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Cyberbullying, General Strain Theory, and the Moderating Effect of Anonymity in College Students

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Abstract

Cyberbullying is an intricate and ever-evolving form of bullying. Little is known about how cyberbullying is perpetrated at the collegiate level. Applying a General Strain Theory framework, the current study aims to assess the role of six university-related strain elements as possible predictors for cyberbullying, cybervictimization, and frequency of the two. Survey questionnaires were administered to 15 undergraduate classes at a southeastern university (N = 406). Additionally, the moderating role of internet anonymity on these relationships is addressed. Being threatened with losing or actually losing a scholarship and being placed on probation are identified as significant predictors of cybervictimization and frequency of cybervictimization. Personal academic shortcomings and being threatened with losing or actually losing a scholarship are found to be significant predictors of cyberbullying frequency. Anonymity is established as negatively associated with the frequency of cyberbullying and cybervictimization, but its effect as a moderator is limited, at most.

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Introduction

Bullying is often dismissed or downplayed by those who view it simply as a part of growing up or even as a rite of passage. In reality, the negative effects of bullying are far-reaching and severe enough that ignoring them would be a travesty. Surpassing anecdotal frequency, bullying has even been tied to thoughts of suicide and both successful and unsuccessful suicide attempts (Gini & Espelage 2014; Sinyor, Schaffer, & Cheung 2014). The painful truth is that bullying can have tragic and permanent effects on its victims. Having been viewed as a natural part of life and growing up, bullying, in reality, deserves the full attention of those charged with exploring the nature of the phenomenon as well as those responsible for implementing the necessary policies and procedures for combating and reducing it.

With the advent of the internet, and especially later, with the proliferation of smart phones and online social media venues, cyberbullying has emerged as a common form of bullying. As described by the National Crime Prevention Council, cyberbullying refers to incidences "When the internet, cell phones, or other devices are used to send or post text or images intended to hurt or embarrass another person" (NCPC). This relatively new form of bullying can be perpetrated through text messages, emails, social media websites, chat rooms, instant messaging outlets, and through various other online settings that incorporate communication between individuals. As children are taught how to use these outlets, and as more youths are being trusted with using cell phones and other devices used to access the internet, cyberbullying is becoming an increasingly relevant concern.

The majority of past research regarding cyberbullying has focused on juvenile populations in the middle to high school age range (Jang, Song, and Kim 2014; Sticca and Perren 2013; Patchin and Hinduja 2011; Hay, Meldrum, and Mann 2010). This follows reason, since

these are the primary ages at which bullying is likely to occur (Jang, Song, and Kim 2014; Patchin and Hinduja 2011). However, while traditional forms of face-to-face bullying tend to fade away as the transition is made from high school to college, cyberbullying may have a unique likeliness to remain during the undergraduate years. Given that each successive generation is increasingly familiar with and reliant on technological devices and internet access, it stands to reason that the current traditional college student body is more immersed in online and social media culture than any generation before it. In fact, since smart phones increasingly became the norm during the past decade, it could be said that the current college student body is one of the first to have grown up alongside a culture of near constant internet access. In other words, with past generations, an observed desistence from cyberbullying during college could have been simply due to having naturally less involvement with online social outlets than would high school counterparts. This affords an important opportunity to assess how cyberbullying has changed or remained uninterrupted when viewed in a college setting.

When discussing cyberbullying, it is necessary to include the subject of anonymity. Often, anonymity can lead to greater feelings of harm by victims of cyberbullying (Dredge, Gleeson, and de la Piedad Garcia 2014; Sticca and Perren 2013). The fear of not knowing the orientation of an attacker along with not having the ability to confront said attacker can exacerbate feelings of vulnerability and helplessness. Equally as concerning, when a cyberbully attacks anonymously, it makes it that much more difficult to punish the responsible party. For these reasons, it is important that research seek to understand the complicated relationship between cyberbullying and anonymity.

Undergraduate college students are also unique in that they are experiencing stressors - often from many difference sources - that they may be encountering for the first time. Between

the less forgiving classroom climates, moving away from home, learning to live with peers of varying backgrounds, dealing with financial budgeting, trying to make new friends, searching for a job following graduation, and a slew of other sources of negative feelings, college has the potential to be one of the most trying periods of life. Naturally, these negative experiences can cause college students to act out. Agnew's (1992) General Strain Theory of crime and delinquency (GST) seeks to explain the link between stressful events and feelings - termed "strain" - and the harmful reactions they sometimes provoke. The current study aims to explore the nature of cyberbullying in college students, to identify which types of strain are most likely to be associated with undergraduate student cyberbullying perpetration and victimization, and to determine if anonymity has a moderating effect on the relationship between strain and cyberbullying perpetration and victimization.

Literature Review

General Strain Theory

Agnew posits that three forms of strain could possibly cause an individual to respond with criminogenic or delinquent actions. The first form of strain is the failure or prevention from achieving positively valued goals (Agnew 1992). The essential strain at work here is the dissimilarity between what an individual hopes or is expected to achieve and what that individual is actually able to achieve. In the college setting, this may be found in grades which were lower than anticipated by the student or in parental disapproval of major/career selection or disapproval of grades received. Additionally, a student who may compare his or her goals with a peer may not be as successful in achieving them as that peer is when both parties apply similar effort.

These misalignments between goals and actual achievements can lead to anger, resentment, and general unhappiness (Agnew 1992).

The second form of strain is the loss, threat of removal, or removal of positively valued stimuli (Agnew 1992). This can be seen in many aspects of college life. For example, moving away from friends or family is a loss of positive stimuli that may cause feelings of sadness and loneliness. Likewise, if a student is put on academic probation, he or she may feel discouraged. If that same student remains on academic probation for long enough, he or she may lose a scholarship or may be deemed ineligible to participate in university extracurricular activities. These are examples of a threat of removal, and ultimately, the removal of positively valued stimuli.

The third form of strains is the presence of harmful or negatively valued stimuli (Agnew 1992). This may be thought of as a classic understanding of stressful life events. For a college student, this may take the form of professors or peers not treating that student with respect. This may also refer to fretting about money, student loans, or finding a job upon graduation. Similarly, this type of strain can also refer to environmental strains such as noisy or uncomfortable living conditions that might be brought about by loud roommates, broken air conditioners, high population density, etc.

Agnew points out that characteristics of strain such as frequency, magnitude, compounding effects, or temporal proximation are important in predicting the amount of effect that such a strain might have on an individual (1992). According to GST, strains will be received and processed by an individual, at which point a coping approach will be implemented. Agnew explains three possible coping strategies: cognitive, behavioral, and emotional. Cognitive coping refers to a mental acceptance and delusion of the strain. Such coping responses

include convincing oneself that the strain is "not that important", the strain is "not that bad", and

that the strain is "deserved" (Agnew 1992 p.66). Possible coping behaviors can include

maximizing positive outcomes, minimizing negative outcomes, and engaging in vengeful

behavior (which could include cyberbullying). Lastly, emotional responses can include the use

of drugs or controlled substances, physical exercise, relaxation techniques, meditation, or other

similar emotional activities (Agnew 1992).

It can be said, then, that according to GST, criminogenic or delinquent behavior is only a

small possible outcome to experiencing strain. During an update to GST, Agnew (2001) asserts

that there are certain types of strain that are more likely to cause criminogenic or delinquent

reactions. In order to explain this, four characteristics that make a strain more likely to lead to

crime or delinquency are noted. The first characteristic is when the strains are seen as unjust

(Agnew 2001). This characteristic is significant because it is when strains are viewed as unjust

that they are more likely to prompt feelings of anger within the individual experiencing them.

Anger is an especially dangerous feeling because it reduces the perceived cost of crime and fills

the individual with a yearning for action that may bring about revenge or control over the

situation (Agnew 2001). Agnew goes on to claim that strains are most likely to be viewed as

unjust when the strain is applied voluntarily or intentionally and the strain violates some sort of

rule that was in place to preserve justice.

The second characteristic of a strain that is more likely to lead to crime is that the

individual experiencing it views the strain as high in magnitude (Agnew 2001).   Strains that are

high in magnitude are unable to be justified utilizing a cognitive coping technique. This creates

a situation where the individual experiencing the strain feels that behavioral or emotional coping

techniques are the only feasible reaction. An individual bent on taking action is more likely to

resort to crime or delinquency than one who is able to cognitively diffuse the strain. Agnew states that the degree of strain, the duration and frequency, the temporal proximation (how recent), and the centrality (how closely it is felt) of the strain are all responsible for determining how the individual experiencing the strain judges its magnitude (2001).

The third characteristic is when the strain is associated with low social control (Agnew 2001).   Agnew mentions that low social control is characterized by factors which constitute an environment of low direct control, low attachment, and low commitment. Such factors could include inconsistent discipline, parental rejection, homelessness, or working an undesirable job (Agnew 2001). The importance of measuring the amount of social control involved in a given strain is an important aspect of determining how likely a strain is to lead to crime or delinquency. An important notion is that strain my even be caused by unusually high social control instead of low social control. Examples of high social control that may lead to strain is working long hours at a job or parents who impose too much supervision on their children (Agnew 2001).

The fourth and final characteristic of strains that are more likely to lead to crime is when the strain produces pressure or incentive to resort to criminal coping (Agnew 2001). In certain situations where there are certain strains, it is possible that the individual experiencing the strain feels as though he or she is expected or may even be required to respond to the strain in a criminal manner. For example, violent reactions to disrespect are not only the norm in some urban cultures and subcultures - they are required if an individual wishes to retain his or her status among the group (Agnew 2001). These types of reactions seem especially appropriate if they ensure that the strain in question is less likely to happen in the future due to the criminal or delinquent response from the strained individual. In a less black and white situation, the

individual experiencing the strain may simply have learned criminal reactions to similar strains from others, in which case there is an incentive to act the same way (Agnew 2001).

Agnew goes on to declare that it can be categorically determined which types of strain are less likely and more likely to result in crime or delinquency (Agnew 2001). Those only slightly related or not related at all to crime include isolation from or unpopularity with peers, burdens associated with caring for loved ones, excessive demands of a path which leads to high rewards, conventional supervision by parents, teachers, or other guardian figures, among others. Those strains which are more likely to lead to crime or delinquency are the failure to achieve goals which are easily achieved through crime, parental rejection, overly strict supervision and discipline, child neglect or abuse, negative school experiences, work in an undesirable job, homelessness, abusive peers, criminal victimization, and experiencing discrimination or prejudice (Agnew 2001). Agnew notes that there is likely a cumulative effect of strain. This means that individuals who experience more than one of the above-mentioned types of strain strongly related to crime are more likely to respond with criminal or delinquent actions than individuals who only experience one (Agnew 2001).

Cyberbullying and Strain

One of the earliest studies that explored the role of strain in causing delinquency with a cyberbullying context sought to identify, among other things, whether previous bullying victimization - both traditional and cyber - was a reliable predictor of future delinquent activity (Hay, Meldrum, and Mann 2010). From questionnaires administered to about 400 middle and high school students in a southeastern state, it was found that cyberbullying was more strongly related to future offending than traditional bullying was (Hay, Meldrum, and Mann 2010). This

reiterates the importance of investigating the possible consequences of cyberbullying. Along these same lines, it was also discovered that cyberbullying was a stronger predictor of thoughts of self-harm and suicidal ideation. The effect of previous victimization on future delinquency was not observed to differ between genders, of which both had similar rates of previous victimization. The effect of previous victimization on thoughts of self-harm and suicide ideation, however, were found to be significantly higher for males than for females (Hay, Meldrum, and Mann 2010). The authors posited that males may feel more socially isolated following an incident of bullying victimization than do females.

A later study aimed to determine if exposure to any of an array of strain factors would be helpful in predicting future engagement in traditional and cyberbullying activities (Patchin and Hinduja 2011). The sample consisted of 1,963 questionnaires collected from middle school students at 30 different schools within a single large district within the United States. The study found that strain was positively correlated with engagement in cyberbullying activities; this means that as strain increased, the likelihood of cyberbullying increased (Patchin and Hinduja 2011). Also found was that as age increased, the youths were more likely to engage in both traditional and cyberbullying activities. The authors noted that his may be a phenomenon specific to middle school students, who may be "ageing-in" to bullying as they progress, rather than older juveniles, who may be experiencing "ageing-out" during the high school years. Bullying behavior was found to be associated with negative emotions and strain. This relationship was not found to be mediated by feelings of anger or frustration (Patchin and Hinduja 2011).

A much more recent study combined the ideas of these two previous studies, treating previous cyberbullying victimization as the primary strain variable to assess how well it could

predict future engagement in cyberbullying activities (Ak, Ozdemir, and Kuzucu 2015). This study is also significant because it is the only study to test the relationship between strain and cyberbullying as it applies to undergraduate college students. A sample of 687 college students in Turkey completed group surveys. The groups were randomly selected from three different academic disciplines on campus. It was found that previous cyberbullying victimization in college students yielded an increase of future cyberbullying activities (Ak, Ozdemir, & Kuzucu 2015). The study also assessed the effect that anger expression style might have on this relationship. Specifically, the authors chose to examine an anger-in (internalized) and an anger-out (externalized) expression style. An anger-in expression style was found to mediate the relationship between previous cyberbullying victimization and future cyberbullying activities. Males were found to have a stronger link between anger-in expression styles and cyberbullying activities. Females, on the other hand, were found to have a stronger link between anger-out expression styles and cyberbullying victimization. Overall, males who had higher levels of anger-in expression styles were more likely to be cyberbullies (Ak, Ozdemir, and Kuzucu 2015).

A rather comprehensive study sought to determine if traditional bullying victimization would lead to cyberbullying activities in youths, utilizing parental strain, study strain, and financial strain as control variables (Jang, Song, and Kim 2014). The study also measured other theoretical indicators, including delinquent peer associations and low self-control, both of which are of lesser relativity to the current study. Data was obtained from the Korean Youth Panel Survey, which contains annual interviews from juveniles over the course of six years. The study sample consisted of interviews from 3,283 of these youths (Jang, Song, and Kim 2014). Trends in strain variables differed depending on type of strain they measured. Parental strain was the only strain variable to show a constant trend, which decreased as the youths aged. Study strain

fluctuated, reaching its highest point as students prepared to enter high school, which requires

students to take entrance exams in Korea. Financial strain showed no identifiable trend.

Demographic variables, such as gender and family income were also considered. Males were

found to be nearly 70% more likely than females to engage in cyberbullying activities. Income

had no correlation with cyberbullying (Jang, Song, and Kim 2014).

The authors analyzed the relationship between traditional bullying victimization and

eventual engagement in cyberbullying activities while holding these other variables constant. A

positive correlation between the two was identified, as well as with low-self control and

delinquent peer association and engagement in cyberbullying activities. It was noted that an

ageing-out trend was observed over the course of the study, in concurrence with Patchin and

Hinduja (2011). The authors state that a significant limitation of the study was its inability to

determine whether cyberbullying behavior continued into adulthood (Jang, Song, and Kim

2014). This illustrates a need for future research to monitor the existence of cyberbullying in

adult social circles, such as during college.

Cyberbullying and Anonymity

A firm relationship has been established by past research regarding online aggression,

(e.g. trolling, harassment, misuse of personal info, and mocking) and anonymous status of those

perpetrating the cyberbullying. An earlier study on cyberbullying and anonymity aimed to find

how anonymity is related to online aggressiveness (Moore, Nakano, Enomoto, & Suda 2012). In

order to do so, the authors examined 5,230 online forum posts from 26 different online forum

pages. It was discovered that posts maintaining the posters' anonymity were more likely to be

aggressive to other forum users (Moore et al. 2012). A later study utilized a longitudinal design

(Wright 2013). After online aggression of 130 students at a Midwestern university and other

control factors were measured by an online questionnaire, students were asked to answer similar

questions regarding online aggression six months later. It was found that, due to learning about

the anonymous nature of cyberbullying during the first survey phase, students were more likely

to have exhibited online aggression during the period leading up to the second survey phase.

This was attributed to students feeling that they would not be punished or experience retaliation

from their victims after learning about anonymity during the first phase (Wright 2013). A recent

study surveyed 181 college students, asking about attitudes toward cyberbullying, anonymity,

and reinforcement of cyberbullying behaviors (Barlett 2015). It was found that when anonymity

was present, students were be more likely to engage in cyberbullying. Anonymity was also

found to moderate the relationship between positive attitude toward cyberbullying and

cyberbullying perpetration. The author credited the feelings of students that once anonymity is

realized, the mindset that cyberbullies will not be caught sets in, making it more likely for

students to engage in those behaviors (Barlett 2015).

