

# **The Impact of Personalized Emails on College Students' Academic Achievement**

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THESIS

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This thesis is dedicated to my first academic advisor and good friend, the late Dr. Bryan Hendricks and also to my current advisor, Dr. Marisha Humphries. Thank you both for your time and unconditional support. Thank you Marisha for giving me a chance when you didn't have to. Additionally, I would like to thank my parents, family members, and also my good friend, Carlos for the moral support.

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## SUMMARY

A growing amount of research has shown the benefits of Social and Emotional Learning (SEL) on academic achievements and other related areas (Zins, Weissberg, Wang, & Walberg, 2004). SEL is the ability to understand emotions, solve problems, and create positive relationships (Elias et al., 1997). Unfortunately, most SEL research focuses on preschool through high school. The present research filled the gap using a SEL-based personalized email prevention program in college. The emails were designed using the five core teachable SEL competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Collaborative for Academic, Social, and Emotional Learning, 2005). Three hypotheses were proposed: (1) SEL emails will lead to higher academic achievement among college students compared to students who receive non-SEL emails; (2) SEL emails will increase college students' academic self-efficacy compared to students who receive non-SEL emails; (3) SEL emails will improve college students' sense of belonging compared to students not receiving SEL emails.

46 participants were recruited into this 8-week study (Summer 2015). Participants received post-examination emails after their first and second exams. The first hypothesis was supported. The personalized emails improved exam scores among participants in the treatment condition (SEL-based) compared to the control, specifically in the final exam. No differences were found between participants in the treatment and control condition in regards to academic self-efficacy and sense of belonging so the second and third hypothesis were not supported. This type of evidence-based prevention research can improve the quality of student's academic well-being. It can also possibly reduce the achievement gap and increase college students' chances of completing their education through improvements in academic achievements.

## **1. INTRODUCTION**

Each student comes to school and deals with a variety of emotions and social situations (Mildener & Keane, 2006). Neglecting the social and emotional dimensions of students' lives can be dangerous as it could lead to students being unable to manage emotions and solve problems they face in both academics and life. For instance, a survey of more than 123,000 students from 153 colleges found that more than 50% of students suffer from extreme anxiety and almost a third experience depression during the academic year (American College Health Association, 2013). In that same survey, 44% of college students claimed that academic or career-related issues had been overwhelming to handle. Additionally, American teenagers reported to suffering similar levels of stress compared to adults, especially when school was in session (American Psychological Association, 2014). For this reason, there is a need for some form of support for students' social and emotional well-being. This study argues that social and emotional learning (SEL) may help to address some of the social and emotional challenges faced by American college students.

This study examines the impact of a SEL email prevention on college students' academic achievement. The paper is organized with a brief literature review on academic self-efficacy, sense of belonging and its connection to SEL. Next, there is a discussion on the use of emails as a medium of contact with college students followed by a section on prevention research. For clarification purposes, the term college students in this paper refers specifically to undergraduate college students.

### **1.1 Social and Emotional Learning (SEL)**

Social and Emotional Learning (SEL) has been gaining attention in American education since 1990 (Macklem, 2013). This is due to growing research showing that the skills associated

with SEL have significant impacts on academic achievement and also long-term effectiveness (Zins, Weissberg, Wang, & Walberg, 2004). SEL is the ability to understand emotions, effectively solve problems, and create positive relationships (Elias et al., 1997). There are five core teachable SEL competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Collaborative for Academic, Social, and Emotional Learning, 2005). These competencies are important as they include knowledge consisting of intrapersonal, interpersonal, and cognitive competence (National Research Council, 2012). Self-awareness involves accurately understanding one's emotions, strength and weaknesses, and also having a level of optimism. Self-management is the ability to effectively regulate one's emotions in various circumstances and effectively plan towards achieving goals. Social awareness includes the ability to recognize family, school, and community resources. Relationship skills involve communicating clearly, listening actively, and obtaining and providing aid when necessary. Lastly, responsible decision-making involves selecting constructive choices about one's behavior by considering the well-being of the self and others (Collaborative for Academic, Social, and Emotional Learning, 2005). These five core SEL competencies served as the foundation for the prevention approach in the current study.

SEL has also been formally incorporated into the classroom, school, and community level in the form of prevention and intervention programs (e.g., Second Step, Caring School Community). These SEL programs can lead to various positive outcomes. A recent meta-analysis involving K-12 students found that SEL program participants had much better attitude, behavior, social and emotional skills, and academic achievement compared to participants in the non-SEL control programs (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). There was an 11-percentile-point gain in achievement outcomes for students who participated in SEL programs.

SEL has also been shown to improve students' connection to school, and also increase their self-awareness, confidence and perseverance in the face of obstacles (Zins et al., 2004). SEL programs have improved emotion management among school-age children, which is known to aid them in making better study decisions, hence performing better academically (Zins & Elias, 2007). Given the positive outcomes associated between SEL programs with self-efficacy and sense of belonging (Zins & Elias, 2007), this study will assess the impact of a SEL prevention program on students' academic self-efficacy and sense of belonging.

Unfortunately, most SEL research has only focused on preschool and school-aged children with little to no attention on college students. For example, the findings from the meta-analysis by Durlak et al. (2011) only included K-12 students. Although the meta-analysis by Durlak et al. included high school students, the research studies that currently exist are largely focused on school-aged children (K through 8<sup>th</sup> grade). There is less attention on adolescents, especially late adolescents and early adults (i.e., college population). Fortunately, there are signs of progress in regards to SEL research in college. In the *Handbook of Social and Emotional Learning: Research and Practice*, Conley (2015) reviewed published and unpublished evaluations of SEL-related programs conducted in higher education settings. The review found that mindfulness was a successful form of intervention in college settings, while cognitive-behavioral, relaxation, and social skills interventions were promising. The current study addresses the limited SEL research in higher education by implementing a SEL-based email prevention program in a college setting.

## **1.2 Academic Self-efficacy**

Before explaining academic self-efficacy, it is important to understand the original construct, self-efficacy and its theoretical foundation. Self-efficacy is defined as one's evaluation



of performance capabilities in a given domain that may contain new, unpredictable, and potentially stressful circumstances (Bandura, 1977; Schunk, 1985). Self-efficacy originates from a larger framework known as social cognitive theory. Social cognitive theory states that human achievement relies on the interaction between three factors: a person's cognitive and affective systems, environmental conditions or context, and their behavior (Bandura, 1986). The interaction between these three factors are known as the triadic reciprocal determinism. Self-efficacy is an important aspect of social cognitive theory as it plays a crucial part in determining the outcome of human achievement (Bandura, 1986).

Individuals can gain information to appraise their self-efficacy through four different methods: performance accomplishment, vicarious experience, verbal persuasion, and physiological or emotional arousal (Bandura, 1977). Performance accomplishment is the achievement of mastery through one's direct experience. For example, successfully learning to ride a bike on your own. On the other hand, vicarious experience refers to observing others achieve mastery in the domain such as a friend demonstrating their ability to ride a bike to another person who is learning. Verbal persuasion is the encouragement received from others. An example would be a child receiving motivation and advice from his or her parents on how to improve the child's ability to ride a bike. Physiological and emotional arousal refers to how the body and mind can influence one's level of efficacy when performing an activity. For instance, moments before an individual is about to ride a bike, he or she might realize the bodily reactions such as trembling or sweating reflecting anxiety which could end up lowering the child's self-efficacy in being able to ride the bike (Bandura, 1986).

