

semester.

Procedure

Potential participants were contacted within the first several weeks of the 2015-2016

academic school year. Initially, participants received an email directing those interested to take a

short online survey verifying they are 18 years of age or older and giving consent. The survey

supplied them with a user ID and password, and gave directions to take the HPI online. To

increase participation, the researchers also visited classes of mostly first year students. The

researchers read a prewritten script (Appendix A) and handed out consent forms (Appendix B)

for participants to sign and provided their contact information. The researchers emailed survey

directions and a user ID and password to those participants who filled out the consent forms and

were eligible for the study (Appendix C). Students who filled out the consent form and were not

eligible received an email explaining their ineligibility and thanking them for their time

(Appendix D). Participants who filled out consent forms during classroom visits skipped the

online consent form, and logged directly into the Hogan website to take the HPI (Appendix E).

Participants who completed the HPI at the beginning and end of the year were eligible for a $25

Amazon gift card.

Based on their scores on the Ambition scale on the HPI, participants were matched. One

partner of each matched pair was in the control group, and one in the experimental group. I did

not contact the control group again until asking participants to fill out the HPI again at the end of

the year. The experimental group received emails four times throughout the Fall semester with

information on events or organizations that may help build their résumé or give them valuable

leadership or developmental opportunities (Appendix F). Emails included three to five activities

occurring through or near Minnesota State University, Mankato. These activities were mostly

found through the University website, focusing on pages such as the Career Development

Center, Honors programs and the Master Calendar. Events included in the emails were also

found in Mankato community websites, and opportunities taken advantage of by students in the

Psychology graduate programs.

Results

In hypothesis 1, I proposed that the intervention would lead to lower levels of retention. A Fisher's Exact Test indicates that retention rates were not higher for participants who received the intervention, compared to those who did not receive ($\chi2$=.32, *p*=.25, one tailed, ϕ=0.07). Table 3 shows these values.

Table 3: *Number of students retained by condition*

Group	Retained	Not Retained	Percentage Retained
Experimental	28	1	96.6%
Control	28	2	93.3%

In hypothesis 2, I proposed that the intervention would lead to a higher GPA for participants who received it. An independent sample t-test did not support this, and indicated that participants who received the email intervention (*M*=3.45, *SD*=.65) did not have a higher GPA for Fall semester than students who did not receive the email intervention (*M*=3.34, *SD*=.74), *t*(57)=.64, *p*=.26, one-tailed). The effect size was small (d=.16).

In hypothesis 3, I proposed that the intervention would also lead a higher ratio of credits attempt compared to credits completed. Levene's test indicated unequal variances (*F*=15.29, *p*<.001), so degrees of freedom were adjusted accordingly from 57 to 40.08. An independent samples test indicates that participants in the experimental group did have a higher ratio of credits attempted to credits earned (*M*=.98, *SD*=.05) compared to those in the control group (*M*=.95, *SD*=.10). This difference was statistically significant (*t*(40.1)=1.73, *p*=.045, one tailed). There was a moderate effect size (d=.45).

Discussion

Due to the cost of student retention for institutions in both a monetary sense and in terms of rankings, finding ways to increase retention can be valuable. In this study, I tried to determine if an email intervention focusing on highlighting activities that might appeal to students high on ambition would increase GPA, credits earned compared to attempted, and retention. In line with my third hypothesis, the intervention had a positive effect on credits earned compared to credits attempted, such that students who received the intervention completed a higher proportion of attempted credits. Counter to my other hypotheses, the intervention did not have an effect on GPA or student retention.

One explanation for these results may be that the intervention encouraged students to complete courses. The courses completed compared to courses attempted may be masking performance. Students who did not receive the intervention may have dropped classes that would pull their GPA down. On the other hand, those who received the intervention may have been able to keep up a high enough grade to stay in the class, but the grade may not have been high enough to be reflected in a change in GPA. Therefore, students who received the intervention were able to complete more courses by doing better in them so they did not need to drop, but not so well that it pulled up their GPA significantly. This would support the literature that ambition is associated with both higher GPA and credits earned compared to credits attempted.

This intervention did not seem to notably affect outcomes. Based on this study, the interventions were not worth the trouble of collecting data and email content. I would not recommend replicating this study in an effort to change outcomes.

