

# **The Truth About Predispositions: Exposing The Gap Between What We Say and How We Feel**

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*This study examines how predispositions can cause individuals to over or underreact to situations, thus affecting their report of stress and performance. To do this, we examined three personality characteristics: social desirability, fear of negative evaluation, and locus of control, to see how they correlate with perceived stress, objective strain, and performance. We found that the fear of negative evaluation is a root cause of strain, while social desirability causes one to report stress, but not feel it. We also found that having an internal locus of control positively affects performance and that perceived stress causes performance to decrease.*

## **INTRODUCTION**

Contemporary information technologies are pervasive in the workplace. They have streamlined business processes; increasing efficiency, and allowing for more advanced work productivity. It is no doubt that, because of technology, we can now do things that we never could before. While technology does help organizations prosper, it has also caused us to adopt always-on lifestyles, where individuals have the potential to work more strenuously with higher demand, have increased communication requirements, and have more severe workplace pressures. On the transparency side, information technologies also make work more visible to managers, who can now more closely monitor what others are doing. Because of these changes, workers are forced to rely on technology in order to meet demands quickly and timely.

As workers become familiar with new technologies, they are faced with having to either completely restructure or continually duplicate work routines that were once second nature. Workers adapting to these changes can result in “perceived work overload, demoralized and frustrated users, information fatigue, loss of motivation, and dissatisfaction at work” (Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008, p. 418). Reports of burnout have begun to flood the news, as more and more people are using social media, and other outlets to report more stress. One study of 1003 participants found that 28 percent of workers often felt burnout (Anonymous, 2017). Another article said that “95 percent of human resource leaders admit employee burnout is sabotaging workforce retention, yet there is no obvious solution on the horizon” (Gouthro, 2017). It is clear that burnout from stress is being reported and causing problems within the workforce.

Cooper et al. (2001) depicts the occurrence of stress as a blend of conditions and a person's reaction to it. Burnout is an outcome of stress that happens after repeated exposure to both short- and long-term stressors. Stressors are the precursors of stress, and account for anything from events, tasks, or conditions experienced by an individual in the work environment that create stress (Beehr, Jex, Stacy, & Murray, 2000; Collie, 2005; Dickerson & Kemeny, 2004; Kaufmann & Beehr, 1986). Increasing demand is a common workplace stressor that accounts for a large degree of stress in the workplace. Low perceptions of job control are also well known to be a stressor that impacts work stress (Karasek, 1979).

While high demand and less control are common workplace stressors, we argue that in this new era of technology, workers have found highly innovative ways in which to cope with the stress they experience. In essence, people try to find ways to alleviate or circumvent stressors completely. For example, one method of willing workers would be to develop "thick skins" with strong internal locus of controls to combat demand. Another method could be linked to social desirability, where workers attempt to sneak around the rules by over exaggerating their workload to listening parties. For instance, one article reported that workers could be hiding from their boss so that they could actually take on additional work (McCarthy, 2016). Another said that the millennial generation is the most likely group to exaggerate their workload and assume their peers are all doing the same (Swant, 2015). These individual differences could explain the variance in how people think about stress in combination with workload.

It is no surprise that individuals differ dramatically with their response to external stimuli. However, it is less clear how stress occurs in an information technology context, especially when considering these individual differences. We contend that through differing predispositions, it is important to understand how those changes affect evaluations of a workplace environment. Therefore, this study examines the affects personal characteristics have on the stress process in self-evaluating stress and performance. We argue that being stressed is not always the same as feeling stressed, and that an individual's physiology and actions do not necessarily correlate to his or her own repertoire of the environment. Therefore, regardless of the amount of actual stress incurred within the body, we argue that some individuals are born with a personality that makes them more predisposed to admit to stress, while other personalities are more likely to avoid admitting to stress. Thus, we propose the following research question:

*How do personality traits affect the stress process?*

More specifically, we seek to examine three specific personality characteristics that we feel have the most impact on the stress/strain relationship: social desirability, fear of negative evaluation, and locus of control. We also seek to evaluate how these factors affect how individuals perform. Therefore, we propose a more specific research question that forms the basis of our research model.

*How do Social Desirability, Fear of Negative Evaluation, and Locus of Control affect Perceptual Stress, Objective Strain, and Performance?*

The manuscript proceeds as follows. First, we develop a model of technology-induced stress. Then, we test our hypotheses through an experiment that manipulates a technology environment in order to evaluate both objective and perceptual stress and performance. Finally, we discuss our findings, methods, and implications for further study.