Self-efficacy is domain specific, it is not a global trait (Bandura, 2006). For example, one person's self-efficacy in sports might be high, but that same person could have low self-efficacy

in other domains such as cooking. The scales used to measure self-efficacy have to be tailored to the specific situations involving the construct itself. Additionally, it is important to assess self-efficacy by portraying obstacles that individuals may face within the domain. “The issue is not whether one can do the activities occasionally, but whether one has the efficacy to do them regularly in the face of different types of dissuading conditions” (Bandura, 2006, p. 311). The need for variation in context and the inclusion of dissuading conditions has led the author to introduce a new measure of academic self-efficacy in the methods section.

Taking into account the domain specificity of self-efficacy, this study focuses on academic self-efficacy. Academic self-efficacy is defined as a student’s belief in their capabilities to perform a task within an academic setting (Bandura 1977; Schunk, 1985). From this point onwards, the term academic self-efficacy and self-efficacy are used interchangeably as both refers to efficacy within the academic context.

Within the academic setting, self-efficacy influences academic motivation, learning, and achievement (Pajares & Schunk, 2001). A meta-analysis involving almost 5000 participants (28.9% college students) across 38 different samples supported the hypothesized relationship between self-efficacy and academic outcomes such as academic performance and academic persistence (Multon, Brown, & Lent, 1991). Across a variety of samples, self-efficacy accounted for almost 12% of the variance in students’ academic persistence and 14% of the variance in academic performance (Multon, Brown, & Lent, 1991).

There has been a lot of research looking at students’ self-efficacy in mathematics due to both its importance and also the fact that many students struggle with mathematics. Pajares and Kranzler (1995) observed the relationship between self-efficacy and high school students’ anxiety in the math domain. Despite finding that higher self-efficacy was associated with lower

anxiety, a joint path analysis showed that only self-efficacy was predictive of math performance. This meant that self-efficacy played a significant role in determining the math performance of these high school students compared to their level of anxiety. Siegel, Galassi, and Ware, (1985) showed that college student's academic performance depends more on self-efficacy compared to anxiety. Self-efficacy was more predictive of math performance compared to students' level of math anxiety. In fact, the self-efficacy strength (high versus low) covered 13% of the variance in final math grades while math anxiety was not a significant predictor. The purpose of connecting the literature from self-efficacy in math to the current study is show that it is more important to focus on improving students' self- efficacy rather than removing their anxiety in order to promote better academic performances.

Based on Bandura's (1977) four different methods to assess self-efficacy: performance accomplishment, vicarious experience, verbal persuasion, and physiological or emotional arousal; verbal persuasion is the most relevant method to the prevention program in this study. This is because emails will be used as a medium of contact, which can be categorized as verbal or social persuasion (Schunk, 1985). When the efficacy information is acquired through verbal or social persuasion, students' perception of the persuader's credibility will influence self-efficacy. When students receive verbal or social persuasion from a perceived credible source (e.g., instructors), this could lead to higher self-efficacy. However, verbal or social persuasion from a source that has low credibility (e.g., classmate) may not have an effect on self-efficacy (Schunk, 1985).

The current study examines how SEL-based emails will act as persuasion tools to improve college students' academic self-efficacy. By including the SEL core competencies in the email, the goal is to create a persuasive delivery mechanism that can help improve students'

academic self-efficacy (Yeager, Walton, & Cohen, 2013). According to Schunk (1985), verbally encouraging students can lead to an increase in efficacy, achievement, and also commitment to attain goals (self-awareness and self-management) (Zimmerman, 2000). People who are persuaded that they possess both, the capabilities to thrive through difficult situations and are provided with appropriate resources, are more likely to produce more effort and persevere through challenges (Bandura, 1977). Even the lack of success will not lower self-efficacy if the learner believes that they can perform better through more effort and appropriate learning strategies (Schunk, 1995).

### **1.3 Sense of Belonging**

Maslow's (1943, 1954) hierarchy of needs is a well-known concept within psychology. The lower needs in the hierarchy have to be achieved before an individual can move on to the higher levels in the hierarchy. At the bottom of the hierarchy are physiological needs such as hunger and thirst. This is followed by safety needs such as the need to avoid dangerous situations. The third level is belongingness which is the need to be with others and to be accepted. Next is esteem needs which involves being respected by others and also having self-respect. Lastly, at the top of the hierarchy is self-actualization which is the level where an individual has realized his or her potential and achieved self-fulfillment. Maslow's hierarchy of needs emphasizes that belonging is a basic human need so it is an important variable to account for.

Hagerty, Lynch-Sauer, Patusky, Bouwsema, and Collier (1992) defined sense of belonging as "the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of that system or environment" (p. 173). A system includes organizations and relationships; an environment can be natural or cultural. Hagerty et al. (1992)

stated that psychologically, sense of belonging is an individual's feeling of being valued by an external referent and sensing a fit between the self and that referent. For example, a student can experience a sense of belonging through the feeling of being appreciated by the members of his or her classroom and the sense of fit between the student and the classroom.

Baumeister and Leary (1995) presented the belonging hypothesis, stating that people have a need to build and sustain at least a minimum level of positive and continuous relationship between each other. The need to belong involves two requirements. First, people need frequent contact from other individuals. Secondly, people need to perceive that their interpersonal relationship is continuous and involves concern for each other's welfare. From the perspective of a relationship between students and teachers in a classroom setting, the students would require interactions from the teacher and to perceive that the teacher continuously cares about the students' well-being.

There is a vast amount of research showing how sense of belonging is positively related to important variables in the school context (Freeman, Anderman, & Jensen, 2007). Within a sample of third to sixth graders, Furrer and Skinner (2003) found a positive association between sense of relatedness (a concept similar to sense of belonging) and academic motivation. In this case, academic motivation was defined by the behavioral and emotional engagement reported by students. In an older sample of 379 community college students, Hagerty, Williams, Coyne, and Early (1996) examined the relationship between sense of belonging and a variety of social and psychological factors. Examples of social factors that were measured included involvement in community activities and perception of social support. Psychological factors that were measured included loneliness, depression, and anxiety. Hagerty et al. (1996) found that higher sense of belonging was associated with more frequent involvement in community services and greater

perception of social support. There was a negative relationship between sense of belonging and loneliness, depression, and anxiety such that higher sense of belonging was associated with lower scores on loneliness, depression, and anxiety. In addition to correlational designs, it is important to measure sense of belonging using experimental designs to show the causal effects it may have on academic outcomes.