While the relationship between anonymity and cyberbullying behavior is relatively

uncontested, the impact of anonymity on cyberbullying instances is slightly less concrete. A

study found that, during interviews, subjects admitted that being the victim of cyberbullying is

more manageable when the perpetrator is anonymous (Bryce and Fraser 2013). It was noted that

if a victim knows the bully well, and if that bully is in the same peer group as the victim, the

cyberbullying incident will be felt to be much more damaging by the victim, since the victim

feels betrayed (Bryce and Fraser 2013). This is partially in line with a similar Australian study

(Dredge, Gleeson, and de la Piedad Garcia 2014). The authors also conducted semi-structured

face-to-face interviews. The sample consisted of 25 adolescents between the ages of 18 and 24

in Australia. Responses indicated that the most severe incidences of cyberbullying include those where the victim and perpetrator are very close. In contrast, the authors also noted that some respondents mentioned that incidences involving anonymous cyberbullies are more severe than when the bully is known to the victim (Dredge, Gleeson, and de la Piedad Garcia 2014). It would seem, then, that there is a fine line between knowing the online attacker and knowing them well enough for a bullying victim to feel betrayed and fearful.

A Swiss study had less complicated results (Sticca and Perren 2013). The authors aimed to determine how anonymity was perceived in a cyberbullying context. A self-report questionnaire was administered to 838 seventh and eighth grade students that consisted of hypothetical bullying scenarios and asked the students to answer questions about how certain aspects of each scenario seemed to them. It was found that in both traditional bullying and cyberbullying instances, anonymity of the attacker increased the severity of the incident. The authors also noted that of all types of bullying measured (anonymous cyberbullying, non-anonymous cyberbullying, anonymous traditional bullying, and non-anonymous traditional bullying), anonymous cyberbullying was perceived as the most severe form of bullying (Sticca and Perren 2013). It can be seen that in some instances, cyberbullying victims prefer to know their attacker, while in other instances, victims prefer for their attacker to be anonymous.

It should be noted that total online anonymity can be difficult to measure. Anonymity can be said to be the absence of indentifying personal information. Some young people may spend some of their time on social media sites that encourage total indentifying information to be made public, and some of their time on sites that foster anonymous participation. It is also possible that by visiting more than one online social media profile "owned" by the same person, a web user can start to piece together a slew of different types of information, effectively

creating a relatively complete image of the subject. For this reason, only by measuring how much personal information a person discloses across their entire internet "stomping grounds" can a sense of their actual online anonymity be realized.

Cyberbullying Perpetration and Cyberbullying Victimization

To better understand the relationships at play in the current study, it is vital to explore literature that will help contextualize the relationships between cyberbullying and cyberbullying victimization. It is not uncommon to observe that perpetrators and victims of a similar offense are often found in the opposite role (Chan & Wong 2015). Determining whether this trend extends into cyberbullying will offer perspective for the current study's findings. While the empirical research on the relationship between cyberbullying and cybervictimization is limited, a relatively stable correlation has been observed. A study of 680 adolescents in Spain revealed that there was not only evidence of a portion of perpetual cyberbullying victims, but that these often-victimized youths were more likely to fall into the role of bully as well (Gamez-Guadix, Gini, & Calvete 2015). These findings are in concurrence with Ak, Ozdemir, and Kuzucu (2015), when, using cybervictimization as a strain indicator, the authors found there to be a positive relationship between cybervictimization and cyberbullying perpetration. Additionally, a study of 19,869 juveniles found that bully-victims, or bullies who were also often victims themselves, are more likely than pure bullies to be cybervictimized (Yang & Salmivalli 2013). These studies point to a relatively new, but strong relationship between cyberbullying and cybervictimization.

Cyberbullying Statutes and Policies

Bullying behavior, and especially bullying behavior that occurs between two youths, has long been handled at a very localized level, with the responsibility to respond often falling on the school at which the behavior occurred. For instances not occurring on school grounds, it has been up parents to address it. Because of this, despite bullying being such a long-standing and prevalent issue for youths, there are still no federal laws that directly address bullying, according to stopbulling.gov, a website managed by the United States Department of Health and Human Services (2015). Cyberbullying is no different. When cases involving cyberbullying are prosecuted at the federal level, it is only because a pre-established statute overlapped to cover the offending conduct, such as stalking or harassment (U.S. Dept. of Health and Human Services 2015). In fact, even when cyberbullying occurs within a school setting, unless otherwise prompted by state legislation, school authorities do not have the obligation to look into the incident unless that particular school receives federal funding. Only then, and only when the conduct is "severe, pervasive or persistent", "creates a hostile environment in school", or "based on a student's race, color, national origin, sex, disability, or religion" are the school authorities required to address it (U.S. Dept. of Health and Human Services 2015, para. 2).

As often occurs when federal statutes are absent that address a given issue, states will formulate their own legislation to combat the problem. Cyberbullying statutes are no exception, as Alaska remains the only state within the United States to have yet to implement any cyberbullying statutes of any kind (U.S. Dept. of Health and Human Services 2015). Recently, Georgia - the state within which the current study is conducted - passed The End to Cyberbullying Act (2015). This act adds cyberbullying elements to the already-existent state bullying legislation. According to this act, cyberbullying is defined as bullying incidents that

"occur...by use of data or software that is accessed through a computer system, computer network, or other electronic technology of a local school system" (H.B. 131 2015, Sec. 2). The bill then continues to capture conduct that occurs off school grounds by stating that cyberbullying "also applies to acts...which occur through the use of electronic communication, whether or not such electronic act originated on school property or with school equipment" (H.B. 131 2015 Sec. 2). In this clause, the state of Georgia establishes statutes that encompass cyberbullying behavior both on and off school grounds, which creates an atmosphere where addressing cyberbullying is no longer only the responsibility of the school authorities, but also the legal authorities, where circumstances deem it. The consequences for cyberbullying vary greatly by jurisdiction, with some states allowing only for civil sanctions, while others allow for both civil and criminal sanctions (U.S. Dept. of Health and Human Services 2015). Civil actions may be more localized, such as school action or similar, while certain states employ criminal sanctions such as levying fines or jail time on cyberbullying offenders (U.S. Dept. of Health and Human Services 2015).

These developing state-level cyberbullying statutes have not kept schools and universities from implementing their own policies. In the Kennesaw State University - the university where the current study is conducted - student codes of conduct, cyberbullying is mentioned explicitly. In Section 5 of the codes of conduct, it is stated that "bullying and cyberbullying are repeated and/or severe aggressive behaviors that intimidate or intentionally harm or control another person physically or emotionally, and are not protected by freedom of expression" (KSU Codes of Conduct 2015). The document then continues to state that engaging in the described behavior subjects the student to possible sanctions, ranging from a simple reprimand, to restriction from certain areas of campus, to expulsion from the university (KSU Codes of Conduct 2015, Sec. 6).

The existence of this university code under the umbrella of the state statutes that already forbid cyberbullying behavior is an example of the evolving phenomenon of cyberbullying. State lawmakers and education administration alike are keen to establish an environment in which cyberbullying is not tolerated.

Hypotheses

The current study is determined to test the relationship between certain types of strain that college students are likely to experience and cyberbullying behavior. The hypotheses regarding these relationships are as follows:

Hypothesis 1.1 - Students who exhibit higher levels of personal academic shortcomings are more likely to engage in cyberbullying behavior than students who exhibit lower levels of personal academic shortcomings.

Hypothesis 1.2 - Students who believe that academic cheaters have an unfair advantage when searching for a job or when applying to post-baccalaureate schools are more likely to engage in cyberbullying behavior than students who do not believe cheaters have an unfair advantage.

Hypothesis 1.3 - Students who have been placed on academic probation are more likely to engage in cyberbullying behavior than students who have not been placed on academic probation.

Hypothesis 1.4 - Students who find classes to be meaningless or uninteresting are more likely to engage in cyberbullying behavior than students who find classes meaningful or interesting.

Hypothesis 1.5 - Students who have been threatened with the loss of an academic scholarship are more likely to engage in cyberbullying behavior than students who have not been threatened with the loss of an academic scholarship.

Hypothesis 1.6 - Students athletes who have been threatened with academic ineligibility to participate in sporting events are more likely to engage in cyberbullying behavior than students who have not been threatened with academic ineligibility.

The current study also aims to assess the moderating effect of anonymity on the previously tested relationships. The hypotheses to be tested are as follows:

Hypothesis 2.1 - Anonymity will have a moderating effect on the relationship between personal academic shortcomings and cyberbullying behavior.

Hypothesis 2.2 - Anonymity will have a moderating effect on the relationship between believing that academic cheaters have an unfair advantage when searching for a job or when applying to post-baccalaureate schools and cyberbullying behavior.

Hypothesis 2.3 - Anonymity will have a moderating effect on the relationship between being placed on academic probation and cyberbullying behavior.

Hypothesis 2.4 - Anonymity will have a moderating effect on the relationship between finding classes to be meaningless or uninteresting and cyberbullying behavior.

Hypothesis 2.5 - Anonymity will have a moderating effect on the relationship between being threatened with the loss of an academic scholarship and cyberbullying behavior.

Hypothesis 2.6 - Anonymity will have a moderating effect on the relationship between being threatened with academic ineligibility and cyberbullying behavior.

Conversely, and given the notion that cyberbullying perpetration and cybervictimization are closely tied, the current study aims to test the relationships between the certain types of strain

that college students are likely to encounter and cybervictimization. The hypotheses are as follows:

Hypothesis 3.1 - Students who exhibit higher levels of personal academic shortcomings are more likely to be victims of cyberbullying than students who exhibit lower levels of personal academic shortcomings.

Hypothesis 3.2 - Students who believe that academic cheaters have an unfair advantage when searching for a job or when applying to post-baccalaureate schools are more likely to be victims of cyberbullying than students who do not believe cheaters have an unfair advantage.

Hypothesis 3.3 - Students who have been placed on academic probation are more likely to be victims of cyberbullying than students who have not been placed on academic probation.

Hypothesis 3.4 - Students who find classes to be meaningless or uninteresting are more likely to be victims of cyberbullying than students who find classes meaningful or interesting.

Hypothesis 3.5 - Students who have been threatened with the loss of an academic scholarship are more likely to be victims of cyberbullying than students who have not been threatened with the loss of an academic scholarship.

Hypothesis 3.6 - Students athletes who have been threatened with academic ineligibility to participate in sporting events are more likely to be victims of cyberbullying than students who have not been threatened with academic ineligibility.

The final focus of the current study is the possible moderating effect that anonymity might have on the relationship between strain and cybervictimization. The hypotheses are as follows:

Hypothesis 4.1 - Anonymity will have a moderating effect on the relationship between personal academic shortcomings and cyberbullying victimization.

Hypothesis 4.2 - Anonymity will have a moderating effect on the relationship between believing that academic cheaters have an unfair advantage when searching for a job or when applying to post-baccalaureate schools and cyberbullying victimization.

Hypothesis 4.3 - Anonymity will have a moderating effect on the relationship between being placed on academic probation and cyberbullying victimization.

Hypothesis 4.4 - Anonymity will have a moderating effect on the relationship between finding classes to be meaningless or uninteresting and cyberbullying victimization.

Hypothesis 4.5 - Anonymity will have a moderating effect on the relationship between being threatened with the loss of an academic scholarship and cyberbullying victimization.

Hypothesis 4.6 - Anonymity will have a moderating effect on the relationship between being threatened with academic ineligibility and cyberbullying victimization.

Methodology

Data

The current study utilized a multi-stage cluster sampling method. Survey questionnaires were administered face-to-face to 15 classes at Kennesaw State University over the course of about three weeks. The classes were randomly selected from a Microsoft Excel file containing a sampling frame consisting of every section of all undergraduate courses being offered during the fall of 2015 semester. In order to ensure that the sample courses were representative of the entire student body, the number of courses chosen from each of six colleges were stratified proportionally with the number of students majoring in disciplines offered by those colleges. Five courses were chosen from the college of humanities and social sciences, three were chosen from the college of health and human services, two were chosen from the college of education,

two were chosen from the college of math and science, one was chosen from the college of business, and three were chosen from a combined group of the colleges of architecture, engineering, and computer science. The selected courses were chosen by sorting the sampling frame first by college name and then by course number. A first round of choices was randomly determined, with the following three consecutive courses serving as second, third, and fourth round selections to be called upon in the event that an insufficient number of the first round selections allowed for administration of the questionnaire. During the data collection phase, all four selection rounds were utilized, yielding the 15 courses that finally consisted of the sample. The total number of completed questionnaires was 406.

Dependent variables.

The descriptive statistics for the study variables are found in *Table 1*. The dependent variable indicating whether the student had ever cyberbullied anyone else is a dichotomous variable, coded 0 = no and 1 = yes. About six percent of the sample answered yes, indicating that they had cyberbullied someone in the past. The standard deviation for this variable is .24. The dependent variable that designates whether the student had ever been a victim of cyberbullying in the past is also a dichotomous variable coded 0 = no and 1 = yes. About 14 percent of the sample admitted to having been the victim of cyberbullying in the past. The standard deviation for this variable is .35.

The dependent variable that describes perpetration of specific cyberbullying activities is a scale variable. The descriptive statistics for all scale variables used in the current study are included in *Table* 2. This variable is the sum of six distinct questionnaire items, which asked about the students' engagement in specific cyberbullying activities. These questionnaire items

were Likert-type questions with a possible response of one through four. Consequently, the minimum possible outcome for the scale - or sum - variable is six, with some students responding with a maximum of 18 for the six items. The mean for this variable is 7.62, with a standard deviation of 2.27. Upon running a reliability test of this scale in SPSS, a Cronbach's Alpha coefficient of .554 was achieved. While this figure is lower than what is ideal (about .700 or above) to confidently determine that this variable is a reliable indicator of cyberbullying perpetrator, the reliability coefficient did not improve by eliminating certain questionnaire items. Since this dependent variable is so important to the intended analysis of this project, it was determined that the coefficient of .554 would be sufficient in claiming adequate reliability of this scale for the purposes of the current study.

The final dependent variable is also a scale (sum) variable, which aims to measure the victimization of the same six cyberbullying activities as the previous dependent variable. In like fashion, this variable was comprised of six Likert-type questionnaire items that had possible outcomes of one through four. The victimization scale has a minimum outcome of six and a maximum outcome of 24. The mean for this variable is 7.93 with a standard deviation of 2.97. Upon running a reliability test of this scale in SPSS, a Cronbach's Alpha coefficient of .740 was achieved, indicating that this variable is a reliable representation of cyberbullying victimization.

Independent variables.

The independent variables illustrate the presence and magnitude of six different types of strain that college students are likely to face during their educational career. These strain elements are adopted from Smith, Langenbacher, Kudlac, and Fera's (2013) study on college student cheating and plagiarism. The first independent variable, personal academic

shortcomings, is a scale variable. This variable is the result of summing four Likert-type

questionnaire items that had possible outcomes of one through four. The minimum observed

outcome for this scale variable is four and the maximum is 16. The mean is 9.33 with a standard

deviation of 2.29. The reliability test of this scale in SPSS resulted in a Cronbach's Alpha

coefficient of .521. This figure did not increase by eliminating certain questionnaire items from

the scale, and it was determined that a coefficient of .521, while not ideal, is adequate to claim

that this scale is a reliable measure of personal academic shortcomings for the purposes of the

current study. The next independent variable is a scale variable that is intended to measure the

level of perceived injustice that students feel during their college careers. This variable is a

product of summing two questionnaire items, each with possible outcomes ranging from one to

four. The minimum observed outcome for this scale variable is two and the maximum is eight.

The mean is 5.65 with a standard deviation of 1.70. The reliability test in SPSS resulted in a

Cronbach's Alpha Coefficient of .853, which signifies that this variable is an exceptionally

reliable indicator of students' perceived injustice.

The independent variable which addresses whether a student has ever been placed on

academic probation while in college is a dichotomous variable coded 0 = no and 1 = yes. About

17 percent of the sample admitted to having been placed on academic probation at some point

during their college career, with a standard deviation of .37. The independent variable that

describes whether students felt like they had to sit through insipid classes (classes lacking

meaning or interesting content for the respondent) was a Likert-type item, which had minimum

responses of one and maximum responses of four. The mean for this variable is 2.17 with a

standard deviation of .76. The figures indicate that students typically felt neither especially

bored nor excited by their courses, but were slightly more interested than bored in their classes.

The final two independent variables assessed how many students had been threatened with losing

or had actually lost a scholarship or academic eligibility for university athletics or other

extracurricular activities. These variables were dichotomous and were coded $0 = $ no, they had

not been threatened with losing or actually lost the described privilege and $1 = $ yes, they had been

threatened with losing or actually lost the privilege. About 21 percent of students admitted to

having been threatened with losing or having actually lost a scholarship, with a standard

deviation of .41. Only about five percent of students admitted to being threatened with losing or

having actually lost academic eligibility for collegiate sports or other extracurricular activities,

with a standard deviation of .22.

Moderating variable.

The moderating variable is intended to measure each student's overall online anonymity.