## **LITERATURE REVIEW**

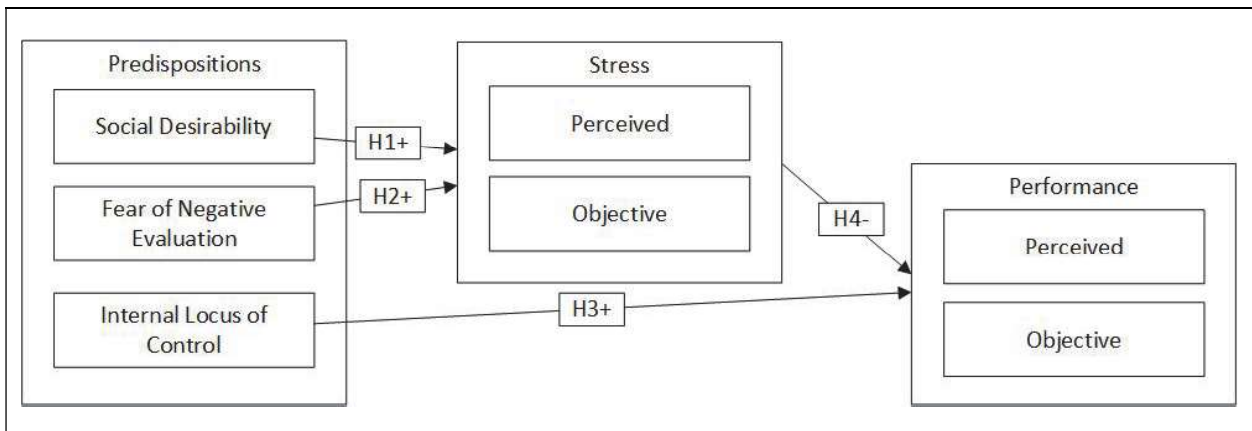
Rooted in Selye's (1956) seminal work on stress, we adopt a transactional perspective, that suggests that stress is not a factor of the individual nor the environment, but rather an embedded ongoing process that involves the individual transacting with his or her environment, making judgments, and coping with the issues that arise (Cooper et al., 2001). There are many models of stress that draw on the transactional perspective. In this study, we focus on the person-environment (PE) fit model, which suggests that stress results from high demands or insufficient supplies to meet the person's needs (Ayyagari, Grover, & Purvis, 2011; Cooper et al., 2001; Edwards, 1996). In this model, individual differences help shape the appraisal of stress. Therefore, based on the personal characteristics one has, stress would be different. Second, this model also elucidates that stress results as either a mismatch between the person and the environment, or when the values of a person have insufficient supplies to meet the person's needs

(Cooper, 1998; Edwards, 1996; French, Caplan, & Van Harrison, 1982). Therefore, this model accounts for personal characteristics, coping/control characteristics, and characteristics about environmental demands.

Alongside the PE fit model, we also examine a psychology theory to help us further understand how individual differences affect the stress process. The Latent State (LS) Theory illustrates that individuals respond differently to situations because of their traits and that individuals are not always responsible for what they do because of their impulses associated with those traits (Steyer, Schmitt, & Eid, 1999). This theory is the basis for which human personality and the resulting behaviors are predicted (Matthews, 1998). Others evaluating the LS theory argue that these behaviors cannot be predicted by traits but rather dependent on the situation in combination with the traits (Steyer et al., 1999). By adopting this extension, we can argue that the LS theory seeks to incorporate the individual, the situation, and the interaction between the two in order to determine perceptions and behaviors.

Combining the insight of the PE fit model with the LS theory; it suggests that traits matter when determining how to evaluate high demands, insufficient supplies, and a person’s needs. Our study classifies our three traits by the PE fit model and LS theory, positioning locus of control as the individual “control” characteristic and social desirability and fear of negative evaluation as individual “personal” characteristics that can affect how stress is processed, felt, and received. We will also control for characteristics about environmental demands and coping ability. Figure 1 depicts a model of stress and Table 1 defines its components.

**FIGURE 1**  
**REASEARCH MODEL AND HYPOTHESES**



**TABLE 1**  
**CONSTRUCT DEFINITIONS**

<b>Construct</b>	<b>Definition</b>
Social Desirability	A bias that describes the tendency to respond in a manner that will be viewed favorably by others. It can take the form of over-reporting "good behavior" or under-reporting "bad", or undesirable behavior (Crowne & Marlowe, 1960).
Fear of Negative Evaluation	Pertains to the sense of dread associated with being evaluated unfavorably while anticipating in a social situation (M. R. Leary, 1983).
Locus of Control	Measures the extent to which individuals believe they can control events affecting them (Rotter, 1966).
Stress	The overall transactional stress process (Hans Selye, 1956; H. Selye, 1983; H. Selye, 1993).
Perceived Stress	The psychological responses made by individuals based on an environment, such as fatigue (Moore, 2000).
Objective Strain	The physiological responses made by individuals, as measured by salivary alpha-amylase (Granger et al., 2007; Harmon, Towe-Goodman, Fortunato, & Granger, 2008).

### **Social Desirability**

A common trait, or predisposition, of study is social desirability, which is commonly referred to as a bias that describes the tendency to respond in a manner that will be viewed favorably by others. It can take the form of over-reporting "good behavior" or under-reporting "bad", or undesirable behavior (Crowne & Marlowe, 1960). Most argue that social desirability is a personality trait rather than a situational strategy (Zerbe & Paulhus, 1987). However, differences in social desirability can also be a result of the varying situations in which people are in (Steyer & Schmitt, 1990).

We believe that individuals may respond differently to situations because of their desire to be socially accepted, and that individuals who are high on social desirability may respond more favorably to a situation in which they believe it will benefit them. In this study, we examine social desirability as a tendency to lie whereas individuals may report more/less stress to the authority based on their level of social desirability. Much of what is statistically studied about individuals is reliant upon self-reports (Kreuter, Presser, & Tourangeau, 2008; Steenkamp, de Jong, & Baumgartner, 2010). For the past few decades, self-report modes of administration have ranged from: face-to-face interviews, telephone interviews, mail surveys, computer-assisted personal interviewing, and online surveys (Tourangeau & Yan, 2007). Among the many methods of collecting self-reports, the delivery method of self-reports has been shown to impact honesty in responding, e.g., respondents are more likely to respond more honestly if the questions are self-administered rather than face-to-face with an interviewer because interviews encourage higher social desirability (Hochstim, 1967; Tourangeau & Yan, 2007). Our reliance on self-reports as a valid source of data needs to be interpreted with caution and in socially desirable situations be supplemented by another method to confirm the honesty of the responses.