Using an experimental design, Walton and Cohen (2011) conducted a brief social-belonging intervention focusing on improving the academic and health outcomes of minority college students. Students in the treatment and control group were given reports that served as testimonials by the senior standing students in their college. Students in the treatment group read reports about the struggles of lacking a sense of belonging at the beginning stages of college. After that, these students were asked to write an essay describing the similarities between their own experiences and the reports they read. The students in the treatment group were then asked to convert their essay into a speech where they were asked to speak to a video camera. These students were informed that these videos would be used to help future students transition into colleges. The procedures were similar for the control group except that they read reports with topics unrelated to a sense of belonging such as sociopolitical attitudes. The students in the treatment group were found to have higher grade point average (GPA) and fewer health problems over the next 3 years, and this effect was stronger among minority students compared to European American students. Walton and Cohen (2011) showed that even a simple sense of belonging manipulation which took only an hour to conduct can have lasting positive effects on college students' academic career.

The question, "Do I belong here?" can be a stressful thought for students. When students feel left out, this can lead to several negative outcomes such as higher stress and lower

engagement in class (Yeager, Walton, & Cohen, 2013). Many emotional problems can arise from this inability to satisfy belonging needs (Baumeister & Leary, 1995). By incorporating both the theoretical ideas and some of the empirical evidences presented so far, the goals of the SEL emails in this study are to improve belonging through consistent contact throughout the semester and the affective concern shown by the instructor to his or her students via the email content. Wentzel (1997) used the term pedagogical caring, referring to instructors' who showed behaviors of caring about a students' learning rather than interpersonal caring. This study incorporates both pedagogical and interpersonal caring through the SEL core competencies in the emails to improve the sense of belonging among students.

#### **1.4 Utilizing Email for Prevention**

It is assumed that teaching and learning occurs mainly in the classroom. However, there are several ways to facilitate the learning process between teachers and students outside the classroom, including communications through emails, office hours, and appointments. The current study will examine the role of email communication in improving students' academic achievement, academic self-efficacy, and sense of belonging.

Email is easily accessible and a popular communication tool between teachers and students (Duran, Kelly, and Keaton, 2005; Hassini, 2006). Sheer and Fung (2007) investigated how professor-student email communication could influence teaching evaluation and contribute positively to the teacher-student relationship. In their study, undergraduate students were asked to recall a professor with whom they had taken a class and had exchanged emails. They found that email communications, specifically involving social-relationship elements such as sharing personal beliefs, hobbies, or jokes, contributed positively to the students' perception of their relationship with their professor. Subramain, Edwards, and Edwards (2011) tested the influence

of relational maintenance tools in email communication between instructor and college students. Relational maintenance tools were defined as a variety of communicative behaviors such as positivity, openness, conflict management, assurance, shared task and advice implemented to create stable relationships. In their study, students were given a hypothetical situation of receiving a low grade on the final exam of a course and students then emailed the instructor to schedule a meeting. The manipulation in the study was the different types of response emails (e.g., assurance, openness, control, conflict management, shared task, positivity, social networks, advice) that students received from the instructor. An example of an instructor email reply categorized as *openness* was, “I am definitely open to discuss your grade. I can meet with you tomorrow at noon or next Monday at noon”. An email categorized as *shared task* was, “Let’s go through your test together so we can both double-check the answers I can meet with you tomorrow at noon or next Monday at noon” (Subramain et al., 2011, p. 25). The study reported that emails from instructors containing positive statements, specifically emphasizing positivity, openness, and shared tasks, improved students’ perception of instructors. The limitation of this finding is that the experimental situations in the study were created artificially and not in the context of a real educational setting. It is important to observe how students would react to these emails in an actual classroom context, hence improving the experimental realism of such studies.

In an actual online undergraduate health education course, Gallien and Oomen-Early (2008) found that students who received personalized feedback emails from the instructor reported being more satisfied with the course and performed better academically compared to students who received collective feedback emails. Personalized feedback emails were defined as individual feedback emails received from the instructor; collective feedback emails were defined as getting a collective feedback document from the instructor summarizing the class



performance. The personalized feedback email was based on the taxonomy of feedback proposed by Blignaut and Trollip (2003). This taxonomy included: corrective feedback (feedback that corrects the content of a student's answer); informative feedback (feedback that comments on the content of a student's answer); or Socratic feedback (feedback that asks reflective questions about the student's answer). An example of a corrective feedback was, "While your definition of epidemiology is correct, your answer to the second half of the question was not clear. Please read the question again and provide specific examples with your explanation that explain why you think epidemiology is such an important discipline for health education" (Gallien & Oomen-Early, 2008, p. 470). The collective feedback was constructed by summarizing correct answers from students and providing clarification to misunderstandings across the whole class. These feedback emails were sent after students completed assignments which were given periodically after covering certain topics (the exact topic, type, and timing of the assignments were not specified by the authors). Gallien and Oomen-Early (2008) showed that personalized feedback emails was better than collective feedback emails in terms of improving both academic achievement and students' perception of the course.

Isbell and Cote (2009) conducted a classroom experiment by providing feedback to students after an exam. They randomly assigned lower performing participants (scoring 75% or lower on the first exam) into either receiving a post-examination email or not receiving a post-examination email. The post-examination email to participants included contents such as "one way to get help with the course is through the people who know the material the best – the professor and the teaching assistants" (Isbell & Cote, 2009, p. 186). Participants were informed about the office hours of the professors and teaching assistants. Participants were also reminded of resources such as review sessions and discussion boards. Additionally, the email stated, "We

care about how you do in this course and hope you will have a higher grade on the next exam. Please do not hesitate to contact us with any questions or concerns that you may have” (Isbell & Cote, 2009, p. 186). They found that participants who received the post-exam email performed better academically on the next exam compared to participants who did not receive the post-examination email. However, the academic improvement was only reflected on the exam immediately following the email and not the remaining exams in the course. No additional emails were sent. The current study extends the findings by Isbell and Cote (2009) in two different ways. First, the current study will use emails that specifically map onto the five SEL core competencies. Second, rather than only sending a single post-examination email, emails will be sent to students after each exam to observe the effects of continuous feedback. The current study utilizes a prevention methodology to examine the effects of SEL emails on college students’ academic performance, academic self-efficacy, and sense of belonging.

### **1.5 Prevention Research**

This study falls into the category of prevention research. According to the Committee on Prevention of Mental Disorders (1994), *prevention* refers to interventions that occur before the onset of a disorder that is clinically diagnosable (Muñoz, Mrazek, & Haggerty, 1996). Targeting an entire group without specifically identifying individuals on the basis of increased risk is a universal prevention (Muñoz, Mrazek, & Haggerty, 1996; Nation, Crusto, Wandersman, Kumpfer, Seybolt, Morrissey-Kane, & Davino, 2003). An example of prevention efforts would be a depression and anxiety prevention seminar given to high school students who are not experiencing mental health problems. Once an individual is experiencing symptoms or is diagnosed with a disorder, any intervention they are given is considered a treatment intervention (Muñoz, Mrazek, & Haggerty, 1996). An example of a treatment intervention utilizing email

would be sending emails only to students who had poor academic performance. The current study utilizes a prevention approach as emails will be sent to all students regardless of their academic performance.

Nation et al. (2003) identified nine effective components of successful prevention programs: comprehensive, varied teaching methods, sufficient dosage, theory driven, positive relationships, appropriate timing, sociocultural relevance, outcome evaluation, and well-trained staff (p. 452). This study will focus on using the following five components as a framework for this SEL email prevention research.

