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Use of articulated thoughts during a simulated situation to change self-efficacy and outcome expectations

Corey Didier

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USE OF ARTICULATED THOUGHTS DURING A SIMULATED

SITUATION TO CHANGE SELF-EFFICACY AND OUTCOME

EXPECTATIONS

A THESIS PRESENTED IN

PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE

DEGREE OF

MASTER OF ARTS IN CLINICAL PSYCHOLOGY

BY

COREY S. DIDIER

DECEMBER 10, 2015

DEPARTMENT OF PSYCHOLOGY
COLLEGE OF ARTS AND SCIENCES
CARDINAL STRITCH UNIVERSITY
MILWAUKEE, WI

REPORT ON THESIS AND ORAL EXAMINATION

Name of Student   Corey S. Didier

Title of Thesis   Use of Articulated Thoughts During A Simulated

Situation To Change Self-Efficacy And Outcome

Expectations

Report on Thesis and Oral Examination

    Excellent/With Distinction   _____

    Good _____

    Acceptable   _____

    Unacceptable/Failure _____

   Reason: _____

_____

_____
Signature: Advisor/Chair, Thesis Committee

_____
Signature: Reader/Member, Thesis Committee

_____
Signature: Clinical Psychology Program Chair

_____
Date of Approval

THESIS COMMITTEE

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Vita

Corey S. Didier

Concluded undergraduate studies at Cardinal Stitch University after obtaining a construction diploma at Milwaukee Area Technical College. He studied abnormal psychology at Waukesha County Technical College while owning and operation a residential and commercial construction business. He returned to graduate studies again at Cardinal Stitch University with the aim of further understanding human behavior in the attempt to help others overcome barriers to successful and happy living. He has worked at Aurora Psychiatric Hospital in Wauwatosa, Wisconsin as a practicum student as well as at Cardinal Stritch University's Career Education Department as a Career Advisor.

Abstract

Talk therapy's efficacy is universally accepted and is often the sole method of mental health treatment. Investigating the effects of vocalized thoughts and feelings on cognition, the Articulated Thoughts during Simulated Situations Paradigm (Davison, Haaga, Rosenbaum, Dolezal, & Weinstein, 1991) was used to assist eighty-one participants in conjuring emotions relating to the imagined situation of giving a public presentation. Pre and posttests of self-efficacy (SE) and outcome expectations (OE) relating to the imagined scenario were compared across three groups. Results did not support the hypothesis that speaking out loud about thoughts and feelings would increase SE and OE. A States of Mind analysis (Schwartz & Garamoni, 1986) was likewise unable to support the hypothesis. The discussion focuses on several aspects of cognition as they relate to speech including linguistic relativity, the phonological loop, as well as desensitization and metacognition. Directions for future research are also discussed.

TABLE OF CONTENTS

Introduction

Discovering the true impact speech has on our thoughts will have a great

impact on the field of psychology, especially counseling psychology where talking is

often the sole modality of treatment. Aside from the obvious benefit of speech as an

efficient method of communication, another question regarding the effect of speech

remains. That is, what effect does speech have on cognition? Is there a change that

occurs to one's thoughts as they speak? If such a change does occur, can that change

then alter one's self-efficacy (SE) or outcome expectations (OE) in relation to a task?

Bandura (1982) defined SE as an individual's belief in his or her ability to

complete a task and OE as one's belief in regard to how well he or she will do at that

particular task. On the one hand there is a belief in the ability, and on the other is the

belief in the outcome. If finding speech can indeed alter cognition, then methods of

psychological treatment should be altered in order to enhance therapeutic effect. Talk

therapy would no longer be a way of communicating but a treatment in itself with

vocalization being that treatment rather than a prescribed methodology. In all,

speaking remains the key to any change and thus an investigation of how exactly

speech can impact thought needs to be undertaken. In order to avoid confusion, the

terms spoken language and speech will be used interchangeably throughout this article

as both contain similar definitions (Merriam-Webster, 2015).