The survey questionnaire asked students to indicate whether they disclosed a total of eight

separate elements of personal information anywhere online. While the majority of students

admitted that they disclosed three elements - age, gender, and pictures of themselves - the

remaining five elements were a vastly more polarizing. About half of students admitted to

posting at least one of the remaining elements - their telephone number, goals/aspirations, sexual

information, emotional/mental distresses, and family conflicts - somewhere online.

Subsequently, the other half of the sample did not post any of these five, arguably more

revealing, bits of information anywhere online. In light of this observation, a dichotomous

variable was made and coded $0 = $ low anonymity and $1 = $ high anonymity. The low anonymity

group includes those students that admitted to posting at least of the other five elements. The

high anonymity group includes those students that did not post any of the other five elements,

which offered them a higher level of online anonymity than the low anonymity group. About 49

percent of the sample falls into the high anonymity group, with a standard deviation of .50. The

remaining 51 percent is classified as low anonymity.

Table 1 Summary of Study Variables (N=406)

Variable	N	Min/Max	Mean	SD
Dependent				
Have cyberbullied someone else	401	0-1	.06	.24
Have been cyberbullied	405	0-1	.14	.35
Cyberbullying perpetration scale	398	6-18	7.62	2.27
Victimization scale	385	6-24	7.93	2.97
Independent				
Academic shortcomings	395	4-16	9.33	2.29
Perceived injustice	402	2-8	5.65	1.70
Academic probation	404	0-1	.17	.37
Insipid classes	402	0-4	2.17	.76
Lose scholarship	404	0-1	.21	.41
Lose athletic eligibility	404	0-1	.05	.22
Moderating				
Anonymity	406	0-1	.49	.50
Control				
Age	401	18-54	21.86	4.38
Female	402	0-1	.58	.49
Race				
White	406	0-1	.60	.49
African American	406	0-1	.21	.41
Hispanic	406	0-1	.07	.25
Asian	406	0-1	.04	.21
Other	406	0-1	.05	.23
Classification	403	1-4	2.83	1.08
GPA	358	1.7-4.1	3.27	.45

Note: While the total sample consisted of 406 cases, there were often missing responses, resulting in a lower number of included cases for a given variable.

Control variables.

Students were asked to write their age, in years, in a blank on the questionnaire. The

minimum age was 18 with the maximum 54. It is worth noting that students were asked only to

consent to completing the questionnaire if they were at least 18 years of age, and there were

students in the sample classes that did not to fill out a questionnaire because they were younger

than 18. The average age of the sample is 21.86 with a standard deviation of 4.38. The majority

of the sample is traditional students, ranging from 18 to 22. The gender variable is dichotomous

and coded 0 = male and 1 = female. The sample is about 58 percent female, with the remaining

42 percent identifying as male. The race variable had five categorical response options. White

students consist of about 60 percent of the sample, African-American consist of about 21

percent, and Hispanic, Asian, and Other consist of about seven percent, four percent, and five

percent, respectively. The classification variable had five categorical variables. Freshman was

coded 1, sophomore was coded 2, junior was coded 3, senior was coded 4, and graduate was

coded 5. About 18 percent of the sample indicated freshman, about 13 percent indicated

sophomore, about 36 percent indicated junior, and about 33 percent indicated senior. There were

no graduate students in the sample. The mean for this variable is 2.83 with a standard deviation

of 1.08. The GPA variable was a fill-in-the-blank item much like age. The minimum observed

Grade Point Average (GPA) is 1.70 and the maximum is 4.10 - presumably higher than 4.00

because a freshman was reporting his/her high school GPA, which can sometimes surpass 4.00

with the completion of advanced courses. The average GPA is 3.27 with a standard deviation of

.45.

Descriptives

The descriptive statistics for the composition of the scale variables is included in *Table 2*.

The cyberbullying perpetration scale consists of six unique questionnaire items that ask students

how often they have engaged in the described cyberbullying behavior. These Likert-type

questions were coded 1 = never, 2 = once, 3 = two or three times, and 4 = more than three times.

When asked how often the students had threatened in online forums, the responses ranged from one to three, with a very low mean of 1.04 and a standard deviation of .22. This seemed to be the least common type of cyberbullying behavior. When asked how often the students had insulted in online forums, the responses ranged from one to four, with a mean of 1.30 and a standard deviation of .69. When asked how often students had shared private internet conversations without the other's knowledge, the responses ranged from one to four, with a mean of 1.34 and a standard deviation of .81. When asked how often students had made fun of comments in online forums, the responses ranged from one to four, with the highest mean of this scale at 1.66 and a standard deviation of 1.03. This seemed to be the most prevalent type of cyberbullying behavior. When asked how often students had sent threatening or hurtful comments through email or text messages, the responses ranged from one to four, with a mean of 1.15 and a standard deviation of .55. Lastly, when students were asked how often how often they had published online embarrassing photos online without someone's permission, the responses ranged from one to four, with a mean of 1.16 and a standard deviation of .53. Overall, the averages of these responses were low, suggesting that if students had engaged in the described behaviors, they did so with very little frequency.

The cyberbullying victimization scale is a mirror variable of the perpetration scale. It includes questions regarding all of the same behaviors, only it asks students how often they have been the victims of these behaviors. The coding for the six questionnaire items regarding victimization is the same as the coding for the perpetration items, which ranges from one to four. When asked how often the students had been threatened in online forums, the responses ranged from one to four, with the lowest mean of the scale at 1.21 and a standard deviation of .60. When asked how often students had been insulted in online forums, the responses ranged from

one to four, with the highest mean of the sample at 1.48 and a standard deviation of .89. When asked how often the students had had their private conversations shared without their knowledge, the responses ranged from one to four, with a mean of 1.30 and a standard deviation of .73. When asked how often the students had had their comments made fun of in online forums, the responses ranged from one to four, with a mean of 1.44 and a standard deviation of .86. When asked how often the students had been sent threatening or hurtful comments through email or text messages, the answers ranged from one to four, with a mean of 1.32 and a standard deviation of .76. Finally, when asked how often the students had had others publish embarrassing photos of them online without their permission, the responses ranged from one to four, with a mean of 1.30 and a standard deviation of .69. Much like the perpetration scale, the low averages demonstrate that if students were the victims of the described cyberbullying activities, the incidences were not very frequent.

The personal academic shortcomings scale is comprised of four questions meant to measure how students feel about their ability to complete assignments and succeed in their classes. Each item is a Likert-type question, which asked students to what degree they agree or disagree with the statements provided to them. These items were coded 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. The first statement asked students how they agreed or disagreed with the notion that they are a bad test taker. Responses ranged from one to four, with a mean of 2.29 and a standard deviation of .90. This suggests a somewhat neutral response, with slightly fewer students agreeing to the statement. When asked about a second statement suggesting that they procrastinate when it comes to schoolwork, the students' responses ranged from one to four, with a scale-high mean of 3.08 and a standard deviation of .87. It would seem that the majority of students agree that procrastination with schoolwork is a problem. The third

statement suggests that students have a problem with class attendance. Responses ranged from one to four, with most disagreeing. The mean of the responses is 1.66 and the standard deviation is .83. The fourth and final statement in this scale is that the students have short attention spans, which interferes with academics. The responses ranged from one to four, and were relatively neutral with a mean of 2.26 and a standard deviation of .96.

The perceived injustice scale consists of two questionnaire items. These Likert-type items asked students to indicate to what degree they agreed or disagreed with the provided statements. The coding was identical to the coding of the items in the personal academic shortcomings scale. The first injustice item asked students to describe how they felt about the notion that students who cheat have an unfair advantage for getting a good job following graduation. The responses ranged from one to four, with a mean of 2.79 and a standard deviation of .91. The second item asked students to describe how they felt about the idea that students who cheat have an unfair advantage getting to a professional or graduate school following graduation. The responses ranged from one to four, with a mean of 2.87 and a standard deviation of .91. These two items seem to indicate that students mostly agree that students who cheat have unfair advantages, thus demonstrating a generally high level of perceived injustice across the sample.

Table 2 Descriptive statistics for scale variables (N = 406)

Variable	N	Min/Max	Mean	SD
Cyberbullying perpetration				
How often have you threatened in online forums (like chat rooms, Facebook or twitter)?	406	1-3	1.04	.22
How often have you insulted in online forums (like chat rooms, Facebook or twitter)?	406	1-4	1.30	.69
How often have you shared private internet conversations without other's knowledge to others (such as chatting with a friend on Skype with other(s) in the room)?	406	1-4	1.34	.81
How often have you made fun of comments in online forums (such as Facebook)?	399	1-4	1.66	1.03
How often have you sent threatening or hurtful comments through email or text messages?	405	1-4	1.15	.55
How often have you published online an embarrassing photo without permission?	406	1-4	1.16	.53
Cyberbullying victimization				
How often have others threatened you in online forums (like chat rooms, Facebook or twitter)?	404	1-4	1.21	.60
How often have others insulted you in online forums (like chat rooms, Facebook or twitter)?	405	1-4	1.48	.89
How often have others shared private internet conversations without your knowledge (such as chatting with a friend on Skype with other(s) in the room)?	404	1-4	1.30	.73
How often have others made fun of your comments in online forums (like Facebook)?	390	1-4	1.44	.86
How often have others sent you threatening or hurtful comments through email or text messages?	403	1-4	1.32	.76
How often have others published online an embarrassing photo of you without permission?	404	1-4	1.30	.69
Personal academic shortcomings				
I am a poor test taker.	397	1-4	2.29	.90
I tend to procrastinate when it comes to schoolwork.	402	1-4	3.08	.87
For some reason, I have a problem with class attendance.	404	1-4	1.66	.83
I have a short attention span, which interferes with my academic life.	402	1-4	2.26	.96
Perceived injustice				
Students who cheat have an unfair advantage for getting a good job following graduation.	402	1-4	2.79	.91
Students who cheat have an unfair advantage for getting into a graduate or professional school following graduations (i.e. medical school, law school, master's/PhD programs, etc.).	402	1-4	2.87	.91

Cyberbullying and Cybervictimization Relationships

Given the shared relationship between cyberbullying perpetration and victimization (Ak,

Ozdemir, & Kuzucu 2015; Chan & Wong 2015; Gamez-Guadix, Gini, & Calvete 2015; Yang &

Salmivalli 2013), it follows that the current study should explore the relationship between these

items within the data. A crosstabulation of the corresponding dichotomous dependent variables

is found in *Table 3*. Overall, 13 percent of the sample admitted to being cyberbullied by

someone else at some point, while 87 percent stated that they had never been cyberbullied. Of

those that admitted to having cyberbullied someone, an overwhelming 87 percent also admitted

to also having been a cyberbullying victim. Of those that stated that they had never cyberbullied

anyone, only 8.5 percent indicated that they had been the victim of cyberbullying. This

illustrates an extremely strong trend between cyberbullying victimization and cyberbullying

perpetration. Students who admitted to being cyberbullied were much more likely to also admit

to engaging in cyberbullying themselves. While the nature and direction of this relationship is

not clear at this point, it is possible to say that regarding cyberbullying, victimization and

perpetration go hand in hand.

Table 3 Previous cyberbullying victimization by cyberbullying perpetration crosstabulation (N = 400)

		Have cyberbullied someone else		
		Yes	No	Total
Have been	Yes	20 (87.0%)	32 (8.5%)	52 (13.0%)
cyberbullied	No	3 (13.0%)	345 (91.5%)	348 (87.0%)

χ^2=118.015, $p < .001$

The discovery of this trend in the data leads to a need for a more comprehensive analysis

of all four dependent variables. A bivariate correlation matrix of having cyberbullied, having

been cyberbullied, and victimization and perpetration frequency is found in *Table 4*. Given the

trend observed in *Table 3*, the results are somewhat expected. All four dependent variables are significantly positively correlated with each of the other dependent variables. The dichotomous perpetration variable shows a .543 correlation coefficient with the dichotomous victimization variable, a .280 correlation coefficient with the perpetration scale variable, and a .222 coefficient with the victimization scale variable. All of these coefficients are significant ($p < .01$). The dichotomous victimization variable shows a .176 correlation coefficient with the perpetration scale variable, and a .395 coefficient with the victimization scale variable. These relationships are both significant ($p < .01$). The perpetration scale variable shows a correlation coefficient of .584 with the victimization scale variable, a relationship that is significant ($p < .01$).

As follows reason, there are strong correlations between corresponding dichotomous and scale variables that measure the same type of concept. The perpetration variable correlates significantly with the perpetration scale variable, and the victimization variable correlates significantly with the victimization scale variable. However, the more robust correlations are found between the perpetration and victimization variables. The perpetration scale and victimization scale variables had the strongest correlation, followed closely by the relationship between the dichotomous perpetration and victimization variables. This, like the crosstabulation analysis shown in *Table 3*, signifies that there is a strong positive relationship between cyberbullying victimization and cyberbullying perpetration. Identifying the cause of this relationship would most likely require theoretical testing beyond the scope of the current study, but it could be posited that cyberbullying behavior is learned from being cyberbullied.

Table 4 Bivariate correlation of previous cyberbullying victimization and cyberbullying perpetration (N = 406)

Variable	1	2	3
1 Cyberbullied someone else	1.00		
2 Been cyberbullied	.543**	1.00	
3 Cyberbullying perpetration scale	.280**	.176**	1.00
4 Cyberbullying victimization scale	.222**	.395**	.584**

**p < .01

In addition to viewing the binary correlation of the perpetration and victimization scales in their whole form, it is helpful to observe how the individual items within each scale variable correlate with each other. The binary correlations matrix of these items is found in *Table 5*. The first six rows of the matrix illustrate the intra-scale correlation characteristics of the cyberbullying perpetration scale. Overall, the individual items within this scale are fairly highly correlated. Threatening others in online forums shows a correlation coefficient of .337 with insulting others in online forums, .173 with making fun of comments in online forums, and .286 with sending threatening or hurtful comments through email or text messages, relationships that are all significant at the $p < .01$ level. It is important to note that these items assessed the frequency of these behaviors, not just the mere occurrence of such behaviors in the past. Lesser correlation coefficients with threatening others in online forums are .045 with sharing private internet conversations and .068 with publishing embarrassing photos of others online. Both of these relationships are not shown to be statistically significant.

The rest of the relationships within the perpetration scale are positive in nature, as shown in *Table 5*. Insulting others in online forums has a correlation coefficient of .151 with sharing private internet conversations, .428 with making fun of comments in online forums, .269 with sending threatening or hurtful comments, and .161 with publishing embarrassing photos online. All four of these relationships are significant at the $p < .01$ level. Sharing private internet

conversations has a correlation coefficient of .312 with making fun of comments in online forums and .099 with publishing embarrassing photos online, the former significant at the $p < .01$ level and the latter significant at the $p < .05$ level. Sharing private internet conversations was shows a non-statistically significant relationship of .041 with sending threatening or hurtful comments. Making fun of others in online forums and sending threatening or hurtful comments are significantly related at the $p < .05$ level with a coefficient of .123. Making fun of others in online forums is significantly related with publishing embarrassing photos online at the $p < .01$ level, showing a coefficient of .224. Sending threatening or hurtful comments is not statistically related to publishing embarrassing photos online, a relationship that yields a .048 correlation coefficient.

Within the perpetration scale, most of the behaviors tend to go hand-in-hand. All of these relationships are positive. Both insulting others in online forums and making fun of comments in online forums were significantly positively correlated with the other five individual items. Threatening others in online forums and publishing embarrassing photos of others online both had the lowest number of statistically significant relationships at three each. This suggests that these two behaviors tend to be more isolated to those students who partake in them. Instead of running the gamut of cyberbullying behaviors, these students stick to a relatively low number of unique behaviors.

The intra-scale correlation analysis of the cyberbullying victimization items - found in the lower, segmented portion of *Table* 5 - yields much more significant trends than the intra-scale analysis of the perpetration items. In fact, with just one exception, the victimization scale items are all significantly positively related at the $p < .01$ level. That exception, the relationship between being threatened in online forums and having embarrassing photos of oneself published

online, is still significant at the $p < .05$ level with a correlation coefficient of .099. The rest of the relationships with being threatened in online forums have coefficients of .525 with being insulted in online forums, .267 with having private internet conversations shared, .398 with having comments made fun of in online forums, and .277 with receiving threatening or hurtful comments through email or text message. Like the items in the perpetration scale, the victimization items assessed frequency of being victimized in the describe ways, not only whether these events occurred. Being insulted in online forums shows coefficients of .303 with having private internet conversations shared, .552 with having comments made fun of in online forums, .348 with receiving threatening or hurtful comments, and .202 with having embarrassing pictures of oneself published online. Having a private internet conversation shared has correlation coefficients of .345 with having comments made fun of in online forums, .389 with receiving threatening or hurtful comments, and .328 with having embarrassing photos of oneself published online. Having comments made fun of in online forums shows relationships with coefficients of .292 with receiving threatening or hurtful comments and .248 with having embarrassing photos of oneself published online. Receiving threatening or hurtful comments is correlated with having embarrassing photos of oneself published online with a coefficient of .146.