*Sufficient dosage.* Dosage refers to the amount of intervention or the program intensity including the length of sessions, frequency of sessions, and the duration of the program. The purpose of sufficient dosage is to ensure that participants are exposed to enough of the intervention for it to have an effect. This study addresses the sufficient dosage issue as it is designed to last throughout a semester and is implemented with two emails, one after each exam except the final exam. The dosage aspect of this study addresses the limitation of sending only one email (Isbell & Cote, 2009).

*Theory driven.* The definition of theory driven is for a program to be based on accurate information and to be supported by empirical research (Nation et al., 2013). A prevention approach requires the guidance of previously established theories as a form of scientific justification. The current study utilizes several theories or frameworks such as the SEL core competencies (Collaborative for Academic, Social, and Emotional Learning, 2005), social cognitive theory (Bandura, 1986), belonging hypothesis (Baumeister & Leary, 1995), and the prevention framework used by Nation et al. (2013).

*Appropriate timing.* Nation et al. (2013) states that an intervention should occur at a period where it can lead to maximum impact. Based on that suggestion, the personalized emails will be sent to students right after they receive their exam scores so that negative subjective experiences can be prevented through the email content (Yeager, Walton, & Cohen, 2013). This post-exam timing is selected with the hope of boosting the academic self-efficacy and sense of belonging among students regardless of their performance.

*Sociocultural relevance.* Programs should be tailored to fit with the norm and practices of the target population (Nation et al., 2013), in this case, college students. This study incorporates sociocultural relevance with the use of emails as a medium of communication. Emails are accessible and a popular communication tool between college students and instructors (Duran, Kelly, and Keaton, 2005; Hassini, 2006).

*Outcome evaluation.* It is important to evaluate a prevention program to measure its effectiveness. Some practitioners assume that a program will be effective based on anecdotal evidence but this may not be the case (Nation et al. 2013). The effectiveness of this prevention program will be measured through three outcome variables of interest: academic achievement, academic self-efficacy, and sense of belonging.

## **1.6 Current Study**

The current study examines the benefits of providing post-examination SEL feedback emails to undergraduate college students. The content of the emails was designed based upon the five core SEL competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Collaborative for Academic, Social, and Emotional Learning, 2005). Three hypotheses are proposed: (1) SEL emails will lead to higher academic achievement among college students compared to students who receive non-SEL emails; (2) SEL

emails will increase college students' academic self-efficacy compared to students who receive non-SEL emails; (3) SEL emails will improve college students' sense of belonging compared to students not receiving SEL emails.

## 2. METHODS

### 2.1 Participants

This 8-week study was conducted at a large public university in an urban Midwestern city. There were 46 student participants ( $M = 21.84$  years old; 24 males and 22 females). These students were recruited from three summer psychology classes and represented 55.42% of the available student body in those classes. The smaller sample size was due to fewer enrollments during summer semesters. The racial and ethnic composition of the participants were 20 White/European Americans, 2 Black/African Americans, 11 South or East Asian/Americans, 9 Latino/Hispanic Americans, 3 Middle Eastern/Arab American and 1 participant who identified as ‘Other’. See Table I for the distribution of the participants according to course, gender, and race/ethnicity.

**TABLE I**

DISTRIBUTION OF GENDER, RACE/ETHNICITY, COURSE AND CONDITION OF THE PARTICIPANTS

	Course			Total
	Personality	Testing	Intro	
Treatment Condition	13	8	2	23
Control Condition	13	8	2	23
Gender: Male	12	9	2	23
Female	12	7	2	21
Race/ White/ European American	9	9	1	19

Ethnicity :	Black/ African American	2	0	0	2
	East Asian/ East Asian American	3	2	0	5
	South Asian/ South Asian American	3	0	2	5
	Latino/ Hispanic American	4	4	1	9
	Middle Eastern/ Arab American	2	1	0	3
	Other	1	0	0	1

*Note.* There were 46 participants in total but only 44 completed the demographic questionnaire.

Participants were recruited during the Summer 2015 semester from three undergraduate psychology courses: (1) Introduction to Psychology (Intro), (2) Theories of Personality (Personality), and (3) Psychological Testing (Testing). These three courses were used to increase the variation of participants by year (e.g., freshmen, sophomore, junior, senior) rather than relying on the conventional freshman students. Personality and Testing are higher level psychology courses therefore students enrolled in these courses typically have been in college for a longer period of time compared to those enrolled in the Intro course. The course instructors granted permission for this study to take place in their classes.

## **2.2     Design**

This was a 3 (course: Intro, Personality, Testing) x 2 (condition: social emotional email, control email) x 3 (exam: Exam 1, Exam 2, and Exam 3) repeated measures analysis of variance (ANOVA) that was conducted. The emails were sent within 48 hours after Exam 1 and Exam 2 grades were available, but not after Exam 3 because it occurred at the end of the course (final exam). However, the Exam 3 grade will be included in the analysis to observe if the emails affected the performance on the final exam.

## **2.3     Procedure**

Students received informed consent forms at the beginning of the semester. Only students who provided signed consent participated in this study. Study participants were informed that they were involved in a research experiment observing the way students react to educational materials. Four teaching assistants (two in Intro; one in Personality; and one in Testing) for the three courses were all blind to the research hypothesis and were not involved in the study. However, the instructors were aware of the treatment and control status of the participants, as they were responsible for sending the emails to the participants. After the first exam, students in each class were randomly assigned into either the email treatment condition or the control condition. The randomization was done separately for each course using a random number generator to ensure that there was an equal amount of participants in the treatment and control condition within each course (Table I). The means of the treatment and control conditions for each course was calculated to confirm that there were no differences between the groups in terms of Exam 1 scores before the prevention program began. The instructors were given an electronic copy of the email templates. The electronic copy enables the instructors to copy and paste the suitable templates into individual emails addressed to students. The purpose of including each



student's first names regardless of condition is to ensure that all students received personalized emails; the treatment condition emails contain social-emotional promotion text, but the control condition emails did not. A template is provided for each condition (see Table VI, Appendix A & Table VII, Appendix B).

Within two days after students received their Exam 1 grade, the instructors sent personalized feedback emails to the participants (see Table VI, Appendix A). Two days after students received their Exam 2 grade, instructors repeated the same steps as in Exam 1, for both the treatment and control condition. The templates for the Exam 2 emails are provided in Table VII, Appendix B. The instructors recorded any email exchanges with students, but the experimenters did not analyze this data for the study. To maintain the realistic study setting, instructors were advised to reply (if appropriate) to the students according to their own judgment.

On the second to last week of the semester (Week 7), students received questionnaires to measure their academic self-efficacy and sense of belonging. Academic self-efficacy and sense of belonging was assessed only once as a post-test measure. This was done before the last exam because it would be impractical to measure students' academic self-efficacy and sense of belonging after the course ended. The experimenter distributed these questionnaires during the participants' class. The questionnaires were given to all students including students who did not provide signed consent at the beginning of the semester. This step was taken to ensure that the identity of participants in the study remained confidential. Students who did not provide signed consent were reminded that they did not have to complete the questionnaires and if they did, their data will not be used. At the end, instructors and students were thanked for their participation. Students were given the debriefing form via email at the conclusion of the study.

