

THE RELATIONSHIP BETWEEN SELF-TALK, LEARNED RESOURCEFULNESS,
AND ACADEMIC STRESS

by

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ABSTRACT

Participants were undergraduate students at Middle Tennessee State University (MTSU). Students completed three self-report measures and demographic questions with supplemental academic stress questions twice (non-exam and midterm exam periods) during the semester. The self-report measures included the Self-Talk Scale, Perceived Stress Scale-10, and the Self-Control Scale (to measure learned resourcefulness). Learned resourcefulness (LR) includes coping skills that give some people a better capacity for self-regulation. Results showed that students reported higher usage of self-talk during the midterm exam period than before that period and that higher LR students indicated less stress during the midterm exam period than lower LR students. However, there was no difference in reported perceived stress by students between the non-exam period and the midterm exam period and no significant relationship between any type of self-talk and perceived stress. Implications for future research include investigating the LR/self-talk relationship more directly and including a stress measure that examines specific situational stress.

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CHAPTER ONE

INTRODUCTION AND REVIEW OF THE LITERATURE

Monitoring and reflecting on thoughts, feelings, and behaviors is an everyday human experience. This process can be referred to as *self-regulation*. The control of behavior is also self-regulated. Behaviors are self-regulated in part through the goals that a person sets (Carver & Scheier, 1998). Self-regulation can also be thought of as a form of self-control that helps regulate behaviors. According to Förster and Jostmann (2012), self-regulatory activities include “how people deal with distractions, obstacles, temptations, or lack of motivation during goal pursuit” (p. 1). If people are aware of their own self-regulation process, they can implement techniques to improve their goals or better regulate their behaviors. Humans have more advanced control over self-regulation than other animals (Baumeister & Heatherton, 1996). Because humans can manage their own behaviors, it is important to study the self-regulation of behavior.

Carver and Scheier (1981) identified three factors that are essential to the self-regulation process. The first factor is standards, which refers to a person’s values or morals. For example, a college student may have a personal standard to only keep a C average in his classes. The student is setting a performance goal that is based on that personal standard. The second factor is monitoring. For example, a college student may only monitor how much studying he needs to do in order to maintain his standard of a C average. The third factor has to do with the feedback loop. This means that people will regulate themselves when responding to the feedback of their behaviors. For example, a college student receives a D on a test and realizes that he needs to study more for future

tests in order to maintain his personal standard of keeping a C average in the class. A common way of explaining how the feedback loop works is by comparing it to how a thermostat regulates temperature (Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2012).

People self-regulate for different reasons. Specifically, some college students may study for a test because they want to achieve the best grade in their class. This is an example of an approach-oriented goal. Some college students may study for a test to avoid failing their class. This is an example of an avoidant-oriented goal. Both groups of students set a goal, which is part of the self-regulatory process. However, one is trying to achieve a wanted goal and the other is trying to avoid an unwanted goal.

In the following sections, I first review the failures of self-regulation and what causes these failures. Then, self-talk as a tool of self-regulation, and the theory and the research that support it, will be reviewed. Next, I will examine individual differences in self-regulation. Finally, the specific case of academic stress will be examined with respect to self-regulation and self-talk.

Self-Regulatory Failure

Self-regulation failures happen when goals are not achieved. There are many different reasons why people fail at self-regulation (Baumeister & Heatherton, 1996). In the presentation of their control theory of behavior, Carver and Scheier (1981) discussed the ideas of underregulation and misregulation. *Underregulation* refers to a situation where one does not execute enough, or any, self-regulation. An example would be a college student choosing to socialize rather than to study prior to an important exam. *Misregulation* refers to cases when people regulate themselves in the wrong way. An

example would be a college student who applies poor study skills when preparing for an important exam, or who uses irrational thinking (e.g. overgeneralization) to prepare for or cope with the exam. There may, however, be other reasons for why a person might fail at self-regulation.

As Baumeister and Heatherton (1996) note, lack of attention can cause breakdowns in self-regulation. A person needs to identify the problem and then maintain control of attention on the problem. For example, a college student with test anxiety needs to recognize her anxiety instead of trying to ignore it. The student would then want to establish goals or seek help to reduce her test anxiety. This is an example of transcendence. According to Baumeister and Heatherton, *transcendence* is focusing one's attention on the bigger picture of the problem—how it affects a person and how to improve the problem—instead of focusing on the current situation. For example, the student may fail a test if she focuses on her anxiety during the test and has a panic attack, or if she does not use proper studying techniques.

Lack of attention in self-regulation can be manifested by focusing one's attention on other things. "A great deal of binge behavior, whether it be shopping, gambling, eating, drinking, or having sex, seems to result when people are seeking to keep their attention focused on immediate, concrete stimuli as a means of keeping it away from some threatening or upsetting thoughts" (Baumeister & Heatherton, 1996, p. 5). The test-anxious student may choose to attend to a social event instead of studying in order to avoid experiencing or increasing her anxiety. Baumeister and Heatherton also note that situational circumstances can play a role in the breakdown of self-regulation. The college

student may be more influenced to not study for a test if all of her friends are attending a party. Alternatively, she may actually be more motivated to study if all of her friends are also studying for tests.

In summary, self-regulation consists of the regulation of behaviors by a person, often set through goals. People set approach-oriented and avoidant-oriented goals for different reasons. The self-regulation process consists of standards, monitoring, and the feedback loop. This process helps people to establish and make progress toward their goals. Goals may not be achieved, reflecting self-regulation failure. Underregulation, misregulation, lack of attention, and situational factors may lead to a failure of self-regulation. Underlying these self-regulatory phenomena are cognitive tools that reflect or support these activities and behavioral changes. One of these tools is self-talk.