Limitations

The intervention may not have worked for a variety of reasons. The smaller sample size may have made it harder to find an effect for GPA or retention. Another reason the intervention may not have worked as expected is because many of the students in the experimental group may have ignored the emails. After two weeks and a reminder email, only 64% of participants had opened the mid-semester behavioral survey. Since the interventions are only brief emails and not a survey, more students likely opened and at least skimmed the emails compared to the survey, but it is likely that some students did not open or read the interventions. A third reason could be that the ambitious students are already preforming well and taking advantage of leadership and résumé building opportunities. Therefore, they already have relatively high GPAs, credits completed to attempted ratios and were likely to come back to school spring semester either way, so there is not a lot of room to improve those statistics. This ceiling effect limits how much influence the intervention can have, even if the students did take advantage of the suggested opportunities.

Specific to retention, the intervention may not have worked because students left for more prestigious institutions. If this is the case, then students in both the experimental and control groups would transfer, and the skills or development opportunities suggested through the intervention may have even helped students who received the intervention get into a more prestigious institution, which would decrease retention in that group. Students who may not have originally got into a higher-level institution, or who realized in the first semester that Minnesota State University, Mankato was not fulfilling their needs may have transferred to a higher ranked institution. Based on the metrics used, there is no way to differentiate between students who left to go to more prestigious schools, and those who dropped out.

Another reason the data may not show an effect of that intervention is that the way I tested for that effect may have prevented me from seeing differences. The activities suggested in the emails may have helped with soft skills such as communication, or other skills that need time to develop and may not be immediately reflected in GPA or retention. For example, a Toastmasters, an organization that helps with public speaking, was a recommended activity in the intervention. Since the ambitious students are likely already performing well, four months may not have been enough time to improve their skills noticeably or in a way that could have an impact on the variables measured. Similarly, four months may not have been enough time for students to feel more a part of the community. They may not have had time to build strong enough connections with other similar minded students to make a difference in whether they chose to stay or leave.

Future Research

Future research could focus on a similar intervention with different personality characteristics from the HPI. Prudence may have effect on how well students perform in school, and sociability could play a role in how students feel they fit at the institution. Sending emails to help students low in prudence or high in sociability may lead to different results in academic outcomes.

Future research could also focus on students requiring remediation. These students may benefit from a formalized, instructional intervention. A more structured approach may be more effective, and results may be easier to measure for students who have more room for improvement.

Another area to investigate further would be using another means besides email to reach students. Since it seemed many students may not have been reading emails, it may be worth

trying such texting interventions, or notifications through a mobile application. The emails were sent every few weeks with events and activities in the upcoming two to four weeks. It is easy for an email to get lost, or students to forget about the events if they do not immediately write them down. In the future, a shared calendar the students could add to their own calendars could include the activities on the specified date with a brief description and possible reminders. This would allow students to easily check on activities, or get day of reminders without the extra step of finding the email or entering each event into their calendar.

It could also be valuable to have a pre-study questionnaire asking students the type of activities in which they are interested. By definition, ambitious students are socially self-confident, leader-like, and competitive (Hogan & Hogan, 2007), so are likely already busy with schoolwork and extra-curricular activities. The intervention emails sent in this study included a large variety of recommendations, and busy students who may already be involved in developmental activities may not pay attention to the general suggestions. A pre-study questionnaire could make the emails even more personalized so students who felt they were lacking leadership opportunities, or wanted to work on their communication skills would only get suggestions for activities relevant to those areas of growth and not areas in which they feel more competent.

References

ACT (2014). *Chasing the college dream in hard economic times 2014.* Buddin R., & Croft, R.

ACT (2013a). *The condition of college and career readiness 2013: National.*

ACT. (2013b). *The reality of college readiness 2013: Minnesota.*

ACT (2004). *What works in student retention? Four-year public colleges.* Habley, W., &

    McClanahan, R.

Alarcon, G. M., & Edwards, J. M. (2013). Ability and motivation: Assessing individual factors

    that contribute to university retention. *Journal of Educational Psychology*, *105*(1), 129.

Astin, A. W. (1993). What matters in college?: Four critical years revisited (Vol. 1). San

    Francisco: Jossey-Bass.