## **2.4 Treatment Condition**

Participants received an email that contained social-emotional promotion text. The rationale behind using templates was to facilitate standardization, save time for the instructors, and also to reduce the impact of having a potentially large number of students. To comply with the Family Educational Rights and Privacy Act (FERPA) of 1974, the exact exam scores of students were not communicated in the email.

Relying on the author's experience of sending personalized emails to his own students in previous courses, the email content of this prevention program was designed to fit the five SEL core competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Collaborative for Academic, Social, and Emotional Learning, 2005). The email content had to be specific to the core competencies but broad enough that it applied to all students, regardless of exam performance. This was to ensure a universal social emotional prevention program. Based on the definition of each core competency, the email content was created representing these definitions. Drafts of the email templates together with the definitions of each core competency were sent to other advanced graduate students and a faculty member in the author's program to check for consistency. Based on their feedback, the templates were then finalized. The templates in Table VI, Appendix A and Table VII, Appendix B represent the exact copy of the emails that were sent by the instructors to participants. However, listed below is the connection of the email text to each of the five SEL core competencies.

### **2.4.1 Exam 1**

***Self-awareness*** - The good news is that now you know how my exams are so you know what to anticipate. The first exam is always a valuable learning experience no matter how you performed.

***Self-management*** – I believe in your ability to do well and I hope you will work hard to achieve the best in this class.

***Social awareness*** - I also understand that each of us might have a lot of other things going on outside the classroom but please don't forget that we are here to support you.

***Relationship skills*** – Feel free to seek help from your TA and I.

***Responsible decision-making*** - My suggestion is for you to start looking forward to the next exam and also keep up the study strategies that you believed were helpful. I hope to see you ace the next exam.

#### **2.4.2 Exam 2**

***Self-awareness*** - Now that you have completed two exams, you can reflect on the strategies that worked and did not work in your preparation. You have many opportunities left to do well in this class.

***Self-management*** - I believe in your ability so I hope you can continue to work hard in this class.

***Social awareness*** - Remember that your TA and I are part of your support system.

***Relationship skills*** – Please communicate with us if you ever need any help.

***Responsible decision-making*** - I suggest that you work hard to make sure you end this class on a strong note. I hope you ace the last exam.

#### **2.5 Control Condition**

Participants received a personalized email that did not contain social emotional promotion text. The same template was used for all three exams for participants in the control condition. The first sentence of the control email appeared as the first sentence in the SEL emails. The second sentence of the control email was the last sentence of the SEL emails. This consistency of text content within the control conditions across emails was created to ensure that the only difference between the two conditions, was the SEL content. The control templates are in in Table VI, Appendix A and Table VII, Appendix B.

## 2.6 **Measures**

*Academic Achievement.* Academic achievement was measured by exam scores across all three exams. In all three courses, students were required to take three exams. Exam percentage scores (0-100%) were recorded for each exam.

*Academic Self-Efficacy I.* Academic self-efficacy I was measured using the Self-Efficacy for Learning and Performance subscale from the Motivated Strategies for Learning Questionnaire (MSLQ) for College Students (Pintrich, 1991). There are 8 items on this subscale, with a 7-point item response ranging from 1 (not very true of me) to 7 (very true of me) (see Appendix C, Part I). The scoring for this scale was determined from the total points of the 8 items (item 6 is reverse-scored); the maximum score a participant can receive is 56. One modification was made to the original scale. Specifically, the first item, “I believe I *will* receive an excellent grade in this class” was changed to “I believe I *can* receive an excellent grade in this class”. Self-efficacy is about perceived capability. “The item should be phrased in terms of *can* rather than *will*. The word *can* is a measure of capability, whereas *will* is a measure of intention” (Bandura, 2006, p. 308). Reliability for the current sample was  $\alpha = .94$ .

*Academic Self-Efficacy II.* Based on Bandura's (2006) Self-Efficacy to Regulate Exercise scale, the author created an additional academic self-efficacy scale to have a potentially more accurate assessment of self-efficacy. As academic self-efficacy is the belief in one's capability to perform academic tasks, Bandura (2006) argued that it would be practical to measure this against challenges that students may face towards achieving successful academic performances. "The issue is not whether one can do the activities occasionally, but whether one has the efficacy to get oneself to do them regularly in the face of different types of dissuading conditions" (Bandura, 2006, p. 311). Hence, the new scale included a variety of obstacles that could lower self-efficacy such as "During or after experiencing personal problems" or "When I did not do well on an exam/assignment". The resulting six items contained blanks for participants to complete by rating their degree of confidence from 0 (cannot do at all) to 100 (highly can do) (see Appendix C, Part II). The scoring for this scale was determined from the total points out of 6 items so the maximum score a participant can receive is 600. For more information on the need to create better scales to measure self-efficacy, see Bandura (2006). Reliability for this measure in this study was  $\alpha = .72$ .

*Sense of Belonging.* The sense of belonging scale used by Murphy, Steele, and Gross (2007) was adapted by adjusting items to be more consistent with the context of belonging within a classroom. For example, the original item by Murphy et al. (2007) "How much do you feel like you belong in this conference?" was changed to "How much do you feel like you belong in this *classroom*?". An additional item, "How uncomfortable are you in this classroom?" was added as a reverse-scored item (item 3). There are 4 total items on this measure, with a 7-point item response ranging from 1 (not at all) to 7 (extremely) so a participant can score a maximum of 28 (see Appendix C, Part III). Reliability for this measure on this sample was  $\alpha = .74$ .

## **2.7 Demographic Questionnaire**

On the second to last week of the study (Week 7 of the summer semester), participants were given a demographic questionnaire (see Appendix C, Part IV) to complete. This questionnaire obtained information regarding the participants' race/ethnicity, gender, age, major, and also if they were the first in their family to attend college. These data were collected for the purpose of descriptive statistics.

The demographic questionnaire also asked participants about their understanding of the current research study. The rationale behind this question was to identify if participants were aware of the study's purpose. Participants who were aware of the purpose would be a threat to internal validity due to potential participant biases such as trying to cooperate and fulfill the goals of the experimenter. Realistically, the data of participants who are potential threats to internal validity should be removed from the analyses but this was not a concern because none of the participants were found to represent a threat to internal validity from their answers. The information gained from these questions will be used to conduct post-hoc analysis looking at possible moderators between the type of email and the dependent variables.

### 3. RESULTS

Three hypotheses were proposed for this study: (1) SEL emails will lead to higher academic achievement among college students compared to students who receive non-SEL emails; (2) SEL emails will increase college students' academic self-efficacy compared to students who receive non-SEL emails; and (3) SEL emails will improve college students' sense of belonging compared to students not receiving SEL emails. Due to the small sample size, the three courses were aggregated into two groups: treatment group versus control group. This led to an even split of 23 students in each group.