Self-Talk and Self-Regulation

The concept of self-talk is fairly straightforward. It refers to an individual talking to oneself. Self-talk includes both talking to oneself silently and covertly (called “inner speech”), as well as out loud and overtly, referred to as “private speech” (Brinthaupt, Hein, & Kramer, 2009). A variety of theorists have indicated how self-talk is a tool of the self-regulation process. For example, Carver and Scheier (1998) noted how self-talk is used as part of the monitoring aspect during the self-regulation process. Mischel, Cantor, and Feldman (1996) discussed how self-talk is an important part of tracking one’s goal progress. Bandura’s (1986) social learning theory includes self-reinforcement and self-criticism as self-reactions in the regulation of one’s behavior. Beck (1976) refers to

automatic thoughts as leading to negative emotional experiences. All of these theorists include some type of self-talk as a reflection of self-regulation.

Research has found that adults use private speech when working on difficult tasks. Using the Self-Verbalization Questionnaire (SVQ), Duncan and Cheyne (1999) found that adults, like children, use private speech when analyzing, planning, organizing, and evaluating tasks. In a college setting, tests, especially midterms and finals, are often considered a difficult task. Test taking can require analyzing, planning, organizing, and evaluation. From a self-regulation perspective, it might be expected that students who are stressed about test taking would display private speech, as one of the forms of self-talk, more often during midterms than during times when they have fewer exams.

Research presents self-talk as a way to manage or handle stress. In one representative study, tennis players completed the Competitive Anxiety Inventory-2R to measure self-confidence and anxiety. An experimental group practiced self-talk in their training. Results indicated that self-talk reduced anxiety and increased self-confidence (Hatzigeorgiadis, Zourbanos, Mpoumpaki, & Theodorakis, 2009). There is also research that indicates that negative self-talk is correlated with depression. Kendall, Howard, and Hays (1989) found that depressed inpatients had more negative self-statements on the Automatic Thoughts Questionnaire (ATQ) than psychiatric control groups. Studies such as these suggest that more research needs to be conducted to see if self-talk in a stressful situation can increase or alleviate stress.

According to Brinthaup et al.'s (2009) Self-Talk Scale (STS), there are four common functions served by self-talk: social-assessment, self-criticism, self-

reinforcement, and self-management. Social-assessment is self-talk that involves a person's social interactions; self-criticism involves negative self-talk about oneself; self-reinforcement involves positive self-talk about oneself; and self-management involves general behavioral self-talk, such as trying to figure out what a person should do.

Brinthaup et al.'s construction of the STS suggests that people talk to themselves for different reasons in order to regulate themselves. For example, higher use of social-assessing and self-critical self-talk could increase or reflect depressed mood, whereas higher use of reinforcing self-talk may increase or reflect a positive mood. Different types of self-talk would be expected to both cause and alleviate stress. For example, a college student who is stressed about test taking would be expected to score higher on self-critical and self-managing self-talk as an important test approaches than on social-assessing or self-reinforcing self-talk. Stress or anxiety about test taking does not generally involve social interaction. Self-reinforcing self-talk would most likely occur after the test is over, if the students were confident in their performance or if they received a good grade.

Watkins (2008) conducted a systematic review of how repetitive thought about negative experiences and situations can predict depression. If people have already experienced a negative or stressful event, and then repetitively think or talk to themselves about it, it can lead to or exacerbate depression. This may indicate that self-talk in a stressful situation can actually increase one's stress. Clearly, more research on the effects of situational stress on the nature and frequency of self-talk is needed.

In summary, self-talk is the notion of talking to oneself both silently and out loud. Both theory and research support the proposition that self-talk is a reflection and component of the self-regulation process. Different types of self-talk serve different regulatory purposes. Some types of self-talk may be used more by people who are experiencing higher stress or depressed mood. Other types of self-talk may be used to manage tasks or improve mood.

Individual Differences in Self-Regulation

Some individuals tend to be able to self-regulate better than others. These people are able to use coping skills to regulate themselves in stressful situations. According to McWhirter, Burrow-Sanchez, and Townsend (2008), these skills and learned behaviors are referred to as *learned resourcefulness* (LR). An example of learned resourcefulness would be a college student who is able to study before going to a party. People with LR skills view stressful situations as challenges rather than threats (McWhirter et al., 2008). Rosenbaum's (1990) LR skill set includes reformatory self-control, redressive self-control, and perceived self-efficacy for coping. Reformatory self-control entails problem solving and ways to delay the need for immediate gratification. Redressive self-control includes positive self-talk to help with the management of a person's cognitions, mood, or pain. Perceived self-efficacy for coping is associated with people's confidence in their coping skills when dealing with stressful situations (McWhirter et al., 2008).

Gintner, West, and Zarski (1989) found that people with higher LR tended to report less stress when dealing with stressful situations. The study included college students who filled out self-report measures before and after an exam. Results also

indicated that students with higher LR used more coping skills prior to exams than after exams. This may indicate that there is a difference in stress levels in both higher and lower LR individuals before and after a test or in specific stressful situations.

In addition to LR differences, research supports the notion that people vary in the frequency of their self-talk. For example, Brinthaupt and Dove (2012) administered the STS to college students and analyzed differences in STS scores among different demographics. Their research indicates that frequency of self-talk is higher among children without any siblings and people who grew up with an imaginary friend. Reichl, Schneider, and Spinath (2013) administered German versions of the STS, Need to Belong Scale, UCLA Loneliness Scale, and the Short Form 12 Health Survey to adults who were recruited through a scientific research panel. Results indicated that the need to belong and loneliness were positively correlated with the frequency of self-talk. Gammage, Hardy, and Hall (2001) administered their own self-talk frequency scale to a group of exercisers from a first year health science course. Results indicated that the exercisers most often used self-talk during exercise workouts.