These items are more closely correlated than are the items in the perpetration scale. The strongest relationship exists between having comments made fun of in online forums and being insulted in online forums. This makes sense, because some students may equate these incidents to be one in the same, or at least very similar. In other words, it is natural for the victim of a cyberbullying encounter on an online forum to feel both insulted and "made fun of" at the same time. Likewise, the second strongest correlation is between being threatened in online forums

and being insulted in online forums, a relationship which can likely be explained using a similar logical approach. The weakest correlation is between being threatened in an online forum and having an embarrassing photo of oneself published online. It is possible that these two occurrences are so attenuated due to the plausible differing capacities of the offender in each situation. For example, in an instance where a person was threatened in an online forum, it is reasonable to say that they probably were not friends with the offender, and may not have even known their identity. In comparison, when a person has an embarrassing picture of himself/herself posted online, it is far more possible that this scenario deals with a "good fun" approach between friends. While the victim is harmed in both situations, the nature of each victimization is vastly different from the other, making it easier to explain the rather slight correlation that these two types of occurrences have with each other.

While the intra-scale relationships are useful for better understanding the way each scale variable is constructed, the true value of this bivariate correlation analysis lies in the inter-scale relationship, where it is shown how the individual items within each scale relate to the items within the other scale. This analysis is found in the lower portion of the first segment of *Table 5*. To briefly summarize the results of this analysis, it is fair to say that large portions of the individual items are significantly related with the items of the other scale. The perpetration item of threatening in online forums is significantly related to the victimization items of being threatened in online forums, being insulted in online forums, having comments made fun of in online forums, and receiving threatening or hurtful comments at the $p < .01$ level, with coefficients of .302, .197, .173, .169 respectively. It is not significantly related to either having a private internet conversation shared, with a coefficient of .003, or having embarrassing photos of oneself published online, with a coefficient of .021.

The perpetration variable of insulting in online forums is significantly related to all six victimization items at the $p < .01$ level. The coefficients of said correlations are .312 with being threatened in online forums, .444 with being insulted in online forums, .131 with having a private internet conversation shared, .350 with having comments made fun of in online forums, .134 with receiving threatening or hurtful comments, and .145 with having embarrassing photos published online. The perpetration variable of sharing a private internet conversation is not significantly related to being threatened in online forums, with a coefficient of .069. Sharing private internet conversations is, however, significantly correlated with the remaining five victimization items at the $p < .01$ level. The coefficients for those relationships is .162 for being insulted in online forums, .591 for having a private internet conversation shared, .168 for having comments made fun of in online forums, .183 for receiving threatening or hurtful comments, and .255 for having embarrassing photos published online. The perpetration item of making fun of comments in online forums shows statistically significant relationships with all six victimization items. The magnitude of those relationships is .205 for being threatened in online forums, .296 for being insulted in online forums, .277 for having private internet conversations shared, .552 for having comments made fun of in online forums, .162 for receiving threatening or hurtful images, and .214 for having embarrassing photos published online.

The perpetration item of sending threatening or hurtful comments is significantly correlated with the victimization items of being threatened in online forums, being insulted in online forums, having comments made fun of in online forums, and receiving threatening or hurtful comments at the $p < .01$ level, with coefficients of .131, .136, .133, and .416 respectively. That same perpetration items is also significantly correlated with having private internet conversations shared at the $p < .05$ level, a relationship with a correlation coefficient of .116.

Sending threatening or hurtful comments and having embarrassing photos published online has a coefficient of .054, but this relationship is not statistically significant. The perpetration item of publishing embarrassing photos online without someone's permission is the least significantly related items with the victimization items, with only having comments made fun of in online forums, and having embarrassing photos of oneself published online being the only significant relationships. Both of these relationships are significant at the $p < .01$ level, with the former magnitude of .173, and the latter .576. The remaining four victimization items are not significantly correlated with publishing embarrassing photos online. The correlation coefficients for these relationships are .067 for being threatened in online forums, .092 for being insulted in online forums, .063 for having private internet conversations shared, and .028 for receiving threatening or hurtful comments.

Table 5 Binary correlation of cyberbullying perpetration frequency scale and cyberbullying victimization frequency scale (N = 406)

	Variable ("How often have you...?")	1	2	3	4	5	6
	Perpetration scale						
1	Threatened in online forums	1.00					
2	Insulted in online forums	.337**	1.00				
3	Shared private internet conversations	.045	.151**	1.00			
4	Made fun of comments in online forums	.173**	.428**	.312**	1.00		
5	Sent threatening or hurtful comments via text message or email	.286**	.269**	.041	.123*	1.00	
6	Published embarrassing photos online	.068	.161**	.099*	.224**	.048	1.00
	Victimization scale						
7	Been threatened in online forums	.302**	.312**	.069	.205**	.131**	.067
8	Been insulted in online forums	.197**	.444**	.162**	.296**	.136**	.092
9	Had own private internet conversations shared	.003	.131**	.591**	.277**	.116*	.063
10	Had comments made fun of in online forums	.173**	.350**	.168**	.552**	.133**	.173**
11	Received threatening or hurtful comments via text message or email	.169**	.134**	.183**	.162**	.416**	.028
12	Had embarrassing photos of self published online	.021	.145**	.255**	.214**	.054	.576**

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

Table 5 Continued

	Variable ("How often have you...?")	7	8	9	10	11
	Victimization scale					
7	Been threatened in online forums	1.00				
8	Been insulted in online forums	.525**	1.00			
9	Had own private internet conversations shared	.267**	.303**	1.00		
10	Had comments made fun of in online forums	.398**	.552**	.345**	1.00	
11	Received threatening or hurtful comments via text message or email	.277**	.348**	.389**	.292**	1.00
12	Had embarrassing photos of self published online	.099*	.202**	.328**	.248**	.146**

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

There is an especially interesting trend in this phase of the bivariate analysis. Without exception, the strongest correlation for each perpetration item is with its corresponding victimization item. In other words, since these two scales include the same cyberbullying behaviors, and only differ in whether they ask students about being the one carrying out the behavior or being a victim of the behavior, the corresponding items are those items which ask about the same behavior. Threatening in online forums is most strongly associated with being threatened in online forums. Insulting in online forums is most strongly correlated with being insulted in online forums. Sharing a private internet conversation is most strongly related to having one's own private internet conversation shared. Making fun of comments in online forums is most strongly associated with having one's own comments made fun of in online forums. Sending threatening or hurtful comments is most strongly correlated with receiving threatening or hurtful comments. Publishing embarrassing photos online without permission is most strongly related to having embarrassing photos of oneself published online without permission. This unfailing trend carries a somewhat common sense yet no less impactful implication for cyberbullying behavior. Whether the victimization or the perpetration came first, the students are more likely to engage in behavior that they have experienced personally.

Results

Bivariate

Now that the bivariate relationships between the dependent variables and the items that comprise the two dependent scale variables have been examined, the bivariate correlation between all of the intended study variables should be addressed. The results of this correlation analysis are included in *Table 6*. The dichotomous dependent variable of having cyberbullied in

the past has two significant correlates outside of the other dependent variables - relationships that have already been discussed. These two significant relationships are between said dependent variable and losing a scholarship and GPA. Losing a scholarship is positively correlated at the $p < .01$ level, with a magnitude of .140. Grade Point Average is negatively correlated at the $p < .01$ level, with a magnitude of -.179.

The relationship between cyberbullying and losing a scholarship suggests that those students who have been threatened with losing or have actually lost a scholarship are slightly more likely than those that have experienced neither to have engaged in cyberbullying. The negative significant relationship between cyberbullying and GPA points to students with lower GPAs being the ones more prone to having cyberbullied in the past. Cyberbullying is also positively, but not in a statistically significant way, correlated with experiencing personal academic shortcomings, being placed on academic probation, being African American, Hispanic, or Asian, and higher classification. Cyberbullying is also negatively, but not significantly, correlated with the level of perceived injustice, experiencing insipid classes, being threatened with or actually losing academic eligibility to participate in extracurricular activities, a higher level of internet anonymity, higher age, being female, and being of white or Other race.

The dichotomous dependent variable of having been cyberbullied in the past shows five statistically significant relationships other than those relationships with the other dependent variables. Four of those correlations are positive in nature, with only GPA showing a negative relationship, with a magnitude of -.127 at the $p < .05$ level. Being placed on academic probation and being threatened with or actually losing a scholarship are both significantly related with having been cyberbullied at the $p < .01$ level, with coefficients of .125 and .214 respectively. Having been cyberbullied is also significantly correlated with being threatened with or actually

losing academic eligibility, with a magnitude of .106 and being white, with a magnitude of .115.

Both of these relationships are significant at the $p < .05$ level. Having been cyberbullied in the

past is also positively, but not significantly, correlated with experiencing personal academic

shortcomings, a higher level of perceived injustice, and being female. Having been cyberbullied

is negatively, but not significantly, correlated with experiencing insipid classes, a higher level of

internet anonymity, a higher age, being any race other than white, and being of a higher

classification.

Three types of strain show themselves to be positively correlated with having been

cyberbullied. Students who have been placed on academic probation, having been threatened

with or have actually lost a scholarship, or have been threatened with or have actually lost

academic eligibility are more likely to have been the victims of cyberbullying than students who

have not experienced these strains. Additionally, White students are more likely to have been

the victims of cyberbullying than any other race. Much like the dichotomous variable that

measures cyberbullying perpetration in the past, as GPA increases, the likelihood of having been

the victim of cyberbullying decreases. Given the strong relationship between these two

dependent variables, it follows that they should share at least some significant correlates.

The cyberbullying perpetration scale variable is positively correlated with five variables

outside of the other dependent variables, all at the $p < .01$ level. The positive relations are with

personal academic shortcomings, with a magnitude of .145, and with being threatened with or

actually losing a scholarship, with a coefficient of .174. The remaining three positive relations

with the perpetration scale are all negative in nature. A higher level of internet anonymity is

negatively related with the perpetration scale at a magnitude of -.174, as are being female and

GPA, with magnitudes of -.165 and -.169 respectively. The non-significant positive

relationships with the perpetration scale variable are with being placed on academic probation, experiencing insipid classes, being threatened with or actually losing academic eligibility, and being of the race white, Asian, or Other. The negative non-significant relationships are with perceived injustice, higher age, being African American or Hispanic, and being of a higher classification.

As expected, the frequency of carrying out certain cyberbullying activities decreases as GPA increases, a relationship that mimics those between the two dichotomous dependent variables and GPA. A relationship not seen in any of the other dependent variables, being female is statistically shown to decrease the frequency with which students are cyberbullies. Higher anonymity was also shown to be associated with lower frequency of cyberbullying perpetration. This result is somewhat unexpected, and the significance of the relationship will be of interest during the multivariate analysis. Both higher levels of personal academic shortcomings and being threatened with or actually losing a scholarship are shown to be associated with higher frequencies of cyberbullying behavior.

The cyberbullying victimization scale variable is significantly correlated with four variables other than the relationships already discussed regarding the other dependent variables. Personal academic shortcomings is positively correlated at the $p < .05$ level, with a magnitude of .109. Being threatened with or actually losing a scholarship is positively correlated at the $p < .01$ level, with a magnitude of .140. Like the perpetration scale variable, the victimization scale is significantly negatively related with higher internet anonymity at the $p < .01$ level, showing a coefficient of -.151. Being Hispanic was also negatively correlated with the victimization scale, a relationship which measured -.105 at the $p < .05$ level. The remaining relationships with the victimization scale are not significant, and the positive correlation include higher levels of

perceived injustice, being placed on academic probation, experiencing insipid classes, being

threatened with losing or actually losing academic eligibility, and being of the race white, Asian,

or Other. The negative non-significant relationships include higher age, being female, being

African American, and being of a higher classification.

The victimization scale retains the same relationships with the strain variables as the

perpetration scale does. Higher levels of personal academic shortcomings translate to a higher

frequency of cybervictimization. Likewise, being threatened with or actually losing a

scholarship is shown to be associated with an increase in the frequency with which a student is

cyberbullied. Once again, a higher level of internet anonymity decreases the likelihood that a

student will have been cyberbullied often. Being Hispanic was also shown to indicate a lesser

chance being cybervictimized often. Notably, cybervictimization frequency is the only

dependent variable that is not significantly correlated with GPA.

The independent strain variables generally show a high level of significant correlation

with each other, with the exception of perceived injustice, which is only significantly correlated

with personal academic shortcomings, a relationship with a magnitude of .114 at the $p < .05$

level. Personal academic shortcomings is also significantly correlated with experiencing insipid

classes, being threatened with or actually losing a scholarship, and being threatened with or

actually losing academic eligibility at the $p < .01$ level, with magnitudes of .225, .171, and .195

respectively. Being place on academic probation is only significantly related with being

threatened with or actually losing a scholarship, a coefficient of .271, and being threatened with

or actually losing academic eligibility, a coefficient of .385. Both of these relationships are

significant at the $p < .01$ level. Experiencing insipid classes is also significantly correlated with

being threatened with or losing a scholarship, a magnitude of .179, and being threatened with or

actually losing academic eligibility, a magnitude of .146, both of which are significant at the $p <$ .01 level. Being threatened with or actually losing a scholarship and being threatened with or actually losing academic eligibility share a correlation coefficient of .218, a relationship that is significant at the $p < .01$ level. The only negative relationship between any of the strain variables is between experiencing insipid classes and being placed on academic probation, but this relationship is not significant.

Outside of the relationships that the strain variables share with each other, personal academic shortcomings is significantly correlated with higher anonymity and being of the race Other at the $p < .05$ level and GPA at the $p < .01$ level. Of these relationships, only being of the race Other is positively related, with a coefficient of .109. Higher anonymity is negatively associated with personal academic shortcomings at a magnitude of -.105, as is GPA at a magnitude of -.317. Perceived injustice is only significantly related with being Hispanic, a relationship with a coefficient of .119 at the $p < .05$ level. Being place on academic probation shares two positive and two negative relationships with variables outside of other dependent and independent variables, all at the $p < .01$ level. Higher age, with a magnitude of .157, and higher classification, with a magnitude of .137, are positively related with being placed on academic probation. Being female, with a magnitude of -.164, and GPA, with a magnitude of -.458 are negatively correlated with academic probation.

Experiencing insipid classes is significantly negatively correlated with higher age and GPA at the $p < .01$ level, with correlation coefficients of -.172 and -.237 respectively. Being threatened with or actually losing a scholarship is significantly negatively associated with being female, a magnitude of -.148, and GPA, a magnitude of -.344, both at the $p < .01$ level. Being threatened with or actually losing academic eligibility is also significantly negatively associated

with being female, a magnitude of -.128 at the $p < .05$ level, and GPA, a magnitude of -.268 at

the $p < .01$ level. Overall, female students tend to have lower levels of most types of strain being

measured here. All strain variables but perceived injustice were negatively associated with GPA,

meaning that as those strains increase, GPAs tended to decrease. To a certain extent, this stands

to reason given that most of these strain variables intended to measure a certain amount of

academic aptitude and success. Therefore, students that have been placed on academic probation

or lost a scholarship, for example, are going to be more prone to exhibit lower GPAs.

The moderating variable, anonymity is only significantly related with one variable other

than the already stated relationships regarding the dependent and independent variables. High

internet anonymity is negatively correlated with being of the race Other at a magnitude of -.104

at the $p < .05$ level. Higher internet anonymity is not significantly correlated with any other

control variable. Within the control variables, there is a handful or notable relationships. Age is

negatively associated with being White, with a coefficient of -.125 at the $p < .05$ level. This

suggests that of the students who make up the sample, the White students tend to be younger.

Age is naturally significantly correlated with classification, yielding a magnitude of .417 at the p

$< .01$ level. This is to be expected due to the fact that students generally age as the climb in

classification. In other words, it is rare for a 25-year-old college student to be a freshman, and

rarer still for an 18 year old to be a senior. Age is also significantly negatively related with GPA,

a relationship with a correlation coefficient of -.179 at the $p < .01$ level. Simply put, as students

increase in age, GPAs decrease. This may be due to freshman and sophomores not yet being

enrolled in the more challenging upper-level major-related courses, and are instead taking the

more rudimentary lower-level core courses.