Barling, J., Cheung, D., & Kelloway, E. K. (1996). Time management and achievement striving

    interact to predict car sales performance. Journal of Applied Psychology, 81(6), 821.

Bendtsen, M., & Bendtsen, P. (2014). Feasibility and user perception of a fully automated push-

    based multiple-session alcohol intervention for university students: randomized

    controlled trial. JMIR mHealth and uHealth, 2(2).

Bennett, R. (2007). Advertising message strategies for encouraging young White working class

    males to consider entering British universities. Journal of Business Research, 60(9), 932-

    941.

Bluen, S. D., Barling, J., & Burns, W. (1990). Predicting sales performance, job satisfaction, and

    depression by using the Achievement Strivings and Impatience-Irritability dimensions of

    Type A behavior. Journal of Applied Psychology, 75(2), 212.

Braxton, J. M., Brier, E. M., & Steele, S. L. (2007). Shaping retention from research to

practice. *Journal of College Student Retention: Research, Theory & Practice, 9*(3), 377-

399.

Bruning, S. D. (2002). Relationship building as a retention strategy: Linking relationship

attitudes and satisfaction evaluations to behavioral outcomes.*Public Relations

Review*, *28*(1), 39-48.

Chamorro-Premuzic, T., & Furnham, A. (2003). Personality traits and academic examination

performance. European Journal of Personality, 17(3), 237-250.

College Board (2013). *Education Pays 2013: The Benefits of Higher Education for Individuals*

and Society. Baum, S., Ma, J., Payea, K. Trends in Higher Education Series.

Crutzen, R., de Nooijer, J., Brouwer, W., Oenema, A., Brug, J., & de Vries, N. K. (2010).

Strategies to facilitate exposure to internet-delivered health behavior change interventions

aimed at adolescents or young adults: a systematic review. Health Education & Behavior,

1090198110372878.

De Vries, H., Kremers, S. P. J., Smeets, T., Brug, J., & Eijmael, K. (2008). The effectiveness of

tailored feedback and action plans in an intervention addressing multiple health

behaviors. *American Journal of Health Promotion*,*22*(6), 417-425.

DiPiro, J. T. (2009). Ambition for Success. American journal of pharmaceutical education,

73(1).

Fike, D. S., & Fike, R. (2008). Predictors of first-year student retention in the community

college. Community college review, 36(2), 68-88.

Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., &
    Gough, H. C. (2006). The International Personality Item Pool and the future of public-
    domain personality measures. *Journal of Research in Personality, 40*, 84-96.

Goff, J. (2007). *A fast track to improving retention and student assessment data: Using
    traditional recruitment systems to increase student re-enrollment rates.*

Haemmerlie, F. M., & Montgomery, R. L. (2012). Gender differences in the academic
    performance and retention of undergraduate engineering majors. *College Student
    Journal*, *46*(1), 40.

Hanger, M. A., Goldenson, J., Weinberg, M., Schmitz-Sciborski, A., & Monzon, R. (2011). The
    bounce back retention program: One-year follow-up study. *Journal of College Student
    Retention: Research, Theory & Practice, 13*(2), 205-227.

Hogan, R., & Hogan, J. (2007). Hogan Personality Inventory Manual (3rd ed.). Tulsa, OK:
    Hogan Assessment Systems. Retrieved from
    http://www.mentis.international/assets/04019_hpi_tm_secure.pdf.

Institutional Research, Planning and Assessment (2015). *Academic Data Summary 2010-11
    through 2014-15*. [PDF File]. Retrieved from:
    http://www.mnsu.edu/instres/annualreports/ads/ids_1011_1415.pdf.

Jamelske, E. (2009). Measuring the impact of a university first-year experience program on
    student GPA and retention. *Higher Education*, *57*(3), 373-391.

Johnson, J. L. (2000). Learning communities and special efforts in the retention of university
    students: What works, what doesn't, and is the return worth the investment?. Journal of
    College Student Retention: research, theory & practice, 2(3), 219-238.

Judge, T. A., Cable, D. M., Boudreau, J. W., & Bretz, R. D. (1995). An empirical investigation

of the predictors of executive career success. Personnel psychology, 48(3), 485-519.