In summary, learned resourcefulness includes coping skills that enable some people to better regulate themselves during stressful experiences. Reformative self-control, redressive self-control, and perceived self-efficacy are various skills used by high LR people. Higher LR people may still experience increased stress in certain situations, but they have skills that help them to navigate the situation better compared to those with lower LR. Individual differences in self-talk might also relate to differences in coping with stressful situations. Lower LR people may have a greater need for self-talk to help

them regulate their behaviors because they do not possess self-regulatory skills to help them deal with stress. Higher LR individuals would also be expected to use self-talk as a reflection of their LR skill set. Both lower LR and higher LR people may use self-talk as a tool of self-regulation. However, it is expected that the type of self-talk, e.g. self-criticism or self-management, used in a stressful situation would differ among higher LR and lower LR individuals due to the contrast in their LR skill sets.

Academic Stress

As noted earlier, one of the factors that has been shown to activate the self-regulation process is stress. Given that self-talk is a reflection of self-regulation, being under stress should lead to changes in self-talk. For example, when people are stressed, inhibitions are lowered and they may talk out loud more often than when they are not stressed. It has also been established that when a person experiences a traumatic or stressful event and then repeatedly talks or thinks about the event, it can exacerbate depression (Watkins, 2008). However, more research needs to be conducted on the relationship between these situational experiences of stress and the nature and frequency of a person's self-talk.

Academic stress is a complex and multi-determined phenomenon. Paying bills, graduation, deadlines, attending class, getting work done, extra-curricular activities, papers, and tests are just some of the factors that are associated with increases in academic stress. College students experience increased academic stress around the time of exams (Misra & McKean, 2000). Schafer (1996) reported that students experienced academic stress from studying, taking tests, and writing papers. Obviously, the work

required to maintain decent or good grades can cause pressure and academic stress in students. Misra and McKean (2000) found that college students who were able to competently manage their time reported less academic stress. As stated earlier, people who have higher LR possess significant problem solving and coping skills. Therefore, higher LR students should be better able to handle their academic stress than lower LR students. As part of their stress management activities, higher LR students might be expected to have higher self-reinforcing and lower self-critical self-talk compared to lower LR students. Self-reinforcing self-talk is similar to skills used in the LR skill set, e.g., redressive self-control (self-reinforcing self-talk and redressive self-control both use positive self-talk) and perceived self-efficacy for coping (self-reinforcing self-talk and perceived self-efficacy for coping both involve confidence). Self-critical self-talk includes negative self-talk about oneself and this type of talk would not be expected to be used by higher LR people who have skills that include confidence and positive self-talk.

College students experience situational stress due to academic pressures that include tests and exams. There are also specific times when test-related stress is more likely during an academic term—in particular, during the midterm and final-exam periods. Stress over midterms and finals can be manifested through test anxiety. Researchers and theorists have found that test anxiety is made up of two measurable aspects: emotionality and worry. “Worry refers to cognitive concern about performance, consequences of failure, evaluation of one’s ability relative to others, and the like. Emotionality refers to self-perceived physiological arousal and upset, for example, heart

racing and upset stomach” (Deffenbacher, 1978, p. 249). Some students may experience these symptoms even if they have not been clinically diagnosed with an anxiety disorder.

In summary, stress activates the self-regulation process. Academic stress consists of many factors. One of the factors of academic stress is tests and exams. As academic stress increases due to exams, usage of self-talk by students should increase as a tool of self-regulation. Higher LR individuals would be expected to better manage this stress due to their time management skills. Higher LR students would also be expected to have higher reinforcing self-talk that helps them navigate the stress of exams.

Statement of the Problem and Hypotheses

The self-regulation process is partly composed of goals set by people in order to regulate their behaviors. Self-regulation failure can occur when goals are not accomplished. Self-talk includes talking to oneself both silently and out loud and is one of the tools that reflects the self-regulation process. There are different types of self-talk which are used for various regulatory functions. Learned resourcefulness is a concept that includes a set of coping skills. These skills can give some people a better capacity for self-regulation, especially during a stressful experience. The use of coping skills may also reflect individual differences in people. Lower LR and higher LR people may use self-talk as a tool of self-regulation. The type of self-talk is expected to differ between higher LR and lower LR individuals due to the contrast in their LR skill sets. One of the triggers for self-regulation can be stress. Tests and exams are one of multiple factors of academic stress that would propel the self-regulation process and the usage of self-talk.

The exam period is a good time to investigate the relationships between self-regulation, self-talk, and stress because it is a naturally occurring realm of academic stress where multiple people are experiencing the same situation in the same setting. If self-talk is a reflection of the self-regulation process and stress induces the self-regulation process, then LR and self-talk should differentiate those who experience higher and lower levels of stress.

Hypothesis 1: Results are expected to indicate that all students will experience higher stress during the midterm exam period than before that period. This prediction is consistent with previous research (e.g., Misra & McKean, 2000).

Hypothesis 2: Students should report more overall self-talk during the midterm exam period than before that period. Self-talk is used as a tool of self-regulation, and stress, such as exams, activates the self-regulation process.

Hypothesis 3: It is expected that students with higher LR will report less stress during an exam period than those with lower LR. As stated earlier, research suggests that higher LR students should experience less stress during such exam periods than those with lower LR; therefore as LR scores increase, stress scores should decrease.

Hypothesis 4: It is also expected that students who report higher stress, at both times, will report more self-talk in the area of self-management. Self-management is used when people are trying to figure out what they should do. Therefore, higher stressed students would be expected to be giving themselves more directions on how to manage their stress than lower stressed students.

Hypothesis 5: Students with higher stress are expected to use more negative (i.e., self-critical) self-talk, at both times, as a result of being under stress and not successfully managing their stress. Self-critical talk involves negative self-talk about oneself, and may reflect a down mood. Higher stressed individuals would not be expected to have an elevated mood and should therefore report more self-critical self-talk than lesser stressed individuals.

CHAPTER TWO

METHODOLOGY

Participants

Participants were 119 undergraduate students (37 men and 82 women) at Middle Tennessee State University (MTSU) with an average age of 20.98 years old ($SD = 4.67$). Students were drawn from a variety of general education classes, including psychology, public speaking, English, and nutrition courses. The majority of students (40%) were freshmen. The students consisted of 62% Caucasians, 29% African Americans, and 9% was of other ethnicities.