Humans can talk about an almost limitless range of ideas and events in the

past, present, or future using arbitrary sound patterns to represent objects (Kalat,

2001). That is, differing arrangements of sounds can be used to describe the same

object in differing languages. Take as an example the word *dog*, pronounced *hund* in

German and *chien* in French; the object remains the same, the sounds allocated to denote the object are different. For nearly all individuals, the ability to speak originates in the cerebral cortex where Broca's area aids in speech formation and Werneke's area provides understanding for what is heard (Feist & Rosenberg, 2010). Humans also maintain a "running commentary" of mental awareness which makes language part of our consciousness and forms the ability to share at least some aspects of our thoughts with others (Arbib, 2014). Some even go so far as to call this running commentary the voice of the 'real you' as it relates to our innermost thoughts (Ridgeway, 2009). Additionally, Sidnell and Enfield (2012) state that through the very act of speaking those involved in the conversation create a moment-by-moment context for what is being said. Therefore, for each person speaking, an individual context for the speech is being developed. This realization is of great importance when focusing on the ability of speech to alter cognition as it points out the individual's capability to adjust thoughts based on a specific momentary interaction.

Early theorists into the impact of language on cognition include Edward Sapir and Benjamin Lee Whorf whose combined theory is known as the Sapir-Whorf hypothesis or The Principle of Linguistic Relativity. The Principle of Linguistic Relativity is founded on the notion that spoken language affects the thoughts of individuals and addresses the broader implications of language as a reflection of world views among differing cultures (Fein & Rosenberg, 2010; Tohidian, 2008). Lucy (1997) has laid out much of the basis for the argument of speech impacting thought. He noted Sapir considered each person's understanding of how the world operates both socially and naturally (concepts) to be abstractions from the world of experience.

That is, each person's real world is built around concepts and articulations within a language system; language is a vocal description of that perceived world. Additionally, Sapir's schema involves the parallel development of language with concepts as a person grows and acknowledges the influence of the surrounding language on his or her thoughts. According to Lucy, Whorf similarly believed language both creates discrete entities for one's physical world and also reflects a world independent of oneself, a world of ideas in the form of relationships between perceived patterns which is also influenced by how those patterns are described.

To clarify, language by its usage therefore has a dual role. First, it can be used by a person to explain and describe their thoughts about the physical world around them as well as what they are thinking in their own mind. Second, when describing what they are seeing or what they are thinking, the language used has the ability to influence their thoughts as well. More succinctly, languages carve up reality in different ways (Parviz & Somayyeh, 2012). For instance, early studies have shown the American Indian children in the Navajo Nation, who use eleven different verbs to describe handling objects based on the object's shape or form (round, square, flexible, etc.) were able to sort objects based on their shape at an earlier age than English-speaking children who do not have such a wide range of handling verbs (Taylor & Taylor, 1990). More recently, Tajima and Duffield (2012) examined Japanese and English native speakers to determine whether the sentence structure of particular languages predisposes speakers to particular attentional patterns. They found Japanese participants reported more ground information before mentioning figure information, mentioned more background details overall, and remembered background elements in

a subsequent recall task significantly more accurately than the English participants. Researchers concluded the findings "support a linguistic interpretation of Japanese-English differences" (Tajima & Duffield, 2012, p. 675). Findings also show language differences were the cause of the differing scene explanations, rather than cultural constructs as previously thought.

In relation then to an individual's internal thoughts and language, Whorf relied on the term noumenal to describe this inner world of ideas each person holds. First used by the philosopher Immanuel Kant, the term noumenal suggests human understanding results from the interpretation of new experience through innate and existent categories, which are categories already formed within each person as they develop (Carnes, 2014). According to Carnes' interpretation of Whorf, it is this internal and existing chain of thoughts which ultimately results in the individual's world-view, which can then be expressed in language. Because language then represents a real world abstraction from one's own experiential world, it was believed this functional portion of the Sapir-Whorf hypothesis will influence thinking as one vocalizes a particular part of their own internal world. However such vocalization is not enough to change thought as it is only passive in its nature. Mechanisms to appraise such thoughts are required and are found in the concepts of the phonological loop and metacognition.

The phonological loop and the central executive are part of the component model of working memory. The phonological loop is comprised of the structures in the prefrontal cortex that manipulate speech-based information while a central executive directs attention toward one stimulus or another while at the same time determining

which items are stored in a multidimensional working memory (Kalat, 2001; Baddeley & Hitch, 1994). Engle (2010) furthered the model of a multidimensional store for information and believed the phonological loop is essential in the binding of information across visual/spatial and speech dimensions in this memory store. He further conceived these informational "stores" can temporarily activate representations in long-term memory as a link to existing representations in either long-term or secondary memory. While there is some debate over the relationship between the phonological loop and higher order processing, researchers have been able to differentiate individual's comprehension skills as well as other cognitive abilities using complex verbal span tests (Lobley, Baddeley & Gathercole, 2005). Additionally, evidence from a task switching experiment suggests the phonological loop plays an important part in one of the executive control processes (Saeki & Saito, 2004). Results of these studies therefore indicate higher level processing can be accessed via the phonological loop and it is this interplay between what is being said, what is heard, and then what is retained which is applicable to the current study as a mechanism underlying cognitive change as a result of speaking.