One example in business arises from a specific form of social desirability, the social desirability distortion. Social desirability distortion is similar to social desirability in that respondents have the tendency to over or under report; however, the distortion aspect emphasizes that "under some conditions and modes of administration" someone might be more or less inclined to respond more favorably (Richman, Kiesler, Weisb, & Drasgow, 1999, p. 755). A distortion effect associated with social desirability could explain one situation in which participants in a study differed greatly between those who were administered the test via computer versus those who received more conventional forms such as paper and pencil tests (Lankford, 1991). Due to the interaction between an individual and the type of administration, one's scores can be impacted (Lankford, 1991). Ways in which we can reduce the

susceptibility of social desirability is dependent on the way in which data is obtained and the situation the individual is in (Kreuter et al., 2008).

Many researchers find social desirability as a major confound, specifically dealing with varying personalities (Graziano & Tobin, 2002; Smith & Ellingson, 2002). Some studies have shown that gender, along with personality, plays a role in predisposing someone to respond more socially desirably (Dalton & Ortegren, 2011). Due to the fast-paced environment we live in today, we believe that individuals have a greater tendency to respond to their peers, bosses, and friends in a more “acceptable” way, thus hiding their true feelings. A lot of researchers are aware of the potential for social desirability; however, many choose to not view it as a problem or conclude that it is not a serious enough concern (Steenkamp et al., 2010). The higher an individual is on social desirability, the more likely they are to adjust their responses to try to fit in.

In the business environment, where everything happens quickly, it is easy to let things slide in order to appeal to customer’s needs and wants. On the organizational side, social desirability bias has been shown to allow companies to intentionally or unconsciously exaggerate moral behavior (Henri, 2017). On the hiring side, some researchers include social desirability as a part of impression management “lie scales” as a response bias and compare it to the idea of self-deception (Stodel, 2015; Uziel, 2014). Mistakes in hiring can result from individual tendencies to “present oneself in a better light rather than in a truthful manner” in order to come off as right for the job (Khanam & Moghal, 2012; Preiss, Mejzlikova, Ruda, Kramsky, & Pitakova, 2015, n.p.). As a result, these individuals may not have the characteristics needed for the job (Mark R. Leary & Kowalski, 1990) thus, leading to turnover (Barrick & Zimmerman, 2005).

We think that social desirability is also arising through workload, where people high on social desirability are more likely to report that they are working very hard, even if they are not, to keep up with appearances. One way researchers report this is through stress, where an individual says they are “stressed from all the workload” just to be viewed favorably by others. In psychology research, assessments of perceptual stress have been shown to be influenced by social desirability, whereas social desirability caused individuals to report higher stress (Sato & Kawahara, 2012). However, little research has looked into how social desirability has been affected by technology, and how it impacts performance overall.

Due to our reliance on technology to meet demands, we think it important to understand the impact that social desirability has on stress and the decisions we make. Technology (e.g. computers) is making people more susceptible to social desirability (Potosky & Bobko, 1997) and therefore more prone to reporting stress. As a result, we propose the following hypothesis:

*Hypothesis 1. Individuals high on social desirability will report perceptual stress.*

### **Fear of Negative Evaluation**

Fear of negative evaluation (FNE) pertains to “the sense of dread associated with being evaluated unfavorably while anticipating in a social situation” (M. R. Leary, 1983, n.p.; Weeks et al., 2005). We can better understand FNE through the processing efficiency theory (PET), which states that there is a difference between states and traits with regards to anxiety, and that worry can cause anxiety, and together they can both interrupt performance (Eysenck & Calvo, 1992). FNE is generally viewed as the precursor to other fears (Reiss & McNally, 1985), suggesting that individuals that fear being evaluated negatively, are afraid because of the possible outcomes that could result from their action or performance being viewed unfavorably.

FNE, social anxiety, and worry are similar in nature; however, we focus on FNE because it is a more specific personality characteristic that explains how individuals change their behaviors based on how they fear others will respond. (Stober & Muijs, 2001) reported that half the time individuals were worried, they were worried about themselves, while the other half were worried about others and what they thought. FNE focuses on what others think, and has clear implications for the stress process.

Studies show that fear of negative evaluation is closely related to a specific form of anxiety, social-evaluative anxiety (Watson & Friend, 1969) and that social anxiety is generally caused by one’s fear of negative evaluation (Clark & Wells, 1995; Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992). Social

anxiety occurs as a result of wanting to impress others but feeling as though they cannot (Schlenker & Leary, 1982). FNE focuses on the evaluative/response portion of this.

FNE overlaps with worry in that those who fear evaluation can cause themselves to be stressed. If an individual is highly concerned with external worries, they have a higher chance of being stressed and therefore performing poorly (Ticker, 2015). One rationale states that worry is sometimes referred to as one of the factors of anxiety that results from being evaluated in a given situation (Sarason, 1984). “Consciously perceived feelings of apprehension and worry” are important in determining the differences and changes in trait anxiety (Ng & Lee, 2010, p. 1230; Spielberger, Auerbach, Wadsworth, Dunn, & Taulbee, 1973). Those who worry spend endless amounts of time “worrying about their performance and thus have less capacity to devote to the task” at hand (Humphreys & Revelle, 1984, p. 175).