Measures

The Self-Talk Scale (STS; Brinthaup et al., 2009) is a 16-item self-report measure that assesses the frequency of self-talk. The STS includes four areas of self-talk. As noted earlier, these categories are social assessment, self-criticism, self-reinforcement, and self-management. Each subtype contains four items. Each item is measured by a 5-point scale (1 = *never*, 5 = *very often*). All items begin with the stem “I talk to myself when...” Examples of subtype items include “I’m imagining how other people respond to things I’ve said” (social-assessment), “I’m really upset with myself” (self-criticism), “I’m proud of something I’ve done” (self-reinforcement), and “I’m mentally exploring a possible course of action” (self-management). Each subtype score is determined by adding up the scores of the four items in each subtype (range = 4-20). The total STS score is determined by adding up the values of all the items (range = 16-80). Higher scores on the STS demonstrate higher self-talk frequency. Psychometric properties on the STS

consist of adequate congruent validity, internal consistency, and long-term stability (Brinthaupt et al., 2009). For the current sample, the internal consistency values, across both testing times, for the overall scale and subscales were acceptable, ranging between $r = .72$ and $r = .91$.

The Perceived Stress Scale-10 (PSS-10; Cohen & Williamson, 1988) is a 10-item self-report measure that assesses people's perceived stress in their life in the last month. The PSS-10 is rated on a 5-point scale (0 = *Never*, 4 = *Very Often*). Example items include "In the last month, how often have you felt nervous and 'stressed'?" and "In the last month, how often have you felt that you were unable to control the important things in your life?" Example items that are reversed scored include "In the last month, how often have you felt confident about your ability to handle your personal problems?" and "In the last month, how often have you been able to control irritations in your life?" The PSS-10 is scored by reversing responses on some items and then summing across all of the items. Higher scores on the measure indicate higher levels of perceived stress. The PSS-10 has good psychometric properties with adequate internal reliability and construct validity (Cohen & Williamson, 1988). For the current sample, the internal consistency values, across both testing times, for the overall scale were acceptable, PSS at Time 1 $r = .88$ and PSS at Time 2 $r = .86$.

Dr. Cohen, the creator of the PSS, notes on his website (<http://www.psy.cmu.edu/~scohen/scales.html>) that although there are no psychometrics on the PSS for shorter time periods (less than a month), using it for a shorter time period should not be a problem. A study conducted on Malaysian diabetic patients used the PSS-

10, but had the participants rate the items based on how they were feeling in the past week (Gillani et al., 2011). In the current study, students completed the PSS-10 based on how they were feeling in the past week, instead of the past month.

The Self-Control Schedule (SCS; Rosenbaum, 1980) is a 36-item self-report measure that assesses learned resourcefulness. Each item is rated on a 6-point scale (-3 = *very uncharacteristic of me, extremely nondescriptive*, +3 = *very characteristic of me, extremely descriptive*; there is no 0 point). Example items include “When I am feeling depressed I try to think about pleasant events” and “First of all I prefer to finish a job that I have to do and then start doing the things I really like.” Example items that are reverse scored include “I cannot avoid thinking about mistakes I have made in the past” and “When I am faced with a difficult decision, I prefer to postpone making a decision even if all the facts are at my disposal.” The SCS is scored by reverse scoring some items and then summing all of the items. Higher scores on the SCS indicate higher levels of self-control. High and low LR scores were determined by creating upper and lower quartiles of the total SCS scores during the exam period. Low LR scores consist of SCS scores that are 9 or below. High LR scores consist of SCS scores that are 42 or above. Psychometric properties for the SCS indicate satisfactory internal consistency and construct validity (Rosenbaum, 1980). In the current sample, the internal consistency values, across both testing times, for the overall scale were acceptable, SCS at Time 1 $r = .80$ and SCS at Time 2 $r = .85$.

The demographic items (see Appendix A) contain basic demographic questions, such as gender, age, race/ethnicity, and year in school. This section also includes some

academic stress related questions about how many tests and projects students had in the current week. Additionally, there are three items that ask about academic stress, including “I am currently under a great deal of academic stress;” “My current academic semester has been very stressful;” and “On the whole, I have been able to manage my academic stress very well this semester.” Respondents rated these items using a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*).

Procedure

Participants completed the STS, SCS, PSS-10, and demographic items twice during the semester. The first time the measures were completed by students was during a week when exams are not usually being given by professors. This week was during the first third of the semester, three weeks prior to the mid-term exam period. The second time the measures were completed by students was a week that the university officially designates as midterm period. The students provided a unique code, their MTSU identification number, in order to match their data. All of the measures were placed in a folder. Professors who were willing to participate had a box of folders located in their class. Folders were available for students to pick up at end of class, complete at home, and return to their professor during the following class. Completing the measures took approximately 15-20 minutes each session. The measures were placed in the folder in randomized order, except for the demographic form which was placed last. The informed consent form (see Appendix B) was provided in the folder at the first session. Students voluntarily participated. The study received IRB approval (see Appendix C). It was up to

the professors if they wanted to give extra credit to students who participated and completed the measures in both of the sessions during the semester.

CHAPTER THREE

RESULTS

Descriptive Statistics

Table 1 provides descriptive statistics for the major measures used in the study. As the table shows, the means for the STS during both Time 1 and Time 2 are higher than the published norms for the STS ($M = 50.47$). However, the standard deviations for both Time 1 and Time 2 are similar to the STS norms ($SD = 13.28$) (Brinthaup & Kang, 2014). Students reported having around two tests and one major project/paper during both Time 1 and Time 2. With respect to the academic stress items, respondents agreed that they were under stress, but could manage the stress well. The means for the PSS-10 during both Time 1 and Time 2 are higher than the published norms for the PSS-10 ($M = 13.02$). However, the standard deviations for both Time 1 and Time 2 are similar to the PSS-10 published norms ($SD = 6.35$) (Cohen & Williamson, 1988).