Another mechanism which aids the appraisal of one's vocalized thoughts is that of metacognition. When individuals speak their thoughts and feelings out loud, they are afforded an opportunity to hear their own words, causing spontaneous reflection on those words. When the individual hears his or her words relating to the ability to complete a task, the combined effect of the simultaneous reflections are believed to lead to a change in SE and OE. To explain further, the spoken thought or feeling induces a thought focusing on the statement(s) made and thus create a metacognition

(Feist & Rosenberg, 2010). Similarly when metacognition is defined as knowledge about, and regulation of one's cognitive activities, research has discovered both a monitoring function (metacognitive knowledge and metacognitive experience) and a regulatory function (goals and activation of strategies) in metacognition (Karagiannidis, Barkoukis, Gourgoulis, Kosta1, & Antoniou, 2015). Both functions of metacognitive thinking have been applied in studies and as a model of treatment.

Metacognitive thinking has been shown to affect both SE and OE. For example, Karagiannidis and colleagues demonstrated that metacognition increased affective responses by pupils during physical education lessons and lessened speech anxiety for individuals diagnosed with social anxiety disorder (Karagiannidis, et al., 2015). Additionally, metacognitive practices were critical to the development of efficient practice skills in musical students, with students who make use of metacognition during study more likely to achieve their learning goals (Hart, 2014; Ektem & Keçici, 2014). Finally, metacognitive models of treatment are emerging which emphasize the importance of thinking processes in patients, rather than the traditional examination of thoughts alone. Such models have been shown to be more effective than cognitive behavioral therapy in treating anxiety and depression (Rees & Andersen, 2013; Normann, Emmerik, & Morina, 2014).

In addition to metacognition as a way to evaluate spoken thoughts, self-talk is also used to change thoughts and feelings as well as SE and OE. Speaking thoughts out loud without an intended audience is common in children where it functions as a way to direct mental operation and control towards solving a problem, aiding perception, providing a framework for arranging ideas, guiding oneself, and

sharpening reasoning (Sturn, 1999; Ostad & Sorenson, 2007). As one ages, an individual utilizes audible self-talk with less frequency instead preferring the use of inaudible self-talk during pre-school and early elementary years because of outward societal pressure (Ostad & Sorenson, 2007). As individuals enter adulthood, internal self-talk is employed as a means of task completion in addition to the previous self-guidance or meditative function (McGongile-Chalmers, Slater, & Smith, 2009). It is important here to note the element of mediation, where language is seen as a tool mediating between one's internal experience and the outside world. Ridgeway (2009) uses a metaphor to describe Vygotsky's mediation element of sociocultural theory. He states mediation acts in the same way as a pencil and paper do when aiding completion of an arithmetic problem; that is, once speech has been internalized, it may return into the public domain under the pressure of an unexpected event, a particularly difficult problem, or through instruction in order to aid in task completion. Directed external mediation and self-talk have been the topics of recent research and have enjoyed much attention, especially in athletics.

Sport research contains an increasing amount of literature regarding self-talk and its effects on athletes, indicating beneficial effects for positive, instructional, and motivational self-talk on performance (Tod, Hardy & Oliver, 2011; Weinberg, 2012). A meta-analysis by Hardy (2011) found "the existent evidence base does suggest that self-talk has beneficial effects on cognition (in particular, concentration and focused-related variables), cognitive anxiety, and the technical execution of motor skills" (p. 680). Additionally, Oliver, Masrkland, Hardy, and Peyherick (2008) state, "Although social-contextual factors may directly affect the content of self-talk, it is also possible

that self-talk may be actively used as a mechanism through which individuals make sense of and process their environment" (p. 201).