It is clear that some individuals fear what others think; however, it is less clear how fearing what others think links to the stress process. In business, due to how much work takes place via the Internet, it is important to consider how fearing what others think matters and how it impacts an individual. Little research has evaluated the impact that FNE has on the stress process, with even less emphasis in technology-oriented environment. Therefore, we propose the following hypothesis:

*Hypothesis 2. Individuals high on fear of negative evaluation will feel stress.*

### **Internal Locus of Control**

Many researchers have found that control characteristics, specifically dealing with a lack of control, can lead to stress (Daniels, 1994; Dwyer & Ganster, 1991; Fox, Dwyer, & Ganster, 1993; Kushnir & Melamed, 1991; Landsbergis, 1988; Perrewe, 1987; Perrewe & Ganster, 1989; Schaubroeck & Merritt, 1997; Wall, Jackson, Mullarkey, & Parker, 1996). On the contrary, individuals with an internal locus of control tend to exhibit greater resilience (Efta-Breitbach & Freeman, 2004) and self-control (Ahlin & Lobo Antunes, 2015) thus allowing these individuals to better perform because they have personality characteristics that allow them to respond to stressful situations in a more efficient manner. Control has been defined in terms of personal control and locus of control, where personal control refers to an individual's belief in his or her lack of ability to change the environment (Perrewe, 1987) and locus of control refers to people's beliefs about the extent of control they have over the events that influence their lives (Rotter, 1966).

Individuals who have a strong internal locus of control believe they are in charge of their own decisions and behavior. Therefore, individuals see themselves as the prime determinant of what happens in the environment (Rotter, 1966). On the other hand, individuals with a strong external locus of control believe that their life is generally influenced by people outside of their control (Rahim & Psenicka, 1996). Individuals with high external locus of controls believe in fate, luck, and powerful others as being in control of their outcome (Mirels, 1970). As a result of having less control, individuals with an external locus of control orientation are less capable of coping with stressful situations (Asberg & Renk, 2014) and therefore may perform lower. Locus of control is a cognitive phenomenon, where regardless of the level of objective personal control, predisposed perceptions, and beliefs will determine the level of felt control. Rotter (1966) suggests that locus of control is not an innate personality trait, but something that changes overtime based on our experiences. Thus, the development of locus of control is dependent upon figuring out what we have control over and what we do not, in relation to the choices we have and the situation we are in.

In a meta-analysis on autonomy in the workplace, high levels of control have been associated with high levels of job satisfaction, commitment, involvement, performance, and motivation and low levels of emotional distress, role stress, absenteeism, turnover, and physical symptoms (Spector, 1986). Having an internal locus of control has also been shown to positively influence school performance and success (Au, 2014; Bursik & Martin, 2006). Thus, an external locus of control can cause people to perform lower than if they had an internal locus of control. Therefore, we propose the following hypothesis:

*Hypothesis 3. Individuals with an internal locus of control will perform better than those with an external locus of control.*

## **Stress, Strain, and Performance**

As mentioned in the introduction, information technologies infusion in the workplace can lead to multiple outcomes ranging from positive outcomes (i.e., quicker task performance) to negative outcomes (i.e., higher levels of demand and stress). The PE fit model and the LS theory can shed light into how we perform after feeling stressed. These theories suggest that there needs to be a balance between demand and their abilities (and predispositions) in order to feel useful and therefore less stressed. When this balance has been reached, workers perform at a higher rate. Too little workload causes individuals to become inattentive, bored, and as a result have lower performance. Too much workload can lead to clouded judgment and poorer performance. To maintain balance, workers need to have a task with just enough pressure to boost the motivation they need to perform better.

While researchers agree a curvilinear relationship may be present between stress and performance, empirical evaluation on this relationship is limited. Most researchers studying stress evaluate it from a demands perspective in which demand is always present, thus eliminating the lower end of the curve in which individuals could become bored (Galluch, Grover, & Thatcher, 2015). We also focus our research on the upper end of the curve, removing the potential for individuals to get bored. This allows us to focus on the stress caused from an imbalance between demands and abilities.

Therefore, we focus our research on those with at least a constant demand, and therefore some stress. We hypothesize that individuals who experience some stress will perform better and be more satisfied with their performance, while those who experience high amounts of stress will perform worse. Additionally, increased actual performance will correlate with how they think they did (i.e., their perceptions of performance). Hence, we propose the following hypothesis:

*Hypothesis 4. High stress negatively affects performance (objective and perceived).*