Table 2 shows descriptive statistics broken down by gender. The means for women for the STS during both Time 1 and Time 2 are higher than the published norms for women for the STS ($M = 50.18$). However, the standard deviations for women for the STS during both times are similar to the norms for the STS ($SD = 13.09$). The means and standard deviations for men for the STS during both times are higher than the published norms for the STS ($M = 50.99$, $SD = 13.64$) (Brinthaup & Kang, 2014).

Table 1

Descriptive Statistics for the Major Measures

	Time 1		Time 2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Self-Talk Scale Total Score	56.97	12.10	58.41	11.73
Perceived Stress Scale-10 Total Score	19.57	6.94	20.00	6.64
Self-Control Schedule Total Score	24.75	23.78	25.14	26.02
Amount of tests	1.90	1.40	2.31	1.52
Amount of Projects	1.31	1.16	1.24	1.06
Overall Academic Stress	3.53	1.16	3.61	1.22
Current Academic Semester Stress	3.40	1.20	3.68	1.16
Manage Academic Semester Stress	3.64	.972	3.53	1.02

Note. $N = 119$. Academic stress items were based on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*).

The means for women for the SCS during both Time 1 and Time 2 are lower than the published norms for women for the SCS ($M = 27.5$). However, the standard deviations for women for both Time 1 and Time 2 are higher than the norms for the SCS ($SD = 20.6$). The means and standard deviations for men for the SCS during both Time 1 and Time 2 are similar to the SCS published norms ($M = 25.9$, $SD = 20.6$) (Rosenbaum, 1980). Table 2 also shows that the means for women at both times for the PSS-10 are higher than the means for men for the PSS-10.

Table 2

Gender Differences in Descriptive Statistics

	Time 1				Time 2			
	Women		Men		Women		Men	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Self-Talk Scale Total Score	57.46	12.86	55.86	10.27	58.82	12.47	57.51	9.97
Self-Criticism Self-Talk	13.82	4.18	13.65	2.81	14.24	3.95	13.76	3.61
Self-Reinforcement Self-Talk	12.46	4.46	13.41	4.09	12.95	4.38	13.84	3.80
Self-Management Self-Talk	16.30	3.51	15.22	3.56	16.07	3.08	15.46	2.66
Social-Assessment Self-Talk	14.88	4.30	13.59	3.98	15.55	4.14	14.46	3.19
Perceived Stress Scale-10 Total Score	20.85	6.89	16.73	6.24	20.63	7.08	18.59	5.38
Self-Control Schedule Total Score	23.95	25.62	26.51	19.29	25.40	27.63	24.57	22.36
Amount of Tests	1.88	1.36	1.95	1.49	2.45	1.50	2.00	1.53
Amount of Projects	1.45	1.11	1.00	1.20	1.37	1.12	.97	.87
Overall Academic Stress	3.67	1.08	3.22	1.29	3.67	1.80	3.46	1.30
Current Academic Semester Stress	3.56	1.12	3.05	1.29	3.82	1.10	3.38	1.23
Manage Academic Semester Stress	3.54	.98	3.86	.92	3.50	.98	3.59	1.09

Note. $N = 119$. Academic Stress items were based on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*).

An independent samples *t*-test was performed to assess gender differences on all of the major measures. The overall pattern of findings was similar for both men and women, with only a few significant differences. Results indicated that during Time 1, women had higher PSS-10 scores than men, $t(117) = 3.11, p < .01$. This result is consistent with the results of the PSS-10 normative data. Women noted significantly higher perceived stress than men on all of the versions of the PSS (Cohen & Williamson, 1988). Women also reported having more projects during Time 1 than men, $t(117) = 2.00, p = .048$. Women reported higher overall academic stress, $t(117) = 2.00, p = .048$, and current academic semester stress, $t(117) = 2.18, p = .03$, during Time 1 than men. However, they did not report being able to better manage their stress than men.

Tests of Hypotheses

Hypothesis 1 stated that all students would experience higher stress during the midterm exam period than before that period. Students' level of stress before and during the exam period was compared by a paired-samples *t*-test of their PSS-10 scores. Results failed to support the hypothesis. Students' PSS scores before the exam period (see Table 1) were not significantly different from their PSS scores during the exam period $t(118) = -.77, p = .44$. Additional items that asked about students' level of academic stress were also compared using a paired-samples *t*-test. The students' ratings of the item "I am currently under a great deal of academic stress" showed no significant difference between the two time periods, $t(118) = -.76, p = .45$. However, students' ratings of the item "My current academic semester has been very stressful" was significantly higher during the exam period than before the exam period $t(118) = -2.91, p = .004$. Students' ratings of the

item “On the whole, I have been able to manage my academic stress very well this semester” showed no significant difference between before the exam period and during the exam period $t(118) = 1.34, p = .18$. These results provide minimal support for the first hypothesis.

Hypothesis 2 stated that students should report more overall self-talk during the midterm exam period than before that period. Students’ level of self-talk before and during the exam period was measured by a paired-samples t -test of their STS scores. Results supported the hypothesis. Students’ total STS scores during the exam period (see Table 1) were significantly higher than students’ STS scores before that period $t(118) = -2.14, p = .035$.

Hypothesis 3 stated that students with higher LR would report less stress during an exam period (Time 2) than those with lower LR. High and low LR students were compared on the level of stress during the exam period by using an independent samples t -test. Results supported the hypothesis. Students with higher SCS scores reported lower PSS scores ($M = 18.33, SD = 7.51$) than students with lower SCS scores, ($M = 22.52, SD = 5.96$); $t(59) = 2.41, p = .019$.

Hypothesis 4 stated that students who report higher stress, at both times, would report more self-talk in the area of self-management. The relationship between higher stressed students and self-management self-talk was assessed via a correlational analysis. Results did not support the hypothesis (see Table 3). Self-management self-talk was not significantly correlated with higher PSS-10 scores.