Table 6 Bivariate correlation of study variables

	Variable	1	2	3	4	5	6	7	8	9
	Dependent									
1	Have cyberbullied someone else	1.00								
2	Have been cyberbullied	.543**	1.00							
3	Cyberbullying activity	.280**	.176**	1.00						
4	Victim of cyberbullying activity	.222**	.395**	.584**	1.00					
	Independent									
5	Personal academic shortcomings	.044	.010	.145**	.109*	1.00				
6	Perceived injustice	-.069	.020	-.058	.056	.114*	1.00			
7	Academic probation	.062	.125**	.079	.089	.096	.009	1.00		
8	Insipid classes	-.027	-.020	.092	.015	.225**	-.056	.037	1.00	
9	Lose scholarship	.140**	.214**	.174**	.140**	.171**	.029	.271**	.179**	1.00
10	Lose academic eligibility	-.008	.106*	.069	.071	.195**	.006	.385**	.146**	.218**
	Moderating									
11	Anonymity	-.081	-.069	-.164**	-.151**	-.105*	-.063	.060	.028	-.035
	Control									
12	Age	-.014	-.025	-.063	-.043	.002	.009	.157**	-.172**	-.052
13	Female	-.061	.075	-.165**	-.067	.005	.095	-.164**	-.064	-.148**
	Race									
14	White	-.052	.115*	.038	.066	-.045	.022	-.066	.019	.073
15	African American	.049	-.039	-.025	-.041	-.052	-.082	.086	.044	-.034
16	Hispanic	.013	-.082	-.045	-.105*	.036	.119*	.034	-.046	.003
17	Asian	.051	-.018	.020	.065	.051	.006	-.001	-.079	-.023
18	Other	-.015	-.034	.045	.051	.109*	-.044	-.016	.066	-.039
19	Classification	.008	-.022	-.046	-.077	.015	-.059	.137**	-.002	.097
20	GPA	-.179**	-.127*	-.169**	-.097	-.317**	.085	-.458**	-.237**	-.344**

**p < .01, *p < .05

Table 6 Continued

		10	11	12	13	14	15	16	17	18	19
	Independent										
10	Lose academic eligibility	1.00									
	Moderating										
11	Anonymity	-.065	1.00								
	Control										
12	Age	.018	.092	1.00							
13	Female	-.128*	-.027	.003	1.00						
	Race										
14	White	-.001	.049	-.125*	-.027	1.00					
15	African American	.047	-.020	.072	.083	-.638**	1.00				
16	Hispanic	-.017	.005	.013	-.043	-.332**	-.142**	1.00			
17	Asian	-.049	-.020	-.018	-.058	-.263**	-.112*	-.059	1.00		
18	Other	-.002	-.104*	.095	.029	-.292**	-.125*	-.065	-.052	1.00	
19	Classification	.078	.049	.417**	-.097	.035	-.031	-.012	-.078	.077	1.00
20	GPA	-.268**	-.030	-.123*	.177**	.133*	-.175**	.014	-.017	.019	-.156**

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

Aside from the already-stated relationships with gender, being female is only significantly related with one other control variable. Being female and GPA are positively associated with a magnitude of .177 at the $p < .01$ level. This correlation indicates that female students are more likely to have higher GPAs. It is possible that this may be caused by the significantly lower levels of some types of strain for female students, which would create an academic atmosphere more conducive to obtaining higher grades. Being White is significantly negatively correlated with the remaining four race variables at the $p < .01$ level, with magnitudes of -.638 for African American, -.332 for Hispanic, -.263 for Asian, and -.292 for Other. Being African American is significantly negatively related with being Hispanic at the $p < .01$ level, a coefficient of -.142, and Asian and Other at the $p < .05$ level, with coefficients of -.112 and -.125 respectively.

The remaining relationships between the race variables are not significant, but negative nonetheless. These relationships require no explanation other than to say that students were asked to pick only one racial category, creating a mutually exclusive relationship between the variables. Of the students that chose to circle two or more racial categories, their responses were simply coded as being a part of the Other category. None of the race variables were significantly associated with classification. Grade point average was significantly positively correlated with being White at the $p < .05$ level and negatively associated with being African American at the $p < .01$ level. The magnitude of these relationships is .133 for the former and -.175 for the latter. According to the data, White students within the sample tend to have higher GPAs and African American students tend to have lower GPAs. Classification is negatively correlated with GPA, a magnitude of -.156 at the $p < .01$ level. It can be seen that as classification increases, GPA decreases. As previously stated, this is most likely a product of the natural progression through

the course catalog. Freshman and sophomores are more likely to be enrolled in lower-level core courses, and juniors and seniors are likely fulfilling upper-level, major-related requirements. The upper-level courses and practicums are more demanding and difficult for many students, therefore influencing the likelihood of receiving lower grades to increase.

Multivariate

The logistic regression results for the dichotomous dependent variable of having cyberbullied in the past are shown in *Table 7*. Model 1 includes only the control variables for analysis, and is shown to be a reliable model for the given dependent variable ($\chi^2(8) = 15.537$, $p < .05$). This model points to GPA being the only statistically significant predictor of having been a cyberbully in the past. According to the results, after controlling for all other control variables, with each whole point that a student's GPA increases, he or she are .251 times less likely to have been engaged in cyberbullying in the past (b = -1.383, $p < .01$). Other notable relationships exist between having cyberbullied and being female (b = -.696), and between having cyberbullied and the race categories. Being African American (b = .262), Hispanic (b = .448), and Asian (b = .584) were all associated with greater risk of having cyberbullied when compared with White, which served as a reference. The relationships regarding gender and race are not statistically significant, however. The results for the race category of Other suggest that there was not a substantial enough number of cases for which the student was of the race category Other in each of the two possible outcomes for the dependent variable. The other two control variables, age and classification, show relatively flat relationships with the dependent variable, and neither are significant.

Model two of *Table 7* shows the results when the independent strain variables are tested as possible predictors for having cyberbullied in the past. This model shown to be a fairly reliable indicator for this dependent variable ($\chi^2(6) = 11.578$, $p < .10$). After controlling for all strain variables, the only statistically significant predictor of the six strain variables is that of having been threatened with or actually losing a scholarship. According to this model, students who have been threatened with or have actually lost a scholarship are 3.185 times more likely to have cyberbullied in the past (b = 1.159, $p < .05$). An increased level of academic shortcomings (b = .108) and having been placed on academic probation (b = .490) are both positively associated with having cyberbullied in the past, although these relationships are not statistically significant. A higher level of perceived injustice (b = -.192), experiencing insipid classes (b = -.324), and being threatened with or actually losing academic eligibility (b = -1.033) are all negatively associated with having cyberbullied in the past, meaning that as these strains increased, there was a lesser chance of that student having been a cyberbully. These three relationships are not significant. Model 3 of *Table 7* simply tests whether the moderating variable of higher internet anonymity is a reliable predictor of having cyberbullied in the past. The model is not especially reliable in achieving this ($\chi^2(1) = 2.680$), with a *p* value of greater than .10. As such, the relationship between internet anonymity and having been a cyberbully is not significant, but it can still be observed that the relationship is negative in nature (b = -.709).

Table 7 Logistic regression of study variables on having cyberbullied someone

Variable	Model 1 (N = 352)					Model 2 (N = 386)				
	B	SE	Wald	df	Exp(B)	B	SE	Wald	df	Exp(B)
Controls										
Age	-.026	.066	.158	1	.974					
Female	-.696	.502	1.924	1	.498					
Race (White = ref.)										
African American	.262	.559	.219	1	1.299					
Hispanic	.448	.825	.295	1	1.566					
Asian	.584	1.128	.268	1	1.793					
Other	-18.078	8716.427	.000	1	.000					
Classification	.043	.265	.026	1	1.044					
GPA	-1.383***	.512	7.288	1	.251					
Blocked Goals										
Academic shortcoming						.108	.102	1.130	1	1.114
Perceived injustice						-.192	.124	2.380	1	.825
Present (-) Stimuli										
Academic probation						.490	.556	.775	1	1.632
Insipid classes						-.324	.298	1.188	1	.723
Remove (+) Stimuli										
Lose scholarship						1.159**	.477	5.904	1	3.185
Lose athletic eligibility						-1.033	1.134	.830	1	.356
Moderating										
Anonymity										
Constant	2.215	2.185	1.028	1	9.160	-2.456**	1.175	4.372	1	.086
χ^2(df), -2 Log likelihood	15.536(8)**, 138.022					11.578(6)*, 162.760				

***$p < .01$, **$p < .05$, *$p < .10$

Table 7 Continued

Variable	Model 3 (N = 401)					Model 4 (N = 343)				
	B	SE	Wald	df	Exp(B)	B	SE	Wald	df	Exp(B)
Controls										
Age						-.039	.068	.326	1	.962
Female						-.854	.531	2.584	1	.426
Race (White = ref.)										
African American						.352	.594	.351	1	1.422
Hispanic						.403	.904	.199	1	1.497
Asian						.399	1.190	.112	1	1.490
Other						-17.957	8673.508	.000	1	.000
Classification						.077	.280	.077	1	1.080
GPA						-1.596**	.673	5.628	1	.203
Blocked Goals										
Academic shortcoming						.064	.123	.272	1	1.066
Perceived injustice						-.154	.140	1.210	1	.857
Present (-) Stimuli										
Academic probation						-.222	.676	.108	1	.801
Insipid classes						-.627	.382	2.694	1	.534
Remove (+) Stimuli										
Lose scholarship						.793	.540	2.154	1	2.210
Lose athletic eligibility						-1.566	1.229	1.622	1	.209
Moderating										
Anonymity	-.709	.445	2.538	1	.492	-.856	.546	2.460	1	.425
Constant	-2.459***	.260	89.087	1	.086	4.911	3.489	1.982	1	135.735
χ^2(df), -2 Log likelihood	2.680(1), 179.018					26.371(15)**, 126.120				

***p < .01, **p < .05, *p < .10

Model 4 of *Table 7* illustrates the logistic regression analysis for all study variables tested as possible predictors for having cyberbullied in the past. The model is shown to be reliable in accomplishing this goal ($\chi^2(15) = 26.371$, $p < .05$). After controlling for all control, independent strain, and moderating anonymity variables, GPA is the only remaining reliable predictor of having been a cyberbully (b = -1.596, $p < .05$). This negative association shows that with each whole number increase in GPA, a student is .203 times as likely to have been a cyberbully in the past. It is worth noting that this relationship actually increased in magnitude from the model that only tested the control variables to this model, which tests all variables. This suggests the nature of this relationship is persistent and especially reliable, as neither strain variables nor the moderating anonymity variable weakens it.

When controlling for all variables, having been threatened with or actually having lost a scholarship is no longer a significant predictor of having cyberbullied, and what relationship remains is weakened (b = .793). Age (b = -.039) and classification (b = .077) remain relative non-actors in the analysis, showing flat, non-significant relationships with the dependent variable. The direction and relative magnitude of the relationships between the race categories of African American (b = .352), Hispanic (b = .403), and Asian (b = .399) remain the same as they were when only control variables were included in the model. None of the race categories are significant predictors in this model. Of the strain variables, only the direction of the relationship between being placed on academic probation changed, which altered from positive to negative (b = -.222). This relationship is still not significant, as are neither of the remaining strain variables of personal academic shortcomings (b = .064), perceived injustice (b = -.154), experiencing insipid classes (b = -.627), and being threatened with or actually losing academic

eligibility (b = -1.566). The moderating anonymity variable stays relatively unchanged in its relationship with the dependent variable (b = -.856).

The logistic regression analysis results for the study variables as predictors for the dichotomous dependent variable of having been the victim of cyberbullying in the past is shown in *Table* 8. Given the tightly knit nature of the relationship between this dependent variable and the dichotomous dependent variable of having even been a cyberbully, it is expected that the results in this section should closely mimic those shown in *Table 7*. This is mostly the case. Model 1 of *Table 8* shows the analysis only including the control variables as possible predictors for being the victim of cyberbullying in the past. The model is reliable for the given dependent variable ($\chi^2(8) = 19.082, p < .05$). Once again, GPA is the most significant predictor, showing a negative relationship with the dependent variable (b = -1.106, $p < .01$). According to these results, with each whole number increase in GPA students are .331 times as likely to have been the victim of cyberbullying. The only other significant predictor, being African American, is negatively associated with victimization as well (b = -1.010, $p < .05$). African American students are .364 times as likely to have been the victim of cyberbullying in the past as White students, which served as the reference group.

The remaining racial categories of Hispanic (b = -1.703), Asian (b = .870) and Other (b = -1.434) are all negatively associated with the dependent variable, but are not statistically significant predictors. Nonetheless, it would seem that all racial categories are less likely to have been the victim of cyberbullying than White students are. Classification is once again only marginally related with the dependent variable (b = -.166). Age shows to be an absolute non-factor in predicting past cybervictimization (b = .000). Lastly, being female is positively associated with the dependent variable (b = .417), but is not significant.

Model 2 of *Table 8* includes only the independent strain variables and tests them as predictors of being previously cyberbullied. The model is especially reliable in doing so ($\chi^2(6) = 18.731, p < .01$). As was found when testing the strain variables as predictors of being a cyberbully in the past, only being threatened with or actually losing a scholarship is shown to be a significant predictor of having been cybervictimized ($b = 1.122, p < .01$). The results suggest that students who were threatened with losing or had actually lost a scholarship were 3.071 times more likely to have been the victim of cyberbullying than students who had no experienced this strain. Higher levels of academic shortcomings ($b = -.023$) and experiencing insipid classes ($b = -.181$) had slight negative relationships with the dependent variable, but were not significant. Higher levels of perceived injustice ($b = .014$), being placed on academic probation ($b = .499$), and being threatened with or actually losing academic eligibility ($b = .418$) are positively associated with having been cyberbullied, but are also not significant. Model 3 of *Table 8* shows the results when only the moderating variable of higher anonymity is being tested as a predictor of having been cyberbullied in the past. Once again, this model is not reliable in explaining this relationship ($\chi^2(1) = 1.948$), with greater than ten percent of the variance in this model not able to be explained. Regardless, the relationship between higher internet anonymity and having been cyberbullied is negative and not significant ($b = -.402$).

Table 8 Logistic regression of study variables on having been cyberbullied by someone

Variable	Model 1 (N = 355)					Model 2 (N = 389)				
	B	SE	Wald	df	Exp(B)	B	SE	Wald	df	Exp(B)
Controls										
Age	.000	.040	.000	1	1.000					
Female	.417	.333	1.567	1	1.518					
Race (White = ref.)										
African American	-1.010**	.457	4.887	1	.364					
Hispanic	-1.703	1.044	2.660	1	.182					
Asian	-.870	1.071	.661	1	.419					
Other	-1.434	1.051	1.864	1	.238					
Classification	-.166	.169	.963	1	.847					
GPA	-1.106***	.366	9.119	1	.331					
Blocked Goals										
Academic shortcoming						-.023	.070	.110	1	.977
Perceived injustice						.014	.090	.026	1	1.015
Present (-) Stimuli										
Academic probation						.499	.396	1.582	1	1.647
Insipid classes						-.181	.206	.766	1	.835
Remove (+) Stimuli										
Lose scholarship						1.122***	.338	10.986	1	3.071
Lose athletic eligibility						.418	.609	.471	1	1.519
Moderating										
Anonymity										
Constant	2.322	1.522	2.326	1	10.192	-1.760**	.835	4.447	1	.172
χ^2(df), -2 Log likelihood	19.082(8)**, 269.529					18.731(6)***, 294.656				

***$p < .01$, **$p < .05$, *$p < .10$

Table 8 Continued

Variable	Model 3 (N = 405)					Model 4 (N = 346)				
	B	SE	Wald	df	Exp(B)	B	SE	Wald	df	Exp(B)
Controls										
Age						-.028	.053	.270	1	.973
Female						.585	.370	2.507	1	1.795
Race (White = ref.)										
African American						-1.083**	.494	4.813	1	.339
Hispanic						-2.003*	1.084	3.413	1	.135
Asian						-.984	1.167	.712	1	.374
Other						-1.343	1.088	1.523	1	.261
Classification						-.253	.192	1.742	1	.776
GPA						-.837*	.472	3.152	1	.433
Blocked Goals										
Academic shortcoming						-.077	.081	.898	1	.926
Perceived injustice						.073	.102	.521	1	1.076
Present (-) Stimuli										
Academic probation						.920*	.495	3.446	1	2.509
Insipid classes						-.363	.243	2.240	1	.695
Remove (+) Stimuli										
Lose scholarship						1.157***	.382	9.187	1	3.181
Lose athletic eligibility						.422	.646	.428	1	1.525
Moderating										
Anonymity	-.402	.290	1.919	1	.669	-.529	.357	2.195	1	.589
Constant	-1.627***	.188	75.213	1	.197	2.972	2.405	1.528	1	19.540
χ^2(df), -2 Log likelihood	1.948(1), 327.160					42.169(15)***, 240.091				

***p < .01, **p < .05, *p < .10

Model 4 of this table illustrates the analysis which includes all study variables are possible predictors of previous cybervictimization. The model is reliable in accomplishing this ($\chi^2(15) = 42.169$, $p < .01$). After controlling for all other study variables, within the control variables, there are three statistically significant predictors of being cyberbullied. Being African American (b = -1.083, $p < .05$) and being Hispanic (b = -2.003, $p < .10$) are both negatively associated with the dependent variable. Students who identify as African American are .339 times and Hispanic students .135 times less likely to have been cybervictimized as White students, which once again serves as the reference racial category. While the significance of being African American is not a new development for Model 4, the introduction of the significant predictor of being Hispanic is. The only other statistically significant predictor within the control variables is GPA, although the relationship is somewhat weakened from that which was observed in the first Model of *Table 8*. The nature of the relationship is still negative (b = -.837, $p < .10$), with each whole number increase in GPA resulting in students being .433 times as likely to have been a victim of cyberbullying. The only positive relationship between a control variable and the dependent variable exists between being female and having been cyberbullied (b = .585). This relationship is not significant. The remaining control variables of the race categories Asian (b = -.984) and Other (b = -1.343), and classification (b = -.253) are all negatively, but not significantly, related with the dependent variable.