## **METHODS**

### **Pilot**

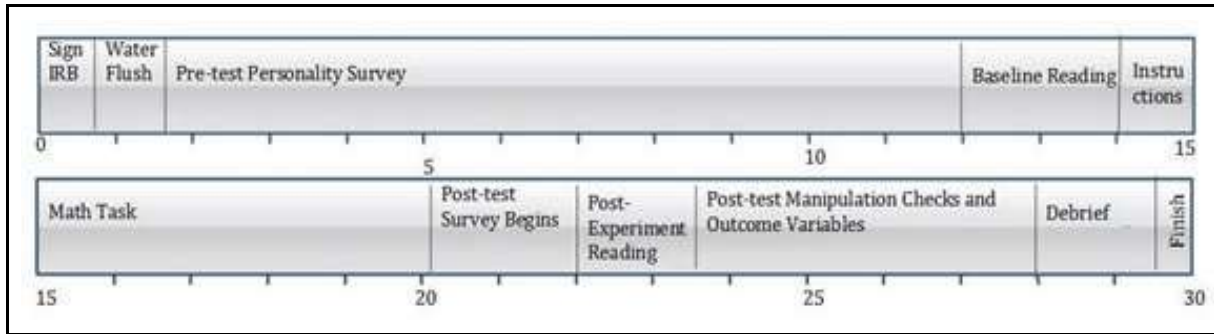
We administered a pilot, which served as a preliminary stage of the experiment in which we began to understand the usefulness of the manipulations. This stage used full protocol and gathered objective samples from subjects. We received pilot data from 21 students at a small liberal arts institution. With this amount of data, we were able to check for the reliability and validity of our items, and run simple correlation analysis. We were also able to quadruplicate the protocol of processing samples in house ensuring best practices<sup>1</sup>. Finally, we also evaluated our manipulations to see if there were any issues.

### **Experimental Design**

After we completed analysis of the pilot, we administered the next round of experiments to test our hypotheses. It took 30 minutes to complete an experiment of technology-induced stress and to gather survey items and physiological measures from participants. Participants were required to meet two qualifications prior to signing up: experience with using technology regularly at home or at work, as well as no cardiovascular problems. See Figure 2 for details on our experiment. The readings labeled below (both baseline and post-experiment) refer to the collection of salivary alpha-amylase.

Students began by being informed of their consent and accepting the IRB via Qualtrics.com. Students gargled water for 30 seconds to prevent contaminants from entering the samples, termed a water flush. The baseline measure of salivary alpha-amylase was taken five minutes after the water flush. After baseline measures were taken, the participant was given the instruction sheet, which also outlined the incentives.

**FIGURE 2  
EXPERIMENT PROTOCOL**



Survey questions were answered while the participants were waiting on the math portion to start. The survey collected personality measures of social desirability, fear of negative evaluation, and locus of control. Upon starting the survey, the participants received a unique ID number from the principal investigator, termed simulation ID. This was used in paring the survey results to the program and saliva results in order to respect the participant’s confidentiality.

The *IS Meltdown Task* was designed to be stressful, but not more so than an individual would receive in any given day. The researchers designed a simulation where the participant answers as many math questions as possible, while dealing with preprogrammed malfunctions and loading screens. The more questions the participant answered correctly, the more incentives he or she had the chance to receive. The math portion only contained basic addition questions (a random 2-digit number with a second random 2-digit number i.e., 18 + 49).<sup>2</sup>

After the IT simulation, participants answered post-test questions and had a second salivary reading, including perceived stress, satisfaction, performance, math aptitude, and salivary controls. Salivary controls included the intake of alcohol, caffeine, dairy, and the recency of a major meal.

Participants were administered salivettes that were purchased from Salimetrics, a salivary assay company. Salivettes are cotton-like swabs that participants keep in the side of their cheek for 2 minutes. These exact tools have been used before in IS research and are considered non-invasive by research (Galluch et al., 2015). They will spit the cotton swab back into the test tube for processing without touching the specimen.

**Processing Samples**

Once samples were collected, they were immediately frozen at -80 °Celsius. A simulation ID number for both pre- and post-test measurements was used to identify each sample. Duplicate measurements were analyzed for each sample in order to confirm our protocol, thus reducing error.

We followed a detailed protocol in order to analyze the alpha-amylase inside the participant’s saliva. The protocol is available to review at <https://www.salimetrics.com/assets/documents/1-1902.pdf>. This protocol included collecting duplicate readings for each sample at both the pre- and post-test collection time, therefore, giving us four readings per participant. These duplicate measures were each measured in the plate reader at two points in time, 1 minute and 3 minutes. We manually calculated the difference between those two numbers after the machine confirmed the raw measurements. The duplicate scores confirmed that our protocol was correct by showing a similar reading between the measures. After analyzing the samples, we averaged the two scores and multiplied that score by 328. Generally, salivary alpha-amylase scores should fall between 3.1µ/ml and 423µ/ml, with an average of 92.4µ/ml.

Once each score was calculated for both the pre- and the post-test, an overall change in objective strain measure was calculated by subtracting the pre-test measure from the post-test measure and dividing that score by the post-test measure. These numbers would generally go up from the pre-test to the post-test and give us a positive final score, if the participants were objectively strained by the experiment.



Negative scores mean that the participant actually lowered their level of strain during the experiment. After these calculations, the final scores should fall between -1 and 1.

### Sample Characteristics

After deleting four outliers that had not followed protocol instructions that were given to them in advance, we collected full data from 160 students<sup>3</sup>. Table 2 describes our sample characteristics. The average age of participants was 19.53 and 72% of our subjects were female. 77.80% of our participants were Caucasian/non-Hispanic. Our sample contained a higher proportion of Caucasian females, but these statistics were aligned with the general population of the college. The class statuses of undergraduate students were distributed evenly between freshman and seniors. Height and weight was also gathered to test for BMI interactions that might skew our results.