#### 3.1 **Hypothesis 1: SEL emails will lead to higher academic achievement among college students compared to students who receive non-SEL emails**

The repeated measures ANOVA revealed a main effect of exam,  $F(2, 86) = 9.12, p = 0.00$ . This main effect of exam was driven by the higher average score of Exam 3 ( $M = 88.61, SD = 10.62$ ) compared to Exam 1 ( $M = 82.98, SD = 9.26$ ) and Exam 2 ( $M = 82.02, SD = 10.91$ ). There was no main effect of condition,  $F(1, 43) = .23, p = 0.63$ . However, there was an interaction between exam and condition,  $F(2, 86) = 4.47, p = 0.01$ . The interaction was further explained by conducting independent samples t-test. There was no difference between the treatment group ( $M = 82.78, SD = 9.45$ ) and control group ( $M = 83.18, SD = 9.27$ ) at Exam 1 in regards to academic achievement. The emails were not sent until after Exam 1. Against our prediction, we did not find a difference in the second exam between the treatment group ( $M = 80.64, SD = 13.46$ ) and control group ( $M = 84.00, SD = 7.72$ ). However, there was a significant effect for the third exam. The treatment group scored higher on Exam 3 ( $M = 91.86, SD = 9.42$ ) compared to the control group ( $M = 85.42, SD = 10.75$ );  $t(44) = 2.16, p = 0.03, d = 0.64$ . It seems that students receiving SEL emails had improved final exam scores compared to students

receiving non-SEL emails. Table II presents the means by exam and condition for academic achievement.

**TABLE II**  
MEANS BY EXAM AND CONDITION FOR ACADEMIC ACHIEVEMENT

Academic Achievement	Exam 1	Exam 2	Exam 3
Treatment	82.78	80.64	91.86
Control	83.18	84.00	85.42

### **3.2 Hypothesis 2: SEL emails will increase college students' academic self-efficacy compared to students who receive non-SEL emails**

Despite predictions, there was no significant difference in groups regarding academic self-efficacy. Specifically, there was no difference between the treatment ( $M = 46.18$ ,  $SD = 9.99$ ) and control group ( $M = 48.32$ ,  $SD = 8.60$ ) as measured by the Motivated Strategies for Learning Questionnaire (MSLQ) for College Students at the end of the course. Likewise, there was no difference between the treatment ( $M = 317.05$ ,  $SD = 90.60$ ) and control group ( $M = 331.36$ ,  $SD = 92.60$ ) in the Academic Self-Efficacy Scale II.

### **3.3 Hypothesis 3: SEL emails will improve college students' sense of belonging compared to students not receiving SEL email**

For sense of belonging, no differences were found between the treatment ( $M = 21.68$ ,  $SD = 4.48$ ) and control group ( $M = 22.27$ ,  $SD = 4.51$ ) as measured by the revised version of the Murphy, Steele, and Gross (2007) sense of belonging scale. This meant that there was no



difference in both academic self-efficacy and sense of belonging scores for students who received SEL emails compared to students who received non-SEL emails. Table III presents the means by condition for both academic self-efficacy measures and the sense of belonging measure.

The correlation matrix for the entire sample can be found on Table IV. As shown in Table IV, both Exam 1 and Exam 2 scores were significantly correlated with Exam 3 scores and both academic self-efficacy measures. There was a significant correlation between Exam 3 scores and the Academic Self-Efficacy Scale II scores. Lastly, the Academic Self-Efficacy Scale I (MSLQ) was significantly correlated with the Academic Self-Efficacy Scale II and the sense of belonging measure.

The correlation matrix split by the treatment and control condition is available on Table V. In the treatment condition, both Exam 1 and Exam 2 scores correlated significantly with Exam 3 scores. There was a significant correlation between scores in Exam 2 and the Academic Self-Efficacy Scale I (MSLQ) scores. Lastly, the Academic Self-Efficacy Scale I (MSLQ) scores also correlated with the sense of belonging measure. In the control condition, Exam 1 also correlated significantly with Exam 3 scores. Exam 2 scores had a significant correlation with both academic self-efficacy measures. Exam 3 scores correlated significantly with the Academic Self-Efficacy Scale II and lastly, there was a significant correlation between both academic self-efficacy measures.

**TABLE III**

POST-TEST MEANS BY CONDITION FOR ACADEMIC SELF-EFFICACY AND SENSE OF BELONGING

Measures/Condition	Treatment	Control
Academic Self-Efficacy I	46.18	48.32
Academic Self-Efficacy II	317.05	331.36
Sense of Belonging	21.68	22.27

**TABLE IV**

CORRELATIONS AMONG STUDY VARIABLES

Measures	Exam1	Exam 2	Exam 3	ASE. 1	ASE. 2	SOB.
Exam 1	-					
Exam 2	.28	-				
Exam 3	.47**	.40**	-			
ASE. 1	.39**	.49**	.20	-		
ASE. 2	.33*	.34*	.35*	.46**	-	
SOB.	.08	.15	-.08	.47**	.15	-

*Notes.* Number of participants range from 46 to 43 due to missing data specifically for ASE. 1, ASE. 2, and SOB. ASE 1 = Academic Self-Efficacy 1. ASE 2= Academic Self-Efficacy 2. SOB = Sense of Belonging.

\*  $p < .05$ , \*\*  $p < .01$

**TABLE V**  
**CORRELATIONS AMONG STUDY VARIABLES WITHIN THE TREATMENT AND CONTROL CONDITION**

Measures	Exam1	Exam 2	Exam 3	ASE. 1	ASE. 2	SOB
<hr/> Treatment						
Exam 1	-					
Exam 2	.30	-				
Exam 3	.44*	.65**	-			
ASE. 1	.39	.44*	.17	-		
ASE. 2	.41	.16	.27	.34	-	
SOB.	.08	.01	-.09	.53*	.05	-
<hr/> Control						
Exam 1	-					
Exam 2	.27	-				
Exam 3	.56**	.29	-			
ASE. 1	.40	.58**	.33	-		
ASE. 2	.22	.64**	.51*	.59**	-	
SOB.	.09	.37	-.03	.40	.24	-

*Notes.* Number of participants range from 46 to 43 due to missing data specifically for ASE. 1, ASE. 2, and SOB. ASE 1 = Academic Self-Efficacy 1. ASE 2= Academic Self-Efficacy 2. SOB = Sense of Belonging.

\*  $p < .05$ , \*\*  $p < .01$

#### 4. DISCUSSION

This study served as a prevention program that investigated the effects of SEL emails on students': (1) academic achievement, (2) academic self-efficacy, and (3) sense of belonging, compared to non-SEL emails. The emails were designed using the five core SEL competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Collaborative for Academic, Social, and Emotional Learning, 2005). Despite the predictions, only one of the three hypotheses was supported (Hypothesis 1). The next sections will discuss the findings based on each hypothesis.