Within the independent strain variables, there are two statistically significant predictors of having been cyberbullied in the past. Being threatened with losing or actually losing a scholarship remains strongly positively associated with the dependent variable (b = 1.157, $p < .01$), and being place on academic probation is positively associated with the dependent variable (b = .920, $p < .10$). According to the results, students who were threatened with losing or

actually lost a scholarship are 3.181 times more likely to have been the victim of cyberbullying than students who have not. Additionally, students who have been placed on academic probation are 2.509 times more likely than students who have not been placed on academic probation to have been cybervictimized. Of the remaining non-significant strain variables, perceived injustice (b = .073) and being threatened with or actually losing academic eligibility (b = .422) are positively associated with the dependent variable, while academic shortcomings (b = -.077) and experiencing insipid classes (b = .363) are negatively associated. The moderating variable of anonymity is still negatively related with the dependent variable (b = -.529), but not in a statistically significant way.

In order to test how the study variables work as predictors of the remaining two dependent variables, Ordinary Least Squares (OLS) regression must be utilized in lieu of logistic regression, given the variables' scale-based, non dichotomous coding system. The results of the OLS regression analysis of the study variables for predicting the dependent variable of frequency with which students engaged in various cyberbullying behaviors is shown in *Table 9*. The first model includes just the control variables, which explains about seven percent of variance in the model (R^2 = .066, *df* = 8, *p* < .01). When controlling for all other control variables, both being female (β = -.158, t = -2.926, *p* < .01) and having a higher GPA (β = -.162, t = -2.955, *p* < .01) are significantly negatively associated with cyberbullying perpetration. Female students are much less likely to engage in cyberbullying behaviors more frequently than male students are. Additionally, students with higher GPAs are less likely to participate in cyberbullying often. Of the remaining variables in Model 1, only being of the race Other is associated with higher levels of cyberbullying perpetration (β = .045, t = .848), though the relationship is not statistically significant. Age (β = -.040, t = -.697), being African American (β = -.064, t = -1.169), Hispanic

(β = -.050, t = -9.340), or Asian (β = -.060, t = -1.138), and increased classification (β = -.031, t =

-.544) are all negatively, but not significantly, associated with the dependent variable of

cyberbullying perpetration.

Model 2 of *Table 9* illustrates the OLS regression testing the independent strain variables

as possible predictors for increased cyberbullying perpetration levels, which explains about six

percent of the model (R^2 = .056, *df* = 6, *p* < .01). Both increased levels of academic

shortcomings (β = .119, t = 2.269, *p* < .05) and being threatened with losing or actually losing a

scholarship (β = .138, t = 2.578, *p* < .01) are significant positive predictors of cyberbullying

perpetration. With higher levels of personal academic shortcomings, students are more likely to

frequently engage in cyberbullying behaviors. Furthermore, students who have been threatened

with losing or have actually lost a scholarship are significantly more likely to participate in

cyberbullying perpetration more often. Perceived injustice (β = -.082, t = -1.622) and being

threatened with losing or actually losing academic eligibility (β = -.017, t = -.302) are both

negatively, but not significantly related with the dependent variable of cyberbullying

perpetration. Being placed on academic probation (β = .060, t = 1.068) and experiencing insipid

classes (β = .044, t = .840) are both positively associated with the dependent variable, but are not

significant predictors. Testing the moderating anonymity variable by itself in Model 3, which

explains about three percent of variance within the model (R^2 = .027, *df* = 1, *p* < .01) shows that

anonymity is in fact a significant predictor of cyberbullying perpetration frequency (β = -1.64, t

= -3.308, *p* < .01). Students who reported higher levels of internet anonymity were much less

likely to engage in cyberbullying as often as those students that indicated a lower level of

anonymity.

Table 9 OLS regression of study variables on cyberbullying perpetration scale

Variable	Model 1 (N = 350)				Model 2 (N = 383)			
	B	SE	Beta	t	B	SE	Beta	t
Controls								
Age	-.019	.028	-.040	-.697				
Female	-.704***	.240	-.158	-2.926				
Race (White = ref.)								
African American	-.348	.298	-.064	-1.169				
Hispanic	-.426	.456	-.050	-9.340				
Asian	-.731	.643	-.060	-1.138				
Other	.439	.518	.045	.848				
Classification	-.068	.126	-.031	-.544				
GPA	-.788***	.267	-.162	-2.955				
Blocked Goals								
Academic shortcoming					.119**	.053	.119	2.269
Perceived injustice					-.111	.068	-.082	-1.622
Present (-) Stimuli								
Academic probation					.368	.345	.060	1.068
Insipid classes					.134	.159	.044	.840
Remove (+) Stimuli								
Lose scholarship					.765***	.297	.138	2.578
Lose athletic eligibility					-.174	.575	-.017	-.302
Moderating								
Anonymity								
Constant	11.315***	1.126		10.045	6.656	.655		10.169
R^2(*df*), *p*	.066(8), .003				.056(6), .001			

***$p < .01$, **$p < .05$, *$p < .10$

Table 9 Continued

Variable	Model 3 (N = 398)					Model 4 (N = 341)			
	B	SE	Beta	t		B	SE	Beta	t
Controls									
Age						.001	.030	.003	.046
Female						-.709***	.245	-.158	-2.890
Race (White = ref.)									
African American						-.300	.305	-.054	-.982
Hispanic						-.510	.456	-.060	-1.118
Asian						-.706	.641	-.059	-1.102
Other						.079	.525	.008	.151
Classification						-.065	.126	-.029	-.514
GPA						-.263	.331	-.054	-.792
Blocked Goals									
Academic shortcoming						.101*	.056	.105	1.807
Perceived injustice						-.085	.070	-.065	-1.216
Present (-) Stimuli									
Academic probation						.463	.389	.077	1.189
Insipid classes						.069	.168	.023	.409
Remove (+) Stimuli									
Lose scholarship						.544*	.307	.102	1.770
Lose athletic eligibility						-.313	.573	-.032	-.546
Moderating									
Anonymity	-.743***	.224	-1.64	-3.308		-.744***	.239	-.168	-3.110
Constant	7.990	.158		50.471		8.742***	1.696		5.154
R^2(*df*), *p*	.027(1), .001					.116(15), .000			

***p* < .01, ***p* < .05, **p* < .10

All variables are introduced to the regression analysis together in Model 4, which

explains about 12 percent of the variance within the model (R^2 = .116, df = 15, p < .01). After

controlling for all study variables, the status of gender as a significant predictor of cyberbullying

perpetration remains stable (β = -.158, t = -2.890, p < .01). Female students are still shown to be

less likely to frequently engage in cyberbullying than male students are. Age becomes somewhat

of a non-factor (β = .003, t = .046), and being of the race Other is the only other positively

associated control variable (β = .008, t = .151), and neither relationship is significant. Notably,

GPA is no longer significantly associated with the dependent variable (β = -.054, t = -.792). The

rest of the control variables, being African American (β = -.054, t = -.982), Hispanic (β = -.060, t

= -1.118), Asian (β = -.059, t = -1.102), and being of a higher classification (β = -.029, t = -.514),

are all negatively and non-significantly associated with the cyberbullying perpetration scale.

Of the strain variables, the relationships with the dependent variable survive largely

unchanged. Personal academic shortcomings (β = .105, t = 1.087, p < .10) and being threatened

with losing or actually losing a scholarship (β = .102, t = 1.770, p < .10) are still significant

predictors of cyberbullying perpetration frequency, though the strength of these relationships has

diminished some. Perceived injustice (β = -.065, t = -1.216) and being threatened with losing or

actually losing academic eligibility (β = -.032, t = -.546) are still non-significantly negatively

associated with the dependent variable. Being placed on academic probation (β = .077, t =

1.189) and experiencing insipid classes (β = .023, t = .409) are still both non-significantly

positively related with the dependent variable. Lastly higher internet anonymity remains

strongly associated with lower levels of cyberbully perpetration frequency (β = -.168, t = -3.110,

p < .01). After controlling for all study variables, students with higher internet anonymity are

much less likely to engage in cyberbullying often when compared with students with lower internet anonymity.

The OLS regression of the other dependent scale variable, which measures the victimization of various types of cyberbullying activities, is shown in *Table 10*. The first model includes only the control variables and explains about five percent of the variance within the model (R^2 = .046, *df* = 8, *p* < .05). Being African American (β = -.099, t = -1.746, *p* < .10) or Hispanic (β = -.128, t = -2.344, *p* < .05) and having a higher GPA (β = -.113, t = -2.010, *p* < .05) are all significant predictors of a lower frequency of cybervictimization. Both African American students and Hispanic students have a higher likelihood of being cybervictimized more often than White students, who serve as the reference group. In addition, students with higher GPAs are significantly less likely to be cybervictimized often than students with lower GPAs are. In this model, being of the race Other is the only variable positively associated with cybervictimization frequency (β = .060, t = 1.097), but this relationship is not statistically significant. Age (β = -.002, t = -.029), being female (β = -.074, t = -1.337), being Asian (β = -.037, t = -.673), and being of a higher classification (β = -.061, t = -1.055) are all negatively associated with the dependent variable, but are not significant predictors.

Table 10 OLS regression of study variables on cyberbullying victimization activities scale

Variable	Model 1 (N = 340)					Model 2 (N = 371)			
	B	SE	Beta	t		B	SE	Beta	t
Controls									
Age	-.001	.037	-.002	-.029					
Female	-.434	.325	-.074	-1.337					
Race (White = ref.)									
African American	-.701*	.402	-.099	-1.746					
Hispanic	-1.430**	.610	-.128	-2.344					
Asian	-.603	.897	-.037	-.673					
Other	.743	.678	.060	1.097					
Classification	-.179	.170	-.061	-1.055					
GPA	-.721**	.359	-.113	-2.010					
Blocked Goals									
Academic shortcoming						.108	.070	.084	1.537
Perceived injustice						.065	.092	.037	.704
Present (-) Stimuli									
Academic probation						.551	.470	.068	1.173
Insipid classes						-.044	.214	-.011	-.205
Remove (+) Stimuli									
Lose scholarship						.802**	.402	.109	1.997
Lose athletic eligibility						.015	.809	.001	.018
Moderating									
Anonymity									
Constant	11.322***	1.506		7.516		6.441***	.861		7.477
R^2(df), p	.046(8), .047					.034(6), .052			

***$p < .01$, **$p < .05$, *$p < .10$

Table 10 Continued

Variable	Model 3 (N = 385)					Model 4 (N = 332)			
	B	SE	Beta	t		B	SE	Beta	t
Controls									
Age						-.003	.040	-.004	-.064
Female						-.413	.331	-.070	-1.248
Race (White = ref.)									
African American						-.600	.412	-.083	-1.458
Hispanic						-1.671***	.611	-.151	-2.733
Asian						-.659	.896	-.040	-.735
Other						.565	.689	.046	.820
Classification						-.193	.170	-.066	-1.129
GPA						-.125	.446	-.020	-.281
Blocked Goals									
Academic shortcoming						.062	.075	.050	.829
Perceived injustice						.083	.096	.048	.867
Present (-) Stimuli									
Academic probation						1.086**	.527	.137	2.060
Insipid classes						-.145	.228	-.037	-.638
Remove (+) Stimuli									
Lose scholarship						.856**	.417	.121	2.054
Lose athletic eligibility						-.198	.808	-.015	-.245
Moderating									
Anonymity	-.893***	.299	-.151	-2.982		-.746**	.323	-.127	-2.307
Constant	8.382***	.212		39.456		8.748***	2.256		3.877
R^2(*df*), *p*	.023(1), .003					.099(15), .004			

***$p < .01$, **$p < .05$, *$p < .10$

Model 2 includes just the independent strain variables and explains about three percent of the variance within the model ($R^2 = .034$, $df = 6$, $p < .10$). Only being threatened with losing or actually losing a scholarship is a significant predictor of cybervictimization frequency ($\beta = .109$, $t = 1.997$, $p < .05$). Student who have experienced this type of strain are more likely to have been the victim of cyberbullying more often that students who have not experienced these strains. The only negative relationship between a strain variable and the dependent variable is that of experiencing insipid classes ($\beta = -.011$, $t = -.205$), but the relationship is not significant. Personal academic shortcomings ($\beta = .084$, $t = 1.537$), perceived injustice ($\beta = .037$, $t = .704$), being placed on academic probation ($\beta = .068$, $t = 1.173$), and being threatened with losing or actually losing academic eligibility ($\beta = .001$, $t = .018$) are all positively, but not significantly related with the dependent variable of cybervictimization frequency. Model 3 only includes the moderating anonymity variable, which explains about two percent of the variance within the model ($R^2 = .023$, $df = 1$, $p < .01$). As with the perpetration scale, higher anonymity is significantly negatively associated with the cybervictimization scale ($\beta = -.151$, $t = -2.982$, $p < .01$). Students with a higher level of online anonymity are much less likely to have experienced frequent cybervictimization than students who have a lower level of internet anonymity.

Model 4 of *Table 10* tests all study variables as possible predictors for the cybervictimization frequency and explains almost ten percent of the variance within the model ($R^2 = .099$, $df = 15$, $p < .01$). After controlling for all study variables, the only remaining statistically significant control variable is being Hispanic ($\beta = -.151$, $t = -2.733$, $p < .01$). Once again, the only control variable with a positive relationship is being of the race Other ($\beta = .046$, $t = .820$), though the relationship is not significant. Age is a relatively sterile predictor, favoring only slightly towards a negative, non-significant relationship with the dependent variable ($\beta = -$

.004, t = -.064). Being female (β = -.070, t = -1.248), being African American (β = -.083, t = -1.458) or Asian (β = -.040, t = -.735), being of a higher classification (β = -.066, t = -1.129), and having a higher GPA (β = -.020, t = -.281) are all non-significantly negatively associated with the cybervictimization scale.

Within the strain variables, being threatened with or actually losing a scholarship remains a statistically significant predictor of being cyberbullied more frequently (β = .121, t = 2.054, p < .05). Students who have experienced these strains are still more likely to be cybervictimized more often than students who have not experienced the strains, even while controlling for all other study variables. Being placed on academic probation is newly found to be a significant predictor as well, despite not being significant when only controlling for other strain variables (β = .137, t = 2.060, p < .05). Students who have been placed on academic probation are more likely to be the victim of cyberbullying more often than students who have not been placed on academic probation. Personal academic shortcomings (β = .050, t = .829) and perceived injustice (β = .048, t = .867) are both positively, but not significantly, related with the dependent variable. Experiencing insipid classes (β = -.037, t = -.638) being threatened with losing or actually losing academic eligibility (β = -.015, t = -.245) are both negatively, but not significantly, associated with the dependent variable. Anonymity remains a significant predictor when controlling for all study variables (β = -.127, t = -2.307, p < .05). Students with higher anonymity are less likely to be cybervictimized more often than students with lower anonymity are.

Interaction Term

The multivariate analysis continues with the addition of the interaction term, or moderating variable. The interaction variables included in this section were created by multiplying each of the six original independent strain variables with the moderating anonymity variable. Given that the anonymity variable is coded $0 =$ low anonymity and $1 =$ high anonymity, the moderating variables represent how the independent variables impact the dependent variable when internet anonymity is high. The logistic regression analysis in *Table 11* shows the same analysis as Model 4 of *Table 7*, with the addition of the interaction term. In other words, *Table 11* shows all study variables, including the interaction term variables as possible predictors for the dichotomous dependent variable of having cyberbullied someone else in the past ($\chi^2 = 38.226$, $df = 21$, $p < .05$).

The introduction of the interaction term variables yields a significant relationship between the dependent variable and one of the independent strain variables. Experiencing insipid classes is now significantly negatively associated with having cyberbullied in the past (b $= -1.018$, $p < .10$). The only relationship that is shown to be significantly moderated by internet anonymity is that between the dependent variable and perceived injustice (b $= -.766$, $p < .10$). According to the results, when internet anonymity is high, students who have a higher level of perceived injustice are .465 times as likely to have been cyberbullies in the past when compared with students who have lower levels of perceived injustice. The remainder of the interaction term variables are not shown to have a significant moderating effect on the relationship between the strain variables and the dependent variable. That being said, the personal academic shortcomings interaction term (b $= .059$), the experiencing insipid classes interaction term, (b $= 1.371$), and the having been threatened with or having actually lost a scholarship interaction term

(b = .940) are all positively associated with the relationships between the dependent variable and their corresponding independent strain variables. The being placed on probation interaction term is negatively associated with the relationship between the dependent variable and the being placed on probation strain variable (b = -1.529). The results within the being threatened with losing or actually losing academic eligibility interaction term suggest that there are not enough cases within each of the possible dependent variable outcomes for the regression analyses to be accurate for this given variable.