**TABLE 2**  
**SAMPLE CHARACTERISTICS**

Ethnicity	Caucasian/non-Hispanic 77.80%	African American 11.40%	Asian 3.20%	Hispanic 2.50%	Other 5.10%
Class Status	Freshman 36.50%	Sophomore 31.40%	Junior 22.50%	Senior 9.40%	
GPA	< 2.5 14.60%	Between 2.5 and 3 32.10%	Between 3 and 3.5 32.70%	> 3.5 20.50%	
Age	Mean	19.53	St. dev.	2.195	
Height	Mean 66.16 inches	St. dev. 6.345	Weight	Mean 153 lbs.	St. dev. 35.854

### Construct Measures

All constructs were measured using multi-item scales. Table 3 outlines the descriptive statistics for each construct. Social desirability was measured using 33 items adapted from Crowne and Marlowe (1960). Participants reported whether they thought the statement in question was true or false (i.e., *Before voting, I thoroughly investigate the qualifications of all the candidates.*)

Fear of Negative Evaluation was measured using 12 items from Leary (1983). Participants reported how characteristic each statement was to them on a 5 point Likert scale (i.e., *I worry about what other people will think of me even when I know it doesn't make any difference. Not at all characteristic of me (1) to Very characteristic of me(5).*)

Locus of control was measured using items from Rotter (1966). We used the shortened version consisting of 13 items where they choose the answer that best fits them (i.e., *Many of the unhappy things in people's lives are partly due to bad luck.* versus *People's misfortunes result from the mistakes they make.*)

Perceived stress was measured using Moore's (2000) scale of workplace stress. All five items were answered on a 5-point Likert scale. Items ranged from asking questions like how often they were "burnt out" to whether they were "drained mentally". We added two questions "nervous and stressed" and "that difficulties were piling up so high that you could not overcome them?"

Objective strain was gathered by collecting salivary alpha-amylase, a stress induced hormone (Galluch et al., 2015; Granger et al., 2007; Harmon et al., 2008; Tams, Hill, de Guinea, Thatcher, & Grover, 2014). As mentioned above, many physiological indicators were also collected, such as weight, height, and alcohol/caffeine/dairy/high food consumption.

Perceived performance was measured objectively by scoring how many math problems they got correct, and by asking how they thought they did on a 3 item, 5 point Likert scale (Poor(1) to Good(5)). Specifically, we asked them about their success, satisfaction, and how they thought they performed.

To calculate objective performance, we simply counted the number of math questions they answered correctly.

**TABLE 3**  
**DESCRIPTIVE STATISTICS**

	Mean	Standard Deviation	Cronbach's Alpha	Number of Items
Social Desirability	.5373	.13321	0.678	33
Fear of Negative Evaluation	3.2052	.80913	0.903	12
Locus of Control	.5943	.22197	0.609	10*
Perceived Stress	2.0099	.79979	0.885	7
Perceived Performance	3.5975	.93538	0.920	3
Objective Strain	Time 1: 54.6394	Time 1: 80.42804	N/A	N/A
	Time 2: 56.6094	Time 2: 74.98951	N/A	N/A
Actual Performance	34.36	11.275	N/A	N/A

\*Deleted 3 items, LOC2R, LOC6, and LOC10R, due to low reliability

## RESULTS

### Control Checks

We controlled for perceptual demand, which is defined as how much workload the users perceived. We used the Nasa Task Load index to measure perceptual demand, which was formed from the users report of mental, physical, temporal, effort, and frustration level (NASA, 1986). These five questions had a reliability score of .757.

We used four questions from the PSS-10 scale on stress to measure coping: “confident about your ability to handle the program”, “that things were going your way”, “able to control the irritations of the program”, and “that you were on top of things”. The reliability score of these items was .812.

Second, we asked the participants their views on math, “I like math”, “Math is my least favorite subject”, “Math comes easy to me,” And “Math always confuses me”. These four questions had a reliability score of .914.

We also asked participants how many questions they were given, and how many questions they answered. This number was correlated to our actual performance variable (Pearson correlation = .414; p-value <.01). Running a one sample t-test, we found that on average participants thought they answered less questions than they did ( $\mu_{Accuracy} = 34.36$ ;  $\mu_{QuestionsAnswered} = 25.90$ ; p-value <.01).

The authors also controlled for Age, GPA, and Class Status.