Kena, G., Musu-Gillette, L., Robinson, J., Wang, X., Rathbun, A., Zhang, J., Wilkinson-Flicker,

S., Barmer, A., and Dunlop Velez, E. (2015). *The Condition of Education 2015* (NCES

2015-144). U.S. Department of Education, National Center for Education Statistics.

Washington, DC. Retrieved September 7, 2015 from http://nces.ed.gov/pubsearch

Kennedy, P. W., Sheckley, B. G., & Kehrhahn, M. T. (2000). The Dynamic Nature of Student

Persistence: Influence of Interactions between Student Attachment, Academic

Adaptation, and Social Adaptation.

Lotkowski, V. A., Robbins, S. B., & Noeth, R. J. (2004). The Role of Academic and Non-

Academic Factors in Improving College Retention. ACT Policy Report. *American

College Testing ACT Inc*.

Lounsbury, J. W., Gibson, L. W., & Hamrick, F. L. (2004). The development and validation of a

personological measure of work drive. *Journal of Business and Psychology*, *18*(4), 427-

451.

Lounsbury, J. W., Saudargas, R. A., & Gibson, L. W. (2004). An investigation of personality

traits in relation to intention to withdraw from college. *Journal of College Student

Development*, *45*(5), 517-534.

Lustria, M. L. A., Noar, S. M., Cortese, J., Van Stee, S. K., Glueckauf, R. L., & Lee, J. (2013). A

meta-analysis of web-delivered tailored health behavior change interventions. *Journal of

health communication*, *18*(9), 1039-1069.

Martin, J. H., Montgomery, R. L., & Saphian, D. (2006). Personality, achievement test scores,

and high school percentile as predictors of academic performance across four years of

coursework. Journal of Research in Personality, 40(4), 424-431.

doi:10.1016/j.jrp.2005.02.001

Montgomery, B., Goff, J., Foster J., & Lemming M. (2009). *Using non-cognitive data to build a stronger retention and graduation improvement program.*

Mouw, J. T., & Khanna, R. K. (1993). Prediction of academic success: A review of the literature and some recommendations. College student journal.

Noar, S. M., Benac, C. N., & Harris, M. S. (2007). Does tailoring matter? Meta-analytic review of tailored print health behavior change interventions. *Psychological bulletin*, *133*(4), 673.

Noel-Levitz (2013). *2013 Cost of recruiting an undergraduate student. Benchmarks for four-year and two-year institutions.*

Nonis, S. A., & Hudson, G. I. (2006). Academic performance of college students: Influence of time spent studying and working. Journal of Education for Business, 81(3), 151-159.

Nonis, S. A., & Wright, D. (2003). Moderating effects of achievement striving and situational optimism on the relationship between ability and performance outcomes of college students. Research in Higher Education, 44(3), 327-346.

Ridgell, S. D., & Lounsbury, J. W. (2004). Predicting academic success: General intelligence," Big Five" personality traits, and work drive. College Student Journal, 38(4), 607.

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. Psychological bulletin, 130(2), 261.

Ruffalo Noel Levitz, LLC. (2015a). 2015 Student Retention and College Completion Practices Benchmark Report. Retrieved fromhttps://www.ruffalonl.com/papers-research-higher-

education-fundraising/2015/2015-student-retention-and-college-completion-practices-

benchmark-report-for-four-year-and-two-year-institutions?item=57868

Schoon, I., & Parsons, S. (2002). Teenage aspirations for future careers and occupational

outcomes. Journal of Vocational Behavior, 60(2), 262-288.

Sieveking, N., & Perfetto, G. (2001). A student-centered individual-level university retention

program where attrition is low. Journal of College Student Retention: Research, Theory

& Practice, 2(4), 341-353.

Spence, J. T., Pred, R. S., & Helmreich, R. L. (1989). Achievement strivings, scholastic

aptitude, and academic performance: A follow-up to" Impatience versus achievement

strivings in the Type A pattern." Journal of Applied Psychology, 74(1), 176.Reality of

College Readiness

Taylor, S. E., Scepansky, J. A., Lounsbury, J. W., & Gibson, L. W. (2009). Broad and narrow

personality traits of women's college students in relation to early departure from

college. Journal of College Student Retention: Research, Theory and Practice, 11(4),

483-497.