As predicted, SEL emails improved college students' academic achievement. Specifically, those students who received SEL emails had higher Exam 3 (final exam) scores than students who received non-SEL emails. This effect was not found for Exam 2 scores, only Exam 3 scores. A potential criticism is why there was no effect for Exam 2 scores, but an effect in Exam 3? This could be attributed to two main reasons. First, there could have been a sleeper effect such that the effects of the SEL email on the students were delayed until the third exam. Secondly, this is consistent with Nation et al. (2013) stating that participants should be exposed to a sufficient amount of the intervention for it to have an effect (dosage). This could mean that only sending an email after Exam 1 was not enough to cause an effect, but the repeated emails (after Exam 1 and Exam 2) led to an improvement in exam scores. The use of multiple emails expanded previous research by Isbell and Cote (2009) who only emailed their participants once. Another process that may explain both the sleeper effect and support the dosage effect is the fact that participants might not have been familiar with getting a personalized email and were not sure how to react to the first email after Exam 1. Some students might have perceived such a long and detailed email as a negative sign especially since students in college may not be used to

personalized emails from professors (Isbell & Cote, 2000). However, the repeated email after Exam 2 may have helped to remind the participants that this was a consistent act from the instructor and maybe only then did it lead to a positive reaction and eventually a boost in academic achievement. Future research could incorporate a qualitative component to the study where participants are asked to report on their thought processes as they received these emails to understand more about the effects of the email. Additionally, a manipulation check should be added into the study to ensure that students did get exposed to the emails. For example, a recognition test could be included at the end of the study where students are presented with the treatment and control condition templates and asked to state which one they have seen before. This would help support the fact that these students were aware of the email they received.

Despite predictions, there were no group differences in academic self-efficacy scores for students receiving SEL and non-SEL emails. This non-significant finding remained for both academic self-efficacy measures. As previously stated, from Bandura's (1977) four methods to assess self-efficacy: performance accomplishment, vicarious experience, verbal persuasion, and physiological or emotional arousal; verbal persuasion is the method that is most similar to the prevention approach using emails in this study. Despite the benefits of verbal persuasion, it has also been described as having the most limited impact on students' self-efficacy due to the future outcomes only being described by another person (i.e., course instructor) rather than experienced or witnessed by the student themselves (Zimmerman, 2000). This would explain the lack of differences in academic self-efficacy scores between the SEL and non-SEL email groups.

Additionally, it was mentioned that the credibility of the instructor could affect students' academic self-efficacy (Schunk, 1985). In this case, the emails could have had a weaker effect on the students' academic self-efficacy if they did not perceive the instructor to be highly credible.

For example, the students could have discredited the encouragement given by the instructor if the students believed that the instructor did not understand the difficulty of the course requirements or even if the students had other situational factors to deal with (e.g., personal problems, responsibilities outside class) (Schunk, 1985). Additionally, it is important for the instructors to have a core belief in the SEL prevention message communicated via the emails and to also reflect this belief in their interaction with the students (Mildener & Keane, 2006). If the instructors did not interact face-to-face with students in a manner consistent with the emails that were sent, students could have determined that the emails from the professor were not sincere to begin with or that they were generic and impersonal that it did not trigger an effect on the students' academic self-efficacy.

According to Bandura (1986), the assessment of self-efficacy needs to be done closer to the event or performance that is being targeted. Instead of only measuring academic self-efficacy at the end of the study, maybe it should have been measured right after students received each email. This could potentially give us a better measure on how the SEL emails (versus control emails) possibly affect students' academic self-efficacy. In addition, assessment of academic self-efficacy prior and after the intervention may have provided valuable information on possible changes in academic self-efficacy over the course of eight weeks.

There was no difference in sense of belonging scores for both groups. Applying the belonging hypothesis into the context of this study, it would mean that students need frequent contact from the instructor to perceive that the instructor is concerned about the student's welfare (Baumeister & Leary, 1995). The lack of group differences could be due to the inconsistency between the level of concern showed in the email compared to the actual interactions in the classroom. For instance, frequent contact was defined by the two emails that were sent to the

students. These emails were also sent to the control group which technically can be categorized as “contact”. However, it could be the case that there were no differences in actual classroom interaction with the instructor between treatment and control students, leading to no effects for sense of belonging. Similar to the self-efficacy measures, sense of belonging could have been measured as a pretest and posttest or right after students received each email. This could have shown the potential changes in sense of belonging over the course of eight weeks or right after receiving each email.

#### **4.1 Limitations & Future Directions**

The first limitation of this study was the small sample size ( $N = 46$ ). This was due to the smaller classes during the summer semester at the university where the data was collected. Students were also invited to volunteer for the study with no form of compensation. This provided a lack of incentive for students to participate in the study. In the future, an alternative option would be to reward students with some form of extra credit to possibly increase the rate of participation. Future research with a larger sample size could further assess the potential impact of a SEL email prevention. It is important to note that even with the current small sample size, a significant effect for academic achievement was found in the 8-week study. It would be predicted that the same effect would be found in a 16-week study. A typical 16-week semester would potentially increase the sample size due to the larger size of enrollment in classes. However, a longer semester could bring in more confounds which could affect the hypothesis that is being tested. For example, in a longer semester, students take more classes compared to the summer semester so there are chances that performances in other classes could have a carryover effect on the classes where this study is occurring.

The second limitation was the lack of effects for both academic self-efficacy and sense of belonging for students receiving SEL emails. It could be the case that the instructors actually did a good job promoting students' academic self-efficacy and sense of belonging beyond the context of the emails that were sent, leading to no differences between the SEL and non-SEL groups. A consideration to improve the findings in regards to both academic self-efficacy and sense of belonging is to increase the dosage of the prevention approach. As stated by Nation et al. (2013), it is important to have sufficient dosage for an approach to have an effect. Both measures, especially academic self-efficacy (due to being influenced by the cognition, environment, and behavior) are important to the student so maybe more emails were required to have an effect on these two outcome variables. Sending only two SEL-emails might not have been sufficient to create a change on these students' academic self-efficacy and sense of belonging. Future studies could incorporate sending more frequent emails such as post-assignment emails (Gallien & Oomen-Early, 2008) or even weekly emails.

Instead of always recruiting students from the psychology department, it would be interesting to replicate this study in other departments. Students taking psychology courses are more aware of such research studies and concepts, thereby leading to the possible issue of participants experiencing demand characteristics in the research study. Future research could observe the effectiveness of this study in other departments especially those not in the social sciences such as engineering or computer science.

Lastly, it is worth noting that the inspiration behind this intervention was the author sending personalized emails to students in his own class. The emails that were originally sent by the author to his students were tailored to each individual. However, measuring the effects of personalized emails using email content that is tailored to each student would bring up many



practical issues and it would be difficult to communicate such individually tailored emails to the educating community. For instance, it might not be applicable to replicate the emails used for one classroom setting to a different classroom containing different sets of students. This is why the templates were created so that the procedures were standardized and the measurements can be done more objectively. Future studies should embrace the challenge of creating and testing even more personalized emails.

In conclusion, this type of evidence-based research can improve the quality of student's academic well-being. It can also possibly increase college students' chances of completing their education through improvements in academic achievements. Hopefully, more SEL evidence-based research can be conducted so that a SEL-based prevention program in college can be created and used nationwide.