Hypothesis 5 stated that students with higher stress were expected to use more negative (i.e., self-critical) self-talk, at both times. The relationship between higher stressed students and self-critical self-talk was assessed via a correlational analysis. Results did not support the hypothesis. Self-critical self-talk was also not significantly correlated with higher PSS-10 scores (see Table 3).

Table 3

Self-talk and Perceived Stress Correlations

	PSS-10 Time 1	PSS-10 Time 2
Self-criticism self-talk	$r = .09$	$r = .17$
Self-reinforcement self-talk	$r = -.07$	$r = .01$
Self-management self-talk	$r = -.06$	$r = .09$
Social-assessment self-talk	$r = .02$	$r = .10$
Total Self-Talk Scale	$r = -.01$	$r = .12$

Note. $N = 119$. None of the correlations reached statistical significance.

Supplemental Analyses

A correlational analysis was conducted between the three academic stress items and the number of tests reported by students and their SCS scores, STS total, and subscale scores. Results indicate that students' SCS scores during Time 1 (before the exam period) were significantly negatively correlated with the overall academic stress item ($r = -.33, p < .001$) and current semester stress item ($r = -.27, p = .003$) and positively correlated with the managing academic stress item ($r = .45, p < .001$).

Students' SCS scores during Time 2 (during the exam period) were significantly positively correlated with the managing academic semester stress item ($r = .27, p = .004$). At both times, higher LR (SCS scores) were related to lower stress. Students with higher LR were better able to manage their stress. These results are consistent with the results of Hypothesis 3.

Students' responses to the overall academic stress item during Time 1 were significantly positively correlated with the amount of tests students reported ($r = .18, p = .05$). The amount of tests that students reported during Time 2 was significantly positively correlated with overall academic stress ($r = .44, p < .001$) and current semester stress ($r = .29, p = .001$) and negatively correlated with managing academic stress ($r = -.21, p = .02$). The amount of projects reported by students during Time 2 was significantly negatively correlated with managing academic stress ($r = -.18, p = .055$). Those students who reported more tests and projects also reported higher stress and being less likely to be able to manage stress. Finally, during Time 2, SCS scores were significantly positively correlated with Self-Reinforcement Self-Talk ($r = .24, p = .007$) and Self-Management Self-Talk ($r = .18, p = .047$).

CHAPTER FOUR

DISCUSSION

The purpose of this study was to investigate the relationship between self-talk, learned resourcefulness, and academic stress. Research has shown that self-talk is used as a tool of self-regulation and that the coping skills involved in learned resourcefulness can give some people a better capacity for self-regulation, especially during a stressful experience. The study was intended to determine if there was a relationship between the use of self-talk and learned resourcefulness as part of the self-regulation process and in an academic setting. Very little research has examined how self-talk, learned resourcefulness, and academic stress may relate in this setting.

The tests of the five hypotheses showed varying results. Hypothesis 1 stated that all students would experience higher stress during the midterm exam period than before that period. However, students did not indicate any difference in perceived stress between the pre-exam period and the exam period. These results suggest that either the midterm exam period was not reflective of academic stress or that the PSS-10 is not an appropriate measure of academic stress. These results are inconsistent with previous research that college students experience increased academic stress around the time of exams (Misra & McKean, 2000) and from studying, taking tests, and writing papers (Schafer, 1996).

Hypothesis 2 stated that students should report more overall self-talk during the midterm exam period than before that period. Results supported the hypothesis. Students reported talking to themselves more often during the exam period than before the exam period. This finding provides potential support for the argument that self-talk is used as a

tool of self-regulation and stress, such as exams, activates the self-regulation process. The results also support theorists in their research that includes some type of self-talk as a reflection of self-regulation (e.g., Bandura, 1986; Beck, 1976; Carver & Scheier, 1998; Mischel, et al., 1996). The finding is also consistent with research that found that adults use private speech when analyzing, planning, organizing, and evaluating difficult tasks (Duncan & Cheyne, 1999).

Hypothesis 3 stated that students with higher LR would report less stress during an exam period than those with lower LR. Results supported the hypothesis. As expected, during the exam period, students whose SCS scores were in the top quartile reported lower perceived stress than students whose SCS scores were in the lowest quartile. These results provide support for the argument that some individuals are able to self-regulate better than others and that higher LR individuals are able to use coping skills to regulate themselves in stressful situations (McWhirter et al., 2008). Similar to the current findings, Gintner et al. (1989) found that college students with higher LR tended to report less stress when dealing with stressful situations.

Hypothesis 4 stated that students who report higher stress, at both times, would report more self-talk in the area of self-management. Results did not support the hypothesis. This suggests that level of stress is not associated with Self-Managing Self-Talk, such as directing oneself on what to do.

Hypothesis 5 stated that students with higher stress were expected to use more negative (i.e., self-critical) self-talk, at both times. Results did not support the hypothesis. There were no significant correlations between any of the sub-types of the STS and PSS-

10 scores. This suggests that there is no significant relationship between general stress and self-talk. Supplemental analyses using the three additional academic stress items and Self-Talk total and subscale scores also did not yield any significant correlations.

Limitations and Implications for Future Research

The results showing that there was no difference in PSS-10 scores from before the exam period to the exam period may be explained by the fact that the PSS-10 is not a measure of specific academic stress. In addition, academic stress encompasses more than just the exam period and the measures of academic stress used in this study are limited. The PSS-10 covers general perceived stress and does not include specific academic stressors. There were only three supplemental academic stress items and these items have not been previously tested and do not have normative psychometric data. Future research on academic stress may want to include the Acute Life Events Questionnaire (Needles & Abramson, 1990). This measure includes acute stressful items that are specifically designed for college students. This may also explain why the STS subscales were not related to the PSS-10. However, stress and self-talk were not shown to be related even with the additional academic stress questions. Future research may want to use the final exam period instead of the midterm exam period as the academic stressful time period.