Taylor, S. E., Scepansky, J. A., Lounsbury, J. W., & Gibson, L. W. (2010). Broad and narrow

personality traits of women's college students in relation to early departure from

college. *Journal of College Student Retention: Research, Theory & Practice*, *11*(4), 483-

497.

Texas Guaranteed Student Loan Corporation. (1999). *Retention and persistence in postsecondary

education. A summation of research studies.* Prepared by Adrienne Arnold.

Appendices

Appendix A: Recruitment Script

Hello,

We are inviting new students, both first-year students and transfer students, to take part in a research project. If you are interested in participating in this project, you would take a short personality test at the beginning of this semester, and at the end of the semester. Some participants would also receive an additional email in the middle of the semester asking about some of your behaviors this semester. Some participants will also receive 4-6 emails about events and services on campus. Participants will be entered into a drawing for a $25 Amazon.com gift certificate.

I am handing out some consent forms that give you more information about our research. If you are interested in participating, please sign one copy and provide your MNSU email address, and keep the second copy for your records. If you are not interested, you can hand back a copy without signing it. Please let me know if you have any questions. I will pick up both the signed and the unsigned copies in a few minutes. Thank you for your time.

Appendix B: Consent Form

You are requested to participate in research supervised by Dr. Kristie Campana on student personality and how emails increase engagement. The goal of this survey is to determine whether receiving tailored emails helps students feel more engaged when beginning college. If you have any questions about the research, please contact Dr. Campana at Kristie.campana@mnsu.edu.

If you participate in this study, you will agree to the following:

- You will fill out a short personality assessment, which will take about 15 minutes. If you are interested in receiving your results, you can provide your email address on the assessment. You may contact Dr. Campana if you have questions about your results.
- You <u>may</u> be asked to fill out a brief survey at the end of fall semester asking about some of the ways you have participated on campus. This survey will take fewer than 5 minutes.
- You <u>may</u> receive 4-8 emails throughout the year informing you of events or services you may find helpful.
- You <u>may</u> receive an invitation to fill out the same personality assessment again. As before, you can choose to receive your results if you wish.
- You give us permission to link your survey results to institutional research data, such as GPA, completion rates, and similar university information.

Participation is voluntary. You have the option not to respond to any of the questions. You may stop taking any survey at any time by closing your web browser. Participation or nonparticipation will not impact your relationship with Minnesota State University, Mankato. If you have questions about the treatment of human participants and Minnesota State University, Mankato, contact the IRB Administrator, Dr. Barry Ries, at 507-389-2321 or barry.ries@mnsu.edu.

Responses will be kept confidential. However, whenever one works with online technology there is always the risk of compromising privacy, confidentiality, and/or anonymity. If you would like more information about the specific privacy and anonymity risks posed by online surveys, please contact the Minnesota State University, Mankato Information and Technology Services Help Desk (507-389-6654) and ask to speak to the Information Security Manager.

The risks of participating are no more than are experienced in daily life.
There are no direct benefits for participating. Individuals who fill out the first Hogan survey will be entered into a drawing for a $25 gift certificate to Amazon.com. Depending on Hogan Survey results, individuals selected to continue in the program will be entered into an additional drawing for a $25 gift certificate to Amazon.com after completion of two additional surveys at the end of the school year. Society might benefit from identifying ways to keep students engaged in college.

Please sign below if you are over the age of 18 and consent to this study:

_____

(Signature)

(Printed name)

(MNSU email address, so we can contact you with instructions for the personality assessment)

Please keep an unsigned copy of this page for your future reference.
MSU IRBNet ID#   764218
Date of MSU IRB approval: 9/2/2015

Appendix C: Email Template for Eligible Participant

Hello,

Thank you for taking an interest in our study about student engagement!

As we noted on the consent form, the first part of this process will request that you complete a personality assessment. I've provided a PDF with instructions with this email. These instructions will also have your unique user ID and password that you can use to logon to the assessment website.

If you have problems opening the file, you may need to download Adobe Acrobat Reader, which you can do here: https://get.adobe.com/reader/

Please let me know if you have any trouble completing the survey, or if you have any additional questions about the study. Thanks again for being willing to participate!