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## APPENDICES

### APPENDIX A

**TABLE VI**

PERSONALIZED FEEDBACK EMAILS FOR EXAM 1

Template #	Condition	Email content
1	Treatment	<p>Hi (student's name),</p> <p>Your score for Exam 1 is available on Blackboard. The good news is that now you know how my exams are so you know what to anticipate. The first exam is always a valuable learning experience no matter how you performed. I believe in your ability to do well and I hope you will work hard to achieve the best in this class. I also understand that each of us might have a lot of other things going on outside the classroom but please don't forget that we are here to support you. Feel free to seek help from your TA and I. My suggestion is for you to start looking forward to the next exam and also keep up the study strategies that you believed were helpful. I hope to see you ace the next exam. Let me know if you have any questions.</p> <p>Regards, (Instructor's name)</p>
1	Control	<p>Hi (student's name),</p> <p>Your score for Exam 1 is available on Blackboard. Let me know if you have any questions.</p> <p>Regards, (Instructor's name)</p>

## APPENDIX B

TABLE VII

## PERSONALIZED FEEDBACK EMAILS FOR EXAM 2

Template #	Condition	Email content
2	Treatment	<p>Hi (student's name),</p> <p>Your score for Exam 2 is available on Blackboard. Now that you have completed two exams, you can reflect on the strategies that worked and did not work in your preparation. You have many opportunities left to do well in this class. I believe in your ability so I hope you can continue to work hard in this class. Remember that your TA and I are part of your support system. Please communicate with us if you ever need any help. I suggest that you work hard to make sure you end this class on a strong note. I hope you ace the last exam. Let me know if you have any questions.</p> <p>Regards, (Instructor's name)</p>
2	Control	<p>Hi (student's name),</p> <p>Your score for Exam 2 is available on Blackboard. Let me know if you have any questions.</p> <p>Regards, (Instructor's name)</p>



## APPENDIX C

**I. For each statement, please circle on the scale of 1-7 how much you agree or disagree with the statements (1 = not at all true of me, 7 = very true of me).**

1. I believe I can receive an excellent grade in this class	1	2	3	4	5	6	7
2. I'm certain I can understand the most difficult material presented in this course.	1	2	3	4	5	6	7
3. I'm confident I can learn the basic concepts taught in this course.	1	2	3	4	5	6	7
4. I'm confident I can understand the most complex material presented by the instructor in this course.	1	2	3	4	5	6	7
5. I'm confident I can do an excellent job on the assignments and tests in this course.	1	2	3	4	5	6	7
6. I do not expect to do well in this class.	1	2	3	4	5	6	7
7. I'm certain I can master the skills being taught in this class.	1	2	3	4	5	6	7
8. Considering the difficulty of this course, the teacher, and my skills, I think I can do well in this class.	1	2	3	4	5	6	7

## APPENDIX C (continued)

**II. A number of situations are described below that can make it difficult to learn or perform well in this course. Please rate each item below to indicate how well you can perform in this class despite the following situations.**

*Rate your degree of confidence by recording a number from 0 to 100 using the scale given below:*

0	10	20	30	40	50	60	70	80	90	100
Cannot					Moderately					Highly
do at all					can do					can do

1. Get myself to study when there are other interesting things to do (Netflix, etc) \_\_\_\_\_
2. During or after experiencing personal problems \_\_\_\_\_
3. When I have other time commitments (work, family, etc) \_\_\_\_\_
4. When I don't have interest in the subject \_\_\_\_\_
5. When I did not do well on an exam/assignment \_\_\_\_\_
6. When I have a lot of deadlines around the same period (e.g. 2 exams in a day/week) \_\_\_\_\_

**APPENDIX C (continued)**

**III. Please rate your thoughts on each question below ranging from 1 = not at all to 7 = extremely.**

1. How much do you feel like you could be yourself in this classroom?	1	2	3	4	5	6	7
2. How much do you feel like you belong in this classroom?	1	2	3	4	5	6	7
3. How uncomfortable are you in this classroom?	1	2	3	4	5	6	7
4. How much do you feel accepted in this classroom?	1	2	3	4	5	6	7

**APPENDIX C (continued)****IV. Demographics**

What is your age? \_\_\_\_\_

What is your major? \_\_\_\_\_

Are you the first in your family to attend college? Yes / No

What is your gender? Male / Female / Other (please specify): \_\_\_\_\_

<b>Which racial/ethnic group do you MOST CLOSELY identify with?</b>	
<input type="radio"/>	White/European American
<input type="radio"/>	Black/African American
<input type="radio"/>	East Asian/East Asian American
<input type="radio"/>	South Asian/South Asian American
<input type="radio"/>	Latino/Hispanic American
<input type="radio"/>	Native American/American Indian
<input type="radio"/>	Middle Eastern/Arab American
<input type="radio"/>	Other (Please specify): _____

Additional Questions:

**What is your understanding of the purpose of this study?**

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**Approval Notice  
Initial Review (Response to Modifications)**

April 20, 2015

Vinoadharen Nair Das, BA  
Psychology  
1007 W Harrison Street  
M/C 285  
Chicago, IL 60612  
Phone: (734) 330-8560

RE: **Protocol # 2014-1218**  
**“The Benefits of Personalized Feedback Emails in Higher Education”**

Dear Mr. Nair Das:

Your Initial Review application (Response to Modifications) was reviewed and approved by the Expedited review process on April 16, 2015. You may now begin your research.

Please note the following information about your approved research protocol:

<b><u>Protocol Approval Period:</u></b>	April 16, 2015 - April 15, 2016
<b><u>Approved Subject Enrollment #:</u></b>	1,000
<b><u>Additional Determinations for Research Involving Minors:</u></b> These determinations have not been made for this study since it has not been approved for enrollment of minors.	
<b><u>Performance Site:</u></b>	UIC
<b><u>Sponsor:</u></b>	None
<b><u>Research Protocol:</u></b>	
a. The Benefits of Personalized Feedback Emails in Higher Education; Version 1; 12/11/2014	
<b><u>Recruitment Material:</u></b>	
a. Recruitment Script; Version 1; 04/14/2015	
<b><u>Informed Consents:</u></b>	
a. Debrief; Version 1; 07/11/2012	
b. Lab Consent; Version 2; 04/14/2015	

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific category:

(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

**Please note the Review History of this submission:**

Receipt Date	Submission Type	Review Process	Review Date	Review Action
12/12/2014	Initial Review	Expedited	12/18/2014	Modifications Required
04/15/2015	Response To Modifications	Expedited	04/16/2015	Approved

Please remember to:

→ Use your **research protocol number** (2014-1218) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure,  
**"UIC Investigator Responsibilities, Protection of Human Research Subjects"**  
*(<http://tiger.uic.edu/depts/ovcr/research/protocolreview/irb/policies/0924.pdf>)*

**Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.**

**Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.**

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 996-2014. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,  
 Sandra Costello  
 Assistant Director, IRB # 2  
 Office for the Protection of Research

Subjects

Enclosures:

1. **UIC Investigator Responsibilities, Protection of Human Research Subjects**
  2. **Informed Consent Documents:**
    - a. Debrief; Version 1; 07/11/2012
    - b. Lab Consent; Version 2; 04/14/2015
  3. **Recruiting Material:**
    - a. Recruitment Script; Version 1; 04/14/2015
- cc: Michael E. Ragozzino, Psychology, M/C 285  
 Marisha Humphries (faculty advisor), Educational Psychology, M/C 147

**VITA**

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