Acute stress is situational and future research should examine specific situational stress. As mentioned earlier, there are multiple factors associated with academic stress. A stress measure should address the specific stressor, such as a midterm exam. Future research should also adapt the STS to the situational stressor—for example, asking students whether they have recently been talking to themselves about a forthcoming test.

The STS not being related to PSS may also be explained by the possibility that self-talk is used by both higher and lower stressed people. If this is the case, the current results suggest that the content of self-talk does not appear to differ according to level of stress.

Students reported more self-talk during the exam period than before that period. This could be due to a testing effect. Students may be more aware of their self-talk after taking the STS and this could be why they recorded higher levels of self-talk during the second time period. Future research should control for possible testing effects and explore whether usage of self-talk is due to a state, like stress, or a trait, like learned resourcefulness.

Results indicated that higher LR was associated with lower stress. This is consistent with previous research (Gintner et al., 1989). People with higher LR have the appropriate coping skills to help them self-regulate during stressful situations. Supplemental analyses indicated that LR was associated with Self-Reinforcement Self-Talk and Self-Management Self-Talk. In particular, students with higher LR reported more self-talk in the areas of positive self-talk (self-reinforcement) and self-management self-talk. In this study, higher and lower LR appeared to be a better indicator of the type of self-talk used than levels of stress. Future research should investigate the LR/self-talk relationship more directly or with a non-college sample.

In summary, this study is important because there has been little previous research that has investigated the relationship between self-talk, learned resourcefulness, and academic stress. Results indicated that students reported higher usage of self-talk during the midterm exam period than before that period and that higher LR students indicated

less stress during the midterm exam period than lower LR students. However, there was no difference in reported perceived stress by students between the non-exam period and the midterm exam period. There was also no significant relationship between any type of self-talk and perceived stress. Although these results provided only partial support for the hypotheses, they are interesting enough to warrant additional research in this area.

References

- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Baumeister, R. F., & Heatherton, T. F. (1996). Self-regulation failure: An overview. *Psychological Inquiry*, 7(1), 1-15.
- Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: International Universities Press.
- Brinthaup, T. M., & Dove, C. T. (2012). Differences in self-talk frequency as a function of age, only-child, and imaginary childhood companion status. *Journal of Research in Personality*, 46, 326-333. doi: 10.1016/j.jrp.2012.03.003
- Brinthaup, T. M., Hein, M. B., & Kramer, T. E. (2009). The Self-Talk Scale: Development, factor analysis, and validation. *Journal of Personality Assessment*, 91(1), 82-92. doi: 10.1080/00223890802484498
- Brinthaup, T. M., & Kang, M. (2014). Many-faceted Rasch calibration: An example using the Self-Talk Scale. *Assessment*, 21(2), 157-165. doi: 10.1177/1073191112446653
- Burnette, J. L., O'Boyle, E. H., VanEpps, E. M., Pollack, J. M., & Finkel, E. J. (2012). Mind-sets matter: A meta-analytic review of implicit theories and self-regulation. *Psychological Bulletin*, 139(3), 655-701. doi: 10.1037/a0029531
- Carver, C. S., & Scheier, M. (1981). *Attention and self-regulation: A control theory approach to human behavior*. New York: Springer-Verlag.

- Carver, C. S., & Scheier, M. F. (1998). *On the self regulation of behavior*. Cambridge: The Press Syndicate of the University of Cambridge.
- Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of health: Claremont Symposium on applied social psychology* (pp. 31-67). Newbury Park, CA: Sage.
- Deffenbacher, J. L. (1978). Worry, emotionality, and task-generated interference in test anxiety: An empirical test of attentional theory. *Journal of Educational Psychology, 70*(2), 248-254.
- Duncan, R. M., & Cheyne, J. A. (1999). Incidence and functions of self-reported private speech in young adults: A self-verbalization questionnaire. *Canadian Journal of Behavioral Science, 31*(2), 133-136.
- Förster, J., & Jostmann, N. B. (2012). What is automatic self-regulation? *Zeitschrift für Psychologie, 220*(3), 147-156. doi: 10.1027/2151-2604/a000107
- Gammage, K. L., Hardy, J., & Hall, C. R. (2001). A description of self-talk in exercise. *Psychology of Sports and Exercise, 2*(4), 233-247.
- Gillani, W. S., Azhar, S. S., Sari, Y. O., Sarriff, A., Amin, A., & Baig, M. (2011). Perceived stress scale psychometric validation for Malaysian diabetic patients. *British Journal of Pharmaceutical Research, 1*(4), 156-163.
- Gintner, G. G., West, J. D., & Zarski, J. J. (1989). Learned resourcefulness and situation-specific coping with stress. *The Journal of Psychology, 123*(3), 295-304. doi: 10.1080/00223980.1989.10542985

- Hatzigeorgiadis, A., Zourbanos, N., Mpoumpaki, S., & Theodorakis, Y. (2009). Mechanisms underlying the self-talk-performance relationship: The effects of motivational self-talk on self-confidence and anxiety. *Psychology of Sport and Exercise, 10*, 186-192.
- Kendall, P. C., Howard, B. L., & Hays, R. C. (1989). Self-referent speech and psychopathology: The balance of positive and negative thinking. *Cognitive Therapy and Research, 13*(6), 583-598.
- McWhirter, B. T., Burrow-Sanchez, J. J., & Townsend, K. C. (2008). Measuring learned resourcefulness in college students: Factor structure of the Self-Control Schedule (SCS). *College Student Journal, 42*(4), 1099-1109.
- Mischel, W., Cantor, N., & Feldman, S. (1996). Principles of self-regulation: The Nature of willpower and self-control. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 329-360). New York: Guilford.
- Misra, R., & McKean, M. (2000). College students' academic stress and its relation to their anxiety, time management, and leisure satisfaction. *American Journal of Health Studies, 16*(1), 41-52.
- Needles, D. J., & Abramson, L. Y. (1990). Positive life events, attributional style, and hopelessness: Testing a model of recovery from depression. *Journal of Abnormal Psychology, 99*, 156-165. doi: 10.1037/0021-843X.99.2.156
- Reichl, C., Schneider, J. F., & Spinath, F. M. (2013). Relation of self-talk frequency to loneliness, need to belong, and health in German adults. *Personality and Individual Differences, 54*(2), 241-245.