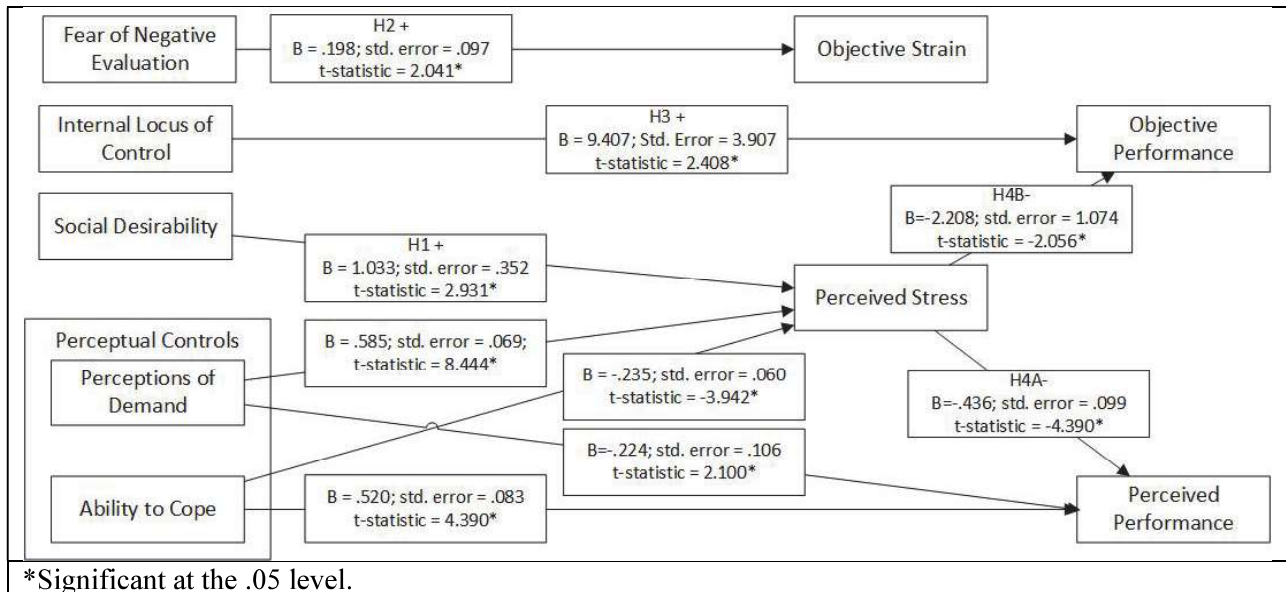
### Results of Model

To test the hypotheses that stress and performance are a function of different predispositions, four hierarchical multiple regression analyses were performed, one on each dependent variable. Results of the regression analyses provided confirmation for each of the research hypotheses (See Figure 3 for details).

Overall, we found many hypotheses to be significant. Model 1 tested whether the personality variables along with the perceptual controls affected perceptual stress. We found social desirability, the ability to cope, and perceptions of demand led to perceived stress. After looking at the adjusted  $R^2$ , we found that these three factors explained 45.7% of the variance in perceived stress. This confirmed

hypothesis 1, which examined whether Individuals high on social desirability will report stress ( $\beta = 1.033$ ; std. error = .352; t-statistic = 2.931; p-value < .05). Hypothesis 1 was not significant in regards to objective strain.

**FIGURE 3  
RESULTS MODEL**



Model 2 tested whether the personality variables along with the perceptual controls affected objective strain. After looking at the adjusted  $R^2$ , we found that fear of negative evaluation explained 4% of the variance in strain. This confirms hypothesis 2 that Individuals high on fear of negative evaluation will feel stress by exhibiting signs of strain ( $\beta = .198$ ; std. error = .097; t-statistic = 2.041), suggesting that those who fear negative evaluation of others were more likely to be physiologically strained. Hypothesis 2 was not significant in regards to perceptual stress.

Model 3 tested whether the personality variables, perceptual controls, and stress/strain factors caused objective performance. We found that locus of control and perceived stress explained 5.2% of the variance in objective performance. This confirmed hypothesis 3, that locus of control does affect how people do ( $\beta = 9.407$ ; std. error = 3.907; t-statistic = 2.408), suggesting that those who believed they were in control of their actions performed at a higher rate than those with an external locus of control. This also confirmed hypothesis 4A, which suggested that perceived stress negatively affects objective performance ( $H4_{perceived-} \beta = -.436$ ; std. error = .099; t-statistic = -4.390; p-value < .05).

Model 4 tested whether the personality variables, perceptual controls, and stress/strain factors caused perceived performance. We found that perceived stress, perceptions of demand, and the ability to cope explained 38% of the variance in strain. This confirms hypothesis 4B, which tested whether stress negatively affects performance. We found that perceived stress negatively affected both perceived and objective performance ( $H4_{objective} \beta = -2.208$ ; std. error = 1.074; t-statistic = -2.056; p-value < .05).

## DISCUSSION

Overall, we found strong support for the majority of the hypotheses. Our results suggest that predispositions differ in how they affect what people say and how they feel in regards to both stress and performance. We also confirmed that perceptions of stress do cause a decline in performance.

First, we found that those who are high on social desirability report higher levels of perceived stress. This confirms the hypothesis that social desirability causes some people to say that they are stressed even in situations when they are not, in an attempt to be viewed more favorably by others. We believe this has implications for managers in evaluating workers who report stress. In previous research, demand was the main predictor of stress, in which an empathetic boss may consider reallocating the workload of an employee that continually reports stress. However, because that workload still needs to get done, they pass it to someone who reports less stress. Over time, this becomes a habit, causing an uneven distribution of workload, where the one admitting stress receives less to do than their coworkers, who do not openly admit stress. In essence, social desirability does directly cause one to report more stress, which suggests that it could be an additional reason why people report stress when they in fact really are not. Managers can use this information to deter some of the effects predispositions have on reporting stress.

Second, we found that those who fear negative evaluation of others are more likely to have objective strain. Specifically, fearing negative evaluation caused one to be more physiologically stressed than if that person did not fear what others thought. This is important because it means that fearing what others think can cause people to be impacted physically. Millennials (our emerging workforce) have been described as overall lacking resilience, while also putting more emphasis into what others think. This result suggests that there is a need for managers, advisers, and parents to intervene and explain the outcomes of caring too much about what other think, and not about the job.