The effect of the interaction term variables on the relationship between the independent strain variables and the dichotomous dependent variable of having been cyberbullied in the past is shown in the logistic regression analyses in *Table 12* (χ^2 = 46.471, *df* = 21, *p* < .01). According to the results in this table, none of the interaction term variables are shown to significantly moderate the relationships between the strain variables and the dependent variable. However, the personal academic shortcomings interaction term (b = .224), the being threatened with losing or actually losing a scholarship interaction term (b = .997), and the being threatened with losing or actually losing academic eligibility interaction term (b = .058) are all positively associated with the relationship between their corresponding strain variables and the dependent variable. The perceived injustice interaction term (b = -.151) and the experiencing insipid classes interaction term (b = -.063) are both negatively associated with the relationship between there corresponding strain variables and the dependant variable. The being placed on probation interaction term is shown to have no measureable effect on the relationship between being placed on probation and the dependent variable of having been cyberbullied in the past (b = .000).

Table 11 Logistic regression of study variables on having cyberbullied someone else with anonymous interaction effect (N = 343)

Variable	B	Std. Error	Wald	df	Exp(B)
Controls					
Age	-.042	.072	.339	1	.959
Female	-.578	.562	1.057	1	.561
Race (White = ref.)					
African American	.538	.642	.702	1	1.712
Hispanic	.637	.938	.460	1	1.890
Asian	.877	1.311	.448	1	2.405
Other	-17.864	8437.746	.000	1	.000
Classification	.028	.309	.008	1	1.029
GPA	-1.535**	.723	4.508	1	.216
Blocked Goals					
Academic shortcoming	.028	.142	.038	1	1.028
Perceived injustice	.067	.176	.145	1	1.069
Present (-) Stimuli					
Academic probation	.587	.858	.467	1	1.798
Insipid classes	-1.018*	.522	3.798	1	.361
Remove (+) Stimuli					
Lose scholarship	.656	.731	.806	1	1.928
Lose athletic eligibility	-1.482	1.344	1.215	1	.227
Moderating					
Anonymity	-.766	2.839	.073	1	.465
Interaction term					
Shortcomings*anonymous	.059	.293	.040	1	1.060
Injustice*anonymous	-.766*	.354	4.680	1	.465
Probation*anonymous	-1.529	1.505	1.032	1	.217
Insipid classes*anonymous	1.371	.820	2.795	1	3.938
Lose scholarship*anonymous	.940	1.191	.623	1	2.561
Lose eligibility*anonymous	-16.665	14363.882	.000	1	.000
Constant	4.439	3.881	1.308	1	84.672

χ^2 = 38.226**, df = 21, -2 Log Likelihood = 114.264

**p < .05, *p < .10

Table 12 Logistic regression of study variables on having been cyberbullied by someone with anonymous interaction effect (N = 346)

Variable	B	Std. Error	Wald	df	Exp(B)
Controls					
Age	-.021	.054	.144	1	.980
Female	.611	.378	2.608	1	1.842
Race (White = ref.)					
African American	-1.054**	.504	4.362	1	.349
Hispanic	-1.797*	1.088	2.728	1	.166
Asian	-.950	1.223	.604	1	.387
Other	-1.379	1.093	1.591	1	.252
Classification	-.282	.197	2.054	1	.755
GPA	-.807*	.485	2.765	1	.446
Blocked Goals					
Academic shortcoming	-.120	.097	1.530	1	.887
Perceived injustice	.119	.128	.865	1	1.126
Present (-) Stimuli					
Academic probation	.932	.687	1.839	1	2.540
Insipid classes	-.266	.305	.762	1	.766
Remove (+) Stimuli					
Lose scholarship	.738	.528	1.955	1	2.092
Lose athletic eligibility	.389	.865	.203	1	1.476
Moderating					
Anonymity	-2.041	2.063	.978	1	.130
Interaction term					
Shortcomings*anonymous	.224	.184	1.484	1	1.252
Injustice*anonymous	-.151	.216	.486	1	.860
Probation*anonymous	.000	.911	.000	1	1.000
Insipid classes*anonymous	-.063	.503	.015	1	.939
Lose scholarship*anonymous	.997	.763	1.708	1	2.710
Lose eligibility*anonymous	.058	1.338	.002	1	1.060
Constant	2.851	2.598	1.204	1	17.307

χ^2 = 46.471***, df = 21, -2 Log Likelihood = 235.790

***$p < .01$,**$p < .05$, *$p < .10$

The OLS regression analysis showing the effects of the interaction term variables on the relationship between the independent strain variables and the scale dependent variable of cyberbullying perpetration is illustrated in *Table 13* ($R^2 = .131$, *df* = 21, *p* < .001). This model explains about 13 percent of the variance within the analysis. Once again, the results of this regression model show that none of the interaction term variables have a significant moderating effect of the relationship between the strain variables and the dependent variable. Nonetheless, the perceived injustice interaction term (β = .161, t = .841), the being placed on academic probation interaction term (β = .108, t = 1.134), the experiencing insipid classes interaction term (β = .290, t = 1.588), the being threatened with losing or actually losing a scholarship interaction term (β = .015, t = .174), and the being threatened with losing or actually losing academic eligibility interaction term (β = .010, t = .136) are all positively associated with the relationship between their corresponding strain variables and the dependent variable. Only the personal academic shortcomings interaction term is shown to have a negative association with the relationship between its strain variable and the dependent variable (β = -.155, t = -.645).

Table 13 OLS regression of study variables on cyberbullying activities scale with anonymous interaction effect (N = 341)

Variable	B	Std. Error	Beta	t
Controls				
Age	.004	.030	.007	.118
Female	-.682***	.248	-.152	-2.753
Race (White = ref.)				
African American	-.246	.308	-.045	-.798
Hispanic	-.528	.461	-.062	-1.144
Asian	-.790	.647	-.066	-1.220
Other	.221	.530	.023	.417
Classification	-.033	.128	-.015	-.258
GPA	-.243	.337	-.050	-.720
Blocked Goals				
Academic shortcoming	.138*	.073	.143	1.900
Perceived injustice	-.139	.093	-.107	-1.491
Present (-) Stimuli				
Academic probation	-.034	.570	-.006	-.060
Insipid classes	-.164	.227	-.056	-.723
Remove (+) Stimuli				
Lose scholarship	.549	.437	.103	1.257
Lose athletic eligibility	-.323	.752	-.034	-.430
Moderating				
Anonymity	-2.050	1.345	-.463	-1.524
Interaction term				
Shortcomings*anonymous	-.072	.111	-.155	-.645
Injustice*anonymous	.119	.141	.161	.841
Probation*anonymous	.835	.736	.108	1.134
Insipid classes*anonymous	.530	.334	.290	1.588
Lose scholarship*anonymous	.106	.607	.015	.174
Lose eligibility*anonymous	.161	1.190	.010	.136
Constant	9.029***	1.830		4.933

$R^2 = .131 (df = 21), p = .001$
***$p < .01$, **$p < .05$, *$p < .10$

The OLS regression analysis testing the possible effects of the interaction term variables on the relationships between the independent strain variables and the scale dependent variable of cyberbullying victimization is shown in *Table 14* ($R^2 = .111$, $df = 21$, $p < .05$). This model explains about 11 percent of the variance within the analysis. The experiencing insipid classes interaction term is the only significant moderator in this model, for which its effect is positive ($\beta = .313$, t = 1.683). Of those students who have experienced insipid classes, the risk of having been cyberbullied more frequently is greater when internet anonymity is high, than when internet anonymity is comparably lower. Other interaction term variables that are positively associated with the relationship between their strain variables and the dependent variable include the personal academic shortcomings interaction term ($\beta = .028$, t = .116), the being placed on probation interaction term ($\beta = .057$, t = .587), and the being threatened with losing or actually losing a scholarship interaction term ($\beta = .016$, t = .192), but these effects are not significant. Additionally, the perceived injustice interaction term ($\beta = -.142$, t = -.723) and the being threatened with losing or actually losing academic eligibility interaction term ($\beta = -.055$, t = -.727) are both negatively associated with the relationship between their respective strain variables and the dependent variable; these effects are not significant.

Table 14 OLS regression of study variables on cyberbullying victimization activities scale with anonymous interaction effect (N = 332)

Variable	B	Std. Error	Beta	t
Controls				
Age	.004	.041	.006	.092
Female	-.340	.334	-.058	-1.019
Race (White = ref.)				
African American	-.546	.417	-.076	-1.309
Hispanic	-1.630***	.619	-.147	-2.634
Asian	-.640	.905	-.039	-.707
Other	.636	.696	.052	.914
Classification	-.183	.173	-.062	-1.057
GPA	-.010	.453	-.002	-.023
Blocked Goals				
Academic shortcoming	.070	.097	.056	.724
Perceived injustice	.135	.130	.078	1.038
Present (-) Stimuli				
Academic probation	.789	.776	.099	1.017
Insipid classes	-.447	.308	-.115	-1.453
Remove (+) Stimuli				
Lose scholarship	.918	.590	.130	1.556
Lose athletic eligibility	.337	1.070	.025	.315
Moderating				
Anonymity	-1.838	1.793	-.314	-1.025
Interaction term				
Shortcomings*anonymous	.017	.149	.028	.116
Injustice*anonymous	-.139	.192	-.142	-.723
Probation*anonymous	.585	.996	.057	.587
Insipid classes*anonymous	.763*	.454	.313	1.683
Lose scholarship*anonymous	.158	.824	.016	.192
Lose eligibility*anonymous	-1.219	1.677	-.055	-.727
Constant	8.400***	2.427		3.461

$R^2 = .111 (df = 21)$, $p = .015$

***$p < .01$, **$p < .05$, *$p < .10$

Discussion

The current study first aimed to assess the role that strain would have in predicting cyberbullying perpetration. During the bivariate analysis phase, it was observed that being threatened with losing or actually losing a scholarship was significantly positively correlated with both having cyberbullied in the past and the frequency of cyberbullying perpetration. In other words, students who had experienced this type of strain were more likely to have cyberbullied in the past and were more likely to have cyberbullied more often than students who had no experienced the strain. The frustration and anxiety that come with almost losing or actually losing a scholarship for a university program can be immense. If a student was experiencing this strain, a computer, cell phone, or tablet would be a convenient escape where s/he could lash out at others who maybe were not having the same hardship.

Additionally, personal academic shortcoming was significantly positively correlated with the frequency of cyberbullying perpetration, but not with having cyberbullied in the past. It is seen that students who have higher levels of personal academic shortcomings are more likely to have cyberbullied more often than students who did not experience such a high level of academic shortcoming. Interestingly, personal academic shortcomings had no significant relationship in the bivariate analysis with having cyberbullied in the past. The discrepancy between cyberbullying more often and having cyberbullied in the past may come down to the phrasing of the question. In fact, it is seen in the mere six percent of students who responded "yes" to the question that actually asked about "cyberbullying" that students were hesitant to admit to something when phrased in such a way that paints them in a bad light. Instead, when asked about specific activities that constitute cyberbullying, but not asked about cyberbullying in plain terms, the number of students who admitted to engaging in cyberbullying behavior at least once

was substantially higher. This may be the cause for the personal academic shortcoming variable

having a significant relationship with the cyberbullying frequency scale, but not with a

dichotomous cyberbullying question.

In the multivariate analysis phase, being threatened with losing or actually losing a

scholarship retained its significant positive relationship with having cyberbullied in the past

when only the other strain variables were included in the regression model. However, when all

study variables were included in the analysis, being threatened with losing or actually losing a

scholarship lost its significant relationship with having cyberbullied in the past. It is believed

that given the significant negative relationship between GPA and this type of strain, that GPA

became more capable of predicting the dependent variable outcome in the full model. This

follows reason, because students who were receiving worse grades would almost definitely be in

greater risk of having scholarships revoked, and would therefore interfere with the relationship

between losing a scholarship and having cyberbullied. It is worth noting that GPA is a

significant predictor of having cyberbullied when only the other control variables are included in

the model, and the relationship actually grows in magnitude when all variables are included.

This suggests that it is quite possibly the variable responsible with sterilizing the relationship

between being threatened with losing or actually losing a scholarship and having cyberbullied.

Better put, GPA may steal the significance from the aforementioned strain variables by more

strongly predicting if the respondents had cyberbullied.

When considering cyberbullying frequency as the dependent variable, both academic

shortcoming and being threatened with losing or actually losing a scholarship are significantly

and positively related with the dependent variable when controlling for the other strain variables.

These relationships are both weakened and lessened in significance when all study variables are

controlled for, but they remain significant predictors of cyberbully frequency nonetheless. Academic shortcomings and being threatened with losing or actually losing a scholarship are significantly correlated at the bivariate level, which makes sense, since - unless a scholarship was lost due to behavioral misconduct or some other non-academic reason - academic shortcomings are likely to lead to lower grades, which would cause the loss of a scholarship. It is no wonder, then, that these two strains work in conjunction to help predict cyberbullying frequency. As students become frustrated with school, it is not out of line to assume that cyberbullying tendencies may arise more frequently.

The second aim of the current study was to observe the moderating effects that internet anonymity would have on the relationship between certain strain elements and cyberbullying perpetration and frequency. The only relationship in this regard that was significantly moderated by the anonymity variable was that between perceived injustice and having cyberbullied in the past. It was observed that when anonymity is high, students who experience higher levels or perceived injustice are less likely to have cyberbullied in the past. It would seem that with increased anonymity, that is to say, with less personal information disclosed online, strain is less likely to cause students to cyberbully. This is interesting, because it contradicts previous literature that finds that anonymity increases the likelihood of cyberbullying (Barlett 2015; Moore et al. 2012; Wright 2013).

The third goal of the current study was to test the relationship between strain and cyberbullying victimization. Given the tightly knit nature of the relationship between cyberbullying perpetration and victimization, it is logically sound to believe that strain will be an effective predictor of victimization. This is especially true in the current study, where perpetration and victimization are so closely related in the data. After all, outside of the mutually

exclusive variables that indicated race categories, the relationship between both cyberbullying perpetration and victimization and the relationship between cyberbullying frequency and victimization frequency were the two strongest of the entire bivariate analysis phase.

This trend could be due to a plethora of reasons, for which many criminological theories could offer some insight. It might indicate that cyberbullying and cybervictimization occur as events stemming from the same incident, if not simultaneously. For instance, if a student received a hurtful message via text, and reciprocates the action by sending a hurtful text of their own to the original offender, both students may feel as if they were both cyberbullies and victims in the wake of the given scenario. Another possible explanation is that students mimic behavior that they see or for which they are actually the intended target. In other words, if a student sees a friend on Facebook posting embarrassing pictures of another student, or if those pictures are actually of the first student, that student may feel that cyberbullying is a reasonable and maybe even an expected response to certain social situations. Another theoretical approach might suggest that students who spend more time online are bound to be more likely to find themselves in a situation where both engaging in cyberbullying behavior and being a victim of cyberbullying are likely outcomes. While these posits offer a certain degree of insight into the relationship, the scope of the current study would suggest that this relationship is due to strain. As found by Ak, Ozdemir, and Kuzucu (2015), being the victim of cyberbullying causes an increase in the felt strain of the victim, and that strain will in turn lead to delinquent coping, which manifests in the form of cyberbullying perpetration.

Despite this relationship, it is important to observe how strain elements work as unique predictors of victimization, as opposed to working within the relationship between victimization and perpetration. During the bivariate analysis phase, being placed on academic probation, being

threatened with losing or actually losing a scholarship, and being threatened with losing or actually losing academic eligibility were all significantly positively correlated with having been the victim of cyberbullying in the past. Additionally, personal academic shortcoming and being threatened with losing or actually losing a scholarship were positive and significant correlates of cybervictimization frequency. These correlations may point to a more direct and unique link between the indicated strain elements and cybervictimization. It is possible that the students who were victims of cyberbullying were made targets due to the high levels of the identified strains. For example, if a student loses a scholarship, academic eligibility, or is placed on academic probation, and these developments are made aware on social media outlets or passed along via word of mouth, it is possible that cybervictimization occurrences could be targeting what are seen as failures by the student's peers. The student might have friends or acquaintances make fun of them for these exhibitions of academic hardship. The fact that cybervictimization or frequency are not significantly correlated with perceived injustice or experiencing insipid classes strengthens this notion, because these strains would not necessarily be viewed as easy material for which to bully the student experiencing them. It is only the more public, archetypal indications of failure that are significantly correlated with cybervictimization and frequency in the bivariate analysis.