- Rosenbaum, M. (1980). A schedule for assessing self-control behaviors: Preliminary findings. *Behavior Therapy, 11*(1), 109-121.
- Rosenbaum, M. (1990). *Learned resourcefulness: On coping skills, self-control, and adaptive behavior*. New York City: Springer.
- Schafer, W. (1996). *Stress management for wellness*. Fort Worth: Harcourt Brace College Publishing.
- Watkins, E. R. (2008). Constructive and unconstructive repetitive thought. *Psychological Bulletin, 134*(2), 163-206. doi: 10.1037/0033-2909.134.2.163

APPENDICES

APPENDIX A

Demographics

Please write in your MTSU Identification number:

Circle the answer that best describes you:

1. I am a... FEMALE MALE

2. I am a... FRESHMAN SOPHOMORE JUNIOR SENIOR OTHER

3. I am a... AFRICAN AMERICAN (BLACK) CAUCASIAN (WHITE) AMERICAN INDIAN
ASIAN AMERICAN / PACIFIC ISLANDER HISPANIC OTHER

Please answer the following question:

1. How old are you?

Please answer the following questions:

1. How many class tests or quizzes do you have this current week? _____

2. How many major class projects (e.g. papers, presentations, team activities) do you have that are due this current week? _____

Please rate the following statements, using this 5-point disagree/agree scale:

1	2	3	4	5
Strongly Disagree	Disagree	Neither disagree	Agree	Strongly Agree
nor agree				

___ 1. I am currently under a great deal of academic stress.

___ 2. My current academic semester has been very stressful.

___ 3. On the whole, I have been able to manage my academic stress very well this semester.

APPENDIX B

Informed Consent

Middle Tennessee State University

Project Title: The Relationship Between Personal Characteristics and Academic Stress**Purpose of Project:** To examine how a variety of personality characteristics (e.g., typical ways that you think about yourself and the events you experience) are related to naturally occurring academic stressors. We will ask you about several personal characteristics as well as the nature and extent of your current academic stress.**Procedures:** Your professor will provide information about the study at the first session. During both sessions, packets containing the self-report measures and demographic items will be available for you to pick up, complete at home, and return to your professor during the following class. The online survey should take 14-20 minutes to complete for each session.**Risks/Benefits:** Participants may feel some discomfort about being asked about experienced stress. For those students who are experiencing high levels of stress or who would like help with managing their academic stress, contact the MTSU Counseling Services in Keechley University Center, room 323 at 615-898-2670.**Confidentiality:** No names will be gathered. MTSU identification numbers will be obtained to match your data from both sessions.**Principal Investigator/ Contact Information:** Laura Rongione, lrc3e@mtmail.mtsu.edu

Participating in this project is voluntary, and refusal to participate or withdrawing from participation at any time during the project will involve no penalty or loss of benefits to which the subject is otherwise entitled. All efforts, within reason, will be made to keep the personal information in your research record private but total privacy cannot be promised, for example, your information may be shared with the Middle Tennessee State University Institutional Review Board. In the event of questions or difficulties of any kind during or following participation, the subject may contact the Principal Investigator as indicated above. For additional information about giving consent or your rights as a participant in this study, please feel free to contact the MTSU Office of Compliance at (615) 494-8918.

Consent

I have read the above information and my questions have been answered satisfactorily by project staff. I believe I understand the purpose, benefits, and risks of the study and give my informed and free consent to be a participant.

SIGNATURE

DATE

APPENDIX C



1/22/2014

Investigator(s): Laura Rongione, Dr. Tom Brinthaup
Department: The Relationship Between Self-Talk, Learned Resourcefulness, and Academic Stress
Investigator(s) Email: ler3e@mtmail.mtsu.edu; tom.brinthaup@mtsu.edu

Protocol Title: "The Relationship Between Self-Talk, Learned Resourcefulness, and Academic Stress "
Protocol Number: 14-190

Dear Investigator(s),

The MTSU Institutional Review Board, or a representative of the IRB, has reviewed the research proposal identified above. The MTSU IRB or its representative has determined that the study poses minimal risk to participants and qualifies for an expedited review under 45 CFR 46.110 and 21 CFR 56.110, and you have satisfactorily addressed all of the points brought up during the review.

Approval is granted for one (1) year from the date of this letter for 300 participants.

Please note that any unanticipated harms to participants or adverse events must be reported to the Office of Compliance at (615) 494-8918. Any change to the protocol must be submitted to the IRB before implementing this change.

You will need to submit an end-of-project form to the Office of Compliance upon completion of your research located on the IRB website. Complete research means that you have finished collecting and analyzing data. **Should you not finish your research within the one (1) year period, you must submit a Progress Report and request a continuation prior to the expiration date.** Please allow time for review and requested revisions. Failure to submit a Progress Report and request for continuation will automatically result in cancellation of your research study. Therefore, you will not be able to use any data and/or collect any data. Your study expires **1/22/2015**.

According to MTSU Policy, a researcher is defined as anyone who works with data or has contact with participants. Anyone meeting this definition needs to be listed on the protocol and needs to complete the required training. **If you add researchers to an approved project, please forward an updated list of researchers to the Office of Compliance before they begin to work on the project.**

All research materials must be retained by the PI or faculty advisor (if the PI is a student) for at least three (3) years after study completion and then destroyed in a manner that maintains confidentiality and anonymity.

Sincerely,

Kellie Hilker
Compliance Officer/ MTSU Institutional Review Board Member