Appendix D: Email Template for Ineligible Participant

Hello,

Recently, you signed up for a study that is investigating new students (both first-year students and transfer students). According to our records, you are not in either of these categories.

If we have made a mistake, please let us know! However, our study is focusing on students who are new to MNSU, so it is important that we include only students who meet this criteria.

Thank you for your interest in our study!

Appendix E: Participant Login Instructions to Hogan

The assessment you are preparing to complete will require approximately 15-20 minutes of your time. Please read each question and select the response that best indicates how you feel the majority of the time. There is no right or wrong answer to any particular question. Please follow the instructions below:

1. Access the login page at **http://www.gotohogan.com**
    Note: Supported browsers are IE7+, Chrome, Firefox, Safari

2. Login using supplied credentials:
    Hogan ID: Password:

    Note: If no language is selected, the default will be U.S. English.

3. Select Go to continue to Profile Page.

4. Complete profile by entering your Name, Email and Company ID.
    Note: Company ID can be used as an additional identifier for your profile (e.g. employee ID, email, phone number, etc.). If your instructions did not include a Company ID, please enter your email address or some other unique identifier. The Company ID will not replace your Hogan ID.

5. Create a new password.
    Note: Password must contain: Between 6 and 15 characters, at least 1 Upper case letter, at least 1 Lower case letter, at least 1 Number. A forgotten password can be reset from the login page by using your Hogan ID and email address.

6. Optional research information, if completed, will only be used for research studies in a non-identifiable manner.

7. After reviewing, check the "I agree to the Informed Consent Policy" box.

8. Select Go to open Assessment Menu page.

9. Select Start on an individual assessment to begin the assessment.
    Note: You can discontinue the assessment at any time. All information submitted prior to discontinuing the assessment process will be retained. You can log back into the system using your assigned Hogan ID and the new, personalized password you created.

10. Select Submit to complete the assessment.

For technical assistance, please contact Hogan Assessment Systems' Customer Service Team at support@hoganassessments.com, 1-877-670-0637 (U.S. & Canada) Monday through Friday 8:00 a.m. to 5:00 p.m. U.S. Central Time.

Based on this assessment, Hogan Assessment Systems will be providing Student Success Reports in exchange for feedback. If you are interested in receiving your student report and providing feedback, please email us at studentsuccessreport@hoganassessments.com and provide your UserID. Your report will be sent to you approximately 2 weeks later.

Appendix F: Sample Email to Experimental Group

Hello,

My name is Lauren, and I am a second year graduate student in the Industrial and Organizational Psychology Program. As either my classmates or I mentioned in the email you received at the beginning of the year or during a classroom visit where you signed a consent form, we are working on our theses. You will receive four or so emails from me throughout the semester with a brief list of activities on or around campus that you may be interested. Please feel free to reach out with any questions.

Thanks!
Lauren

Career and Internship Expo - CSU Ballroom - 9:30 am - 2:30 pm
- Tuesday, October 20: Science, Engineering, Technology, Construction, Healthcare
- Wednesday, October 21: Business, Communications, Human Services
- Explore positions and fields of study
- Get more information about specific organizations and employers
- Develop your network of contacts
- More Information: http://www.mnsu.edu/cdc/expo/

Honors Program Applications - Due October 30th for Spring Semester
- This challenging program helps students develop the ability to solve problems, the skills to tackle tough jobs and the courage to engage in difficult discussions.
- It includes classes designed specifically for honors students as well as a variety of co-curricular activities to enrich those classroom experiences.
- Students will have the opportunity to work with mentors, to take part in the University's Undergraduate Research Conference and to be involved in a number of other events, seminars and activities on and off campus.
- More Information: http://www.mnsu.edu/honors/prospectivestudents/application.html

Major Fair - October 28th, 11:00-1:30 pm - CSU Ballroom
- Opportunity for students to learn about majors offered at MSU
- Learn about other related information from student organizations, academic advisors, faculty, and academic departments
- Popcorn & door prizes!
- More Information: https://mnsu-csm.symplicity.com/students/index.php/pid873994?s=event&ss=ws&mode=form&id=45469e0c79bbb4d262c8fed8e758e7fa