During the multivariate analysis phase, when controlling for all strain variables, being threatened with losing or actually losing a scholarship was a significant predictor of having been cyberbullied in the past. In the full model, with all study variables controlled for, the story is the same, with the addition of being placed on academic probation as a significant predictor of having been cyberbullied in the past. It is believed that the strong negative relationship between GPA and being placed on academic probation explains the strengthening of the latter's status as a

significant indicator of cybervictimization. The reason for the relationship between these two

specific types of strain and cybervictimization is likely the previously stated argument. Both

being placed on academic probation and being threatened with losing or actually losing a

scholarship are commonly associated with an image of failure, and are somewhat difficult to

keep from becoming common knowledge. These two characteristics of these types of strain

make students who experience them "easy targets" for cyberbullies who would wish to embarrass

or hurt them.

The results are identical when the dependent variable is cybervictimization frequency.

When controlling for only other strain factors, being threatened with losing or actually losing a

scholarship is the only significant predictor of victimization frequency. However, once all study

variables are controlled for, both being placed on academic probation and being threatened with

losing or actually losing a scholarship are significant predictors. These results are expected,

given how closely they mirror the results when having been cyberbullied in the past is the

dependent variable. Possible causes for these relationships are similar as well, as it stands to

reason that students who are at greater risk for being cybervictimized are also at greater risk of

being cybervictimized more often.

The fourth and final objective of the current study is to address the interaction effect that

internet anonymity might have on the relationship between strain and cybervictimization and

frequency. When the dependent variable is having been cyberbullied in the past, and frequency

of victimization is not considered, there was no significant moderating effect of anonymity on

the relationship between the strain elements and the dependent variable. This means that

regardless of whether or not students have a higher or lower level of internet anonymity, their

reactions to the described strains remain the same. This result comes at a bit of a surprise, since

hypothetically, students who post more revealing personal information online should be placing themselves at greater risk of becoming a target for cyberbullying. One would think that with the presence of greater amounts of targeting material for would-be cyberbullies, the greater the risk of being victimized. In the case of anonymity as a moderating variable, this is not true. The implication of this is that cyberbullies are not necessarily prompted by convenience of subject matter with which to adopt a bullying angle. Instead, it would seem that cyberbullies are motivated to engage in cyberbullying as a means to accomplish something. In other words, cyberbullying is not something that a student stumbles into perpetrating, but rather a pointed instrument for which the existence of higher levels of disclosed personal information by the victim do not change the decision to bully. This suggests that cyberbullies act strategically, perhaps even premeditating their behavior when they wish to hurt someone.

The moderating effect of anonymity is slightly less absent when considering the dependent variable of cybervictimization frequency. A higher level of internet anonymity was shown to moderate the relationship between experiencing insipid classes and victimization frequency. It was found that when anonymity is high, students who experience insipid classes are more likely to be cybervictimized more frequently than students who do not experience this type of strain. This relationship is only found to be significant at the lowest possible threshold, suggesting that the results are very similar to those found when the dependent variable is having been cyberbullied in the past. Cybervictimization simply does not rely on whether or not the victim posts large amounts of revealing information online. As previously stated, it is believed that this tells more about the way cyberbullies operate and less about the way victims are made vulnerable. In other words, bullies will bully certain victims, despite the given amount of personal information the victim has posted online.

It is worth mentioning some indicators outside of the independent strain variables that were found to be significantly associated with cyberbullying and victimization. In the cases where the dependent variable was having cyberbullied in the past and having been cyberbullied in the past, GPA was significantly negatively related with each. As a student's GPA increased, it was less likely that he or she would have been a perpetrator or a victim of cyberbullying in the past. Given that GPA was very strongly correlated with the strain elements in the current study, it makes sense that it would be a significant predictor. When GPAs dip below the desired level, or that level which is required to retain the positive stimuli in students' lives, the level of strain experienced by those students grows in magnitude, compounds with other strains, and causes delinquent coping in the form of cyberbullying.

The race categories played a role in indicating both past victimization and victimization frequency. For both of these dependent variables, being African American was negatively associated when being White served as the reference category. Simply put, African American students were less likely than White students to be victimized and be victimized more frequently. For only having been cyberbullied in the past, being Hispanic was negatively related when being White served as the reference category. In other words, Hispanic students were less likely to be cyberbullied than White students were. This is peculiar because very few strain elements were significantly correlated with any of the race categories at the bivariate level. This implies that some other facet of the analysis is responsible for explaining the higher levels of victimization and victimization frequency between racial categories. Even more odd is that the race categories were hardly correlated with either of these dependent variables in the bivariate analysis, with the exception of two very slightly significant relationships. It is believed that the nature of the

relationship between race and victimization and victimization categories cannot be explained in the context of the current study.

Anonymity, while playing only a very small role in the interaction term portion of the analysis, was a significant predictor of both perpetration frequency and victimization frequency. A higher level of internet anonymity was strongly and negatively associated with both of these dependent variables. Anonymity shows only very weak correlations with the strain variables, and largely non-significant relationships with the other study variables. Like the race category variables, it would seem that explaining the nature of the negative relationship between high internet anonymity and frequency of perpetration and victimization is a puzzle. One would expect that students who are both perpetrators and victims of cyberbullying often would prefer to minimize their online footprint, preventing backlash and keeping personal information out of the hands of would-be bullies. Much of the literature on the subject confirms this viewpoint (Barlett 2015; Moore et al. 2012; Wright 2013), which makes drawing possible conclusions about the relationships difficult. One plausible explanation is that students who have a higher level of internet anonymity do not post much personal information online simply because they do not make social media or communication with others a major purpose for utilizing the internet. Because they do not frequent social media sites, which prompt users to post revealing information, they have a high level of internet anonymity. The other consequence to this is that they do not find themselves in a situation where they are likely to be a cyberbully or victim of cyberbullying. This finding questions the previous interpretation of anonymity's ability to hold water. Higher anonymity yields lower frequency of cyberbullying and victimization when treated as an indicator, but higher anonymity shows very little effect on the relationship between strain and cyberbullying or cybervictimization.

Limitations

One notable limitation is the relatively low reliability scores of two of the scale variables used in the analysis. Scales with greater reliability would indicate greater validity, and would possibly have yielded stronger results, especially in the interaction term analysis phase. In future studies, greater effort should be taken to ensure that the strain and cyberbullying scale variables are representative of what they are intended to measure. Ideally, the survey instrument would be used in a pilot study, so that questionnaire items could be tweaked, changed, or added/removed completely where necessary. In doing so, the individual elements that make up the scale variables would be more consistent with each other, allowing the scale variable to be a more accurate indicator of the desired measure.

Another notable limitation of the current study is the inability of the data to help explain certain relationships between variables, such as those which portray race, gender, or anonymity as reliable predictors of perpetration and victimization. For this reason, it is difficult to assign causation in instances where variables show significant relationships with the dependent variables, but are not highly correlated with many, if any, other variables. These singular relationships with the dependent variable, such as the relationship between anonymity and the two scale dependent variables, can only be contextualized if they align with past research. However, in instances where the relationships seem contrary to previous findings (as seen in the current study), there are not many conclusions that can be drawn about them without extraneous indictors within the data. The only possible conclusion is that future research of cyberbullying in college students would need to address questions that specifically aim to understand the relationship between anonymity and cyberbullying perpetration and victimization.

One final limitation is the limited way with which anonymity was actually measured with the survey questionnaire. While it is helpful to a certain extent to know how much of the students' personal information can be found online, it would be even more helpful to know if students cyberbullied or were cybervictimized on the social media outlets where sensitive information can be found. If it was found that students post personal information on one site, but are bullied on a different site, research could then work to better explain the relationship that anonymity has with cyberbullying and victimization. As it stands, the current study can only confidently conclude that students who post less information online are less likely to cyberbully or be cybervictimized more often, but the relevance of this relationship to the possible moderating effects of anonymity is rather narrow.

Conclusion

The results of the current study cannot be boiled down to general, sweeping conclusions. They are more nuanced. Strain was, in some instances, found to be a significant predictor of elements of both cyberbullying and cybervictimization, but the majority of the types of strain measured in the current study were not shown to be significantly associated with both, or even either. Being threatened with losing or actually losing a scholarship was the only strain element that was a reliable predictor of three of the four dependent variables. Being placed on academic probation was a reliable predictor of two dependent variables. The remainder of the significant relationships between strain and cyberbullying and victimization were sporadic and without a pattern to help guide conclusions.

The role of anonymity in the current study is even more elusive. It has no significant relationship with simply having cyberbullied or having been cyberbullied in the past, but when

treated as a possible predictor of perpetration or victimization frequency, it is identified as a reliable indicator. Just viewing anonymity's role in the multivariate regression analysis would have one believe that students who disclose less information online are less likely to frequently be cyberbullies or victims of cyberbullying. However, when utilized in the interaction term analysis, anonymity has almost no appreciable effect on the relationships between the strain elements and these dependent variables. This leads to the conclusion that students with high internet and low internet anonymity alike react similarly when confronted with the included strain elements. Anonymity is, in fact, a reliable predictor of perpetration and victimization frequency, but is generally not a significant moderator of the relationship between strain and these dependent variables.

In light of the findings regarding strain's impact on cyberbullying and cybervictimization, universities should seek to offer counseling or other therapy-based activities in which students can enroll that are specifically focused on students who have lost a scholarship or been placed on academic probation. Universities may find it more natural to restrict access to certain stress outlets (such as intra-mural sports or fraternity and sorority activities) when students are found to be struggling academically, as a means of punishment or corrective action. It would seem that students who are experiencing these strain elements would be benefitted by being allowed to partake in such activities, provided students are reminded not to allow time allotted for social activities to detract from schoolwork and studying time. According to the findings in the current study, finding ways to alleviate the felt strain of students that have lost scholarships or been placed on academic probation would cause cyberbullying and cybervictimization rates to decrease. Further action should be taken by universities to educate students about the trend that posting more information online could put them at a greater risk for cybervictimization.

However, given that internet anonymity has no substantial effect on the relationship between strain and cyberbullying and cybervictimization, universities should focus on alleviating students' felt strain as a priority over this venture.

Future research on the matter should aim to further explore the relationship between strain and various elements of cyberbullying. The current study only sought to measure how university-related strain would act as a predictor for cyberbullying and cybervictimization. This leaves many other facets of strain that should be explored to paint a more complete picture of how strains that pertain to other portions of university students' lives can be linked to perpetration and victimization. Additionally, future research should try measuring anonymity in ways other than what is stated in the current study, as it is possible that there are better ways to assess levels of online anonymity of college students. Doing so might reveal a stronger moderating effect on the relationship between strain and cyberbullying and cybervictimization. While the current study does offer some insight into the relationships between the variables at hand, there is still an immense amount to be learned about this ever-evolving form of bullying.

Appendix

CONSENT COVER LETTER

Title of Research Study: Cyberbullying and Misuse of Information Technology in Cyberspace among College Students

Researcher's Contact Information: Gang Lee, Ph.D. **470-578-2853 glee18@kennesaw.edu;** Matheson Sanchez **msanch24@students.kennesaw.edu**

Introduction

You are being invited to take part in a research study conducted by **Gang Lee** of Kennesaw State University. Before you decide to participate in this study, you should read this form and ask questions about anything that you do not understand.

Description of Project

The purpose of the study is t**o explore and understand specific phenomena-cyberbullying and misuse existing in social networking services (SNS) among KSU students.**

Explanation of Procedures

You will asked to answer approximately 60 questions on this survey

Time Required

It will take about 20-25 minutes to complete the survey

Risks or Discomforts

You may experience frustration that is often experienced when completing surveys. Some questions may be of a sensitive nature, and you may become upset as a result. However, such risks are not viewed as being in excess of minimal risk. If you become upset by questions, you may stop at any time or choose not to answer a question. If you would like to talk to someone about your feelings about this study, you are encouraged to contact the KSU Counseling and Psychological Services (http://sss.kennesaw.edu/cps/) at 470-578-6600.

Your participation in this survey is anonymous. This survey will not ask for or collect any personal identifiers such as name, address or computer IP address. Only the researchers will have access to the data and only aggregated data will be used and be reported.

Benefits

The benefits for participants in the survey, although not be guaranteed, may include acquiring information on the cyberbullying awareness and prevention programs, and the campus security issues. The benefits to humankind in general resulting from this research would be increasing knowledge and understanding college students' cyberbullying behaviors and the need for online and campus security.

Compensation

Not applicable

Confidentiality

The results of this participation will be anonymous. Only the researchers will have access to the data and only aggregated data will be used and be reported. Upon the completion of the survey, the data will be stored in the PI's office computer and Co-Is will use the data for their project only.

Inclusion Criteria for Participation

You must be 18 years of age or older to participate in this study.

Statement of Understanding

The purpose of this research has been explained and my participation is voluntary. I have the right to stop participation at any time without penalty. I understand that the research has no known risks, and I will not be identified. By completing this survey, I am agreeing to participate in this research project.
_____

THIS PAGE MAY BE REMOVED AND KEPT BY EACH PARTICIPANT

Research at Kennesaw State University that involves human participants is carried out under the oversight of an Institutional Review Board. Questions or problems regarding these activities should be addressed to the Institutional Review Board, Kennesaw State University, 585 Cobb Avenue, KH3403, Kennesaw, GA 30144-5591, (470) 578-2268.

Abridged Cyberbullying and Misuse of Information Technology Questionnaire (2015)

For the purpose of this survey we will use the definition of cyberbullying as defined by The National Crime Prevention Council: "When the Internet, cell phones or other devices are used to send or post text or images intended to hurt or embarrass another person."

Given this definition:

4.	Since you have been to college, have you ever:	
	b. been cyberbullied?	Yes No
	c. cyberbullied someone else?	Yes No

7. Do you post personal information on social media website? Please check all that apply.
Age _____
Gender _____
Pictures _____
Telephone number _____
Goals/Aspirations _____
Sexual information _____
Emotional/mental distresses _____
Family conflicts _____

10.1 How often have you done the instances described to others?

	Please mark the appropriate column for each row.	Never	Once	Two or Three Times	More than Three Times
a.	Threatening in online forums (like chat rooms, Facebook or twitter)	1	2	3	4
b.	Insulting in online forums (like chat rooms, Facebook or twitter)	1	2	3	4
c.	Sharing private internet conversations without the other's knowledge (such as chatting with a friend on Skype with other(s) in the room)	1	2	3	4
d.	Making fun of comments in online forums (such as Facebook)	1	2	3	4
e.	Sending threatening or hurtful comments through email or text messages	1	2	3	4
f.	Published online an embarrassing photo without permission	1	2	3	4

10.2 How often have the instances described happened to you?

	Please mark the appropriate column for each row.	Never	Once	Two or Three Times	More than Three Times
a.	Threatening in online forums (like chat rooms, Facebook or twitter)	1	2	3	4
b.	Insulting in online forums (like chat rooms, Facebook or twitter)	1	2	3	4
c.	Sharing private internet conversations without the other's knowledge (such as chatting with a friend on Skype with other(s) in the room)	1	2	3	4
d.	Making fun of comments in online forums (such as Facebook)	1	2	3	4
e.	Sending threatening or hurtful comments through email or text messages	1	2	3	4
f.	Published online an embarrassing photo without permission	1	2	3	4

12.1 To what degree do you agree or disagree with the following statements?

	Please mark the appropriate column for each row.	Strongly Disagree	Disagree	Agree	Strongly Agree
d.	I am a poor test taker.	1	2	3	4
e.	I tend to procrastinate when it comes to schoolwork.	1	2	3	4
f.	For some reason, I have a problem with class attendance.	1	2	3	4
g.	I have a short attention span, which interferes with my academic life.	1	2	3	4
h.	Students who cheat have an unfair advantage for getting a good job following graduation.	1	2	3	4
i.	Students who cheat have an unfair advantage for getting into a graduate or professional school following graduation (i.e. medical school, law school, master's/PhD programs, etc.).	1	2	3	4

12.2 Please answer the following by circling the best answer.

c.	Have you ever been threatened with losing or have actually lost a scholarship because of poor grades?	Yes	No
d.	Have you ever been threatened with or have actually been declared academically ineligible to participate in an intercollegiate sports team or other extracurricular activity because of poor grades?	Yes	No
f.	Have you ever been placed on academic probation?	Yes	No

12.3 To what degree do you agree or disagree with the following statements?

	Please mark the appropriate column for each row.	Strongly Disagree	Disagree	Agree	Strongly Agree
c.	Most classes I have taken have been interesting and meaningful to me.	1	2	3	4

15. What is your age (in years)? _____

16. What is your gender? Please circle one.
Male   Female

17. What is your race or ethnicity? Please circle one.
White   African-American   Hispanic   Asian   Other _____

18. What is your classification? Please circle one.
Freshman   Sophomore   Junior   Senior   Graduate Student

19. What is Your GPA? _____

Thank you for completing this survey.

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