The lack of information transparency through IS could be a root cause of this finding. For example, from a social media perspective, people now share more than ever before, which has opened up more avenues to be evaluated. From a workplace perspective, working with the abundance of IT helps managers see more clearly how one is working. Having the fear of everyone seeing even the most basic details could collectively cause people to be more strained. Future researchers should explore this idea to see if information transparency helps cause one to fear negative evaluation.

Third, we found that those with a high internal locus of control performed better than those with an external locus of control. Specifically, those who believed they were in control of their actions performed at a higher rate than their external opposites. Managers should realize that people have both of these personalities, and that they should train employees to feel and be in control. While it is difficult to change a personality, it is possible to change the behaviors based on an organizations expectations. Setting clear benchmarks and guidelines helps increase an individual's sense of control. Bridging back to the person-environment fit model introduced in the literature review, control does help alleviate the discrepancy between demands and abilities to meet those demands, thus making an environment more attractive, and in turn making the employee more productive.

Finally, we found that perceptual stress does help predict lower performance, so a balance must be made between listening to stress reports and looking at performance metrics. We were able to predict a decline in performance, based on how much stress one perceives. Regardless of personality, stress can still inhibit performance. This suggests that what one thinks does affect how one performs, and that reporting stress is problematic.

This paper also provides a strong implication for research. This research responds to the call to study how objective measures of performance compare to the amount of stress an individual's body receives after working in an IS environment (Galluch et al., 2015). We argue that this paper makes a contribution to stress theory because it tests how predispositions affect the stress process and how that stress affects performance. Our model was contextualized within the information systems discipline and tested using episodic stressors that commonly occur, i.e., IS meltdowns. We believe that it is not obvious how people admit and challenge stress in a fast paced information systems context. Most stress research in IS research is either 1) role-based, 2) ignores the predisposition aspect, and 3) fails to capture performance. Therefore, while there are many theories of stress, we contextualize one that has a formalized (and complete) process, while also testing it from beginning to end.

## LIMITATIONS AND AVENUES FOR FUTURE RESEARCHERS

The primary limitation of this research stems from our sample frame, which relates to our participants being students who use technology regularly and have no obvious health problems. Through experimental design, we simulated an environment in which common IT situations occur (i.e., meltdowns), which allowed us to capture the episodic short-term nature of stress. However, collection from the working population in real life scenarios would have benefited our study. In addition, a measure of chronic stress compared to episodic stress could have shed light onto the growing phenomenon of how these problems (of stress) lead to turnover. Even though we found significance in our model, our results may have been more remarkable had we not limited our sample frame. Future researchers should consider replicating this study with different age groups to try to capture more variance in the results.

Second, we controlled for perceptions of demand and ability to cope in this study. Demand and coping are common factors to include in a study of workplace stress. However, because we wanted to focus on how personality characteristics affect a model of stress and performance, we limited their discussion to control variables. Future researchers could make the connection to how personality characteristics interplay with perceptions of demand and ability to cope to affect a model of stress.

Third, in order to test predispositions, we limited our study to three predispositions and only controlled for general beliefs about demand and coping in this model. We recognize that 1) there may be other predispositions that may affect the stress process and 2) that there may be some interactions occurring that were not theorized. Future researchers should explore the “Big 5” in testing how predispositions affect the stress process. For example, neuroticism could cause people to overreact to stress. Future researchers should also continue to explore the interactions between predispositions and the stress process. For instance, ability to cope may interact with locus of control. Generally, those who feel in control of their actions tend to be better at coping. In attempt to make our model more parsimonious, those interactions were removed from the analysis and discussion.

Finally, this study only theorized the negative form of stress and distress, which we termed both perceptual stress and objective strain. The response-based perspective of stress suggests the arousal of the autonomic nervous system results in two forms of stress: distress and eustress (Stein & Cutler, 2001). Distress arises from negative reactions, and is the key factor in influencing illness. Eustress is positive stress, including facets like exercise, increased excitement, and learning. In the future, researchers could try to understand eustress alongside distress. Then, researchers may be able to prescribe ways to channel distress into eustress.

## CONCLUSION

Although previous research in IS literature has examined perceptual stress at an episodic level, researchers have yet to examine how predispositions can affect the strain model, and how some predispositions cause people to over/under react. This manuscript offered new avenues to IS researchers by 1) developing a theory-based model of how predispositions influence the stress process while also 2) testing how these factors affect performance. Our study closely examines social desirability, fear of negative evaluation, and locus of control and discovers how those factors interplay with stress, strain, and performance.

Environments that depend on technology are stressful, and slowdowns and meltdowns happen all the time. Workers are increasingly spending long hours in such environments. Systemic ways for organizations to understand and manage stress is not only relevant, but also important for individual and organizational productivity. We hope that future researchers will continue to build on this work by exploring different predispositions, perceptions of demand, and coping behaviors that impact productivity.

## ENDNOTES

1. Salivary Alpha-Amylase protocol requires a duplicate reading of both pre- and posttest measures to ensure accuracy of results. Measures that are duplicated are less likely to have measurement error by the analyzer. Quadruple measurements provided extra insight into the protocol and confirmed that we were using best practices.
2. The authors had more complex math questions in the pilot, but decided that it was serving as a stressor instead of a context.
3. Set up instructions included not eating or bringing in food/drink to the lab, and not having certain amounts of alcohol/caffeine/dairy/meal within 24 hours.

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