Stretching beyond the world of athletics and looking at self-talk in pathology, ruminative thoughts associated with depression are increasingly argued as perhaps being useful: a way to focus and analyze problems in order to gain insight and increase cognitive processing (Barbic, Durisk, & Andrews, 2014). Additionally, Frome (2014) found positive rumination regarding work tasks was negatively related to heavy alcohol use and after work alcohol use. Oliver, Markland, and Hardy (2010) also found informational self-talk was positively associated with positive affect regardless of students' experience or understanding of a lecture, further supporting the notion that self-talk can increase SE and OE. In relation to public speaking anxiety, Xiaowei, Brinthaupt, and McCree (2015) found that higher self-critical, self-talk scores were associated with more public speaking apprehension. Additionally, the same researchers discovered that self-critical and social-assessing self-talk were positively related to people's anxiety scores, whereas self-reinforcing self-talk was negatively associated with their anxiety. Self-talk has therefore been linked to increased SE and OE with vocalization of such thought being key to this link.

Now that theories about language and cognition have been connected, the question remains regarding the effect of language and cognition on SE and OE. Bandura (1982) posited that a person's beliefs in his or her own ability, that is, their precepts of efficacy, operate as cognitive mediators of action. In other words, Bandura believed that the more someone believed in their ability to complete a task, the more likely they were to be able to do so. Furthermore, he believed an individual will

successfully execute tasks which are consistent with his or her perceived SE limits.

Therefore, an increase in SE helps people who are in unsatisfactory situations succeed

by acting as internal encouragement prompting them to believe they can actually

succeed (King, 2008). Positive expectation for change, or the belief in a positive OE,

is considered one of the most important factors related to successful mental health

treatment and is theorized to be an important predictor of treatment response for

cognitive behavioral therapy (Price & Andersen, 2011). Having an outcome goal and

imagining success at that goal has increased both OE and outcome results (Martin &

Hall, 1995). Similarly, as a way to increase SE and OE, imagined interactions

constitute a type of social cognition that can reduce fear of communication. It is

believed the mental preparation enabled by such interactions can reduce disfluencies

and mitigate the anxiety that arises from a speech (Xiaowei, Brinthaupt, & McCree,

2015).

SE and OE regarding a feared object or situation can also be increased through

desensitization. Usually referred to as systematic desensitization, this technique

involves clients being taught relaxation techniques as they are slowly introduced to

increasingly upsetting stimuli (McCoy, 2004). According to Wolpe (1958) the process

at work is reciprocal inhibition through conditioning. That is, the bond between an

anxiety-provoking stimulus and the produced anxiety response will be weakened as

stimuli are bonded with assertiveness, relaxation, and deep inhalations. Early studies

involving desensitization indicated procedures produced a high reduction in

participant's speech anxiety on a self-report measure and using the physiological

measure of finger sweat (Hemme & Boor, 1976). Desensitization in practice often

involves imagery as a way to induce a fearful or avoided response. Using imagined situations as a way to induce desensitization has also been effectively used to treat various pathologies, including pathological gambling, phobias, as well as anxiety disorders (Dowling, Jackson & Thomas, 2008). Additionally, imagery has been used by women to increase their self-efficacy (Cumming, Cooley, Williams & Burns, 2015) and reduce fear of communication to audiences of strangers, resulting in more overall fluency in speech and higher self-reported speech evaluations. (Choi, Honeycutt, & Bodie, 2015).

Gradual exposure without relaxation as therapy dates back to Bandura (1969) who noted "exposure to stimuli graduated in averseness produces more rapid extinction of emotional behavior than when they are repeated at their full value" (p. 440). Exposure without relaxation has also been used as a way to treat a number of anxiety disorders and phobias (Hazlett-Stevens, 2008). Hazlett-Stevens (2008) found in vivo exposure, or exposure using real life situations, without relaxation training is a critical component in the treatment of panic disorder, agoraphobia, social phobia, as well as obsessive-compulsive disorder. Lastly, research is also suggesting that cognitive restructuring and exposure tasks are critical components of cognitive behavioral therapy for anxiety but that relaxation training itself has less of an impact (Peris, Compton, Kendall, Birmaher, Sherrill, March, & Piacentini, 2015).

In order to draw all the above theories together while testing the effect of thought on cognition, a flexible methodology had to be employed which provides an opportunity for imagination, a physiological response, as well as a way to assess the outcomes of emotional induction. Davison, et al.'s (1991) Articulated Thoughts in

Simulated Situations (ATSS) paradigm appropriately matched these needs. ATSS consists of a having a participant listen to an audio tape which describes an imaginal situation and then recording their responses at set intervals. In response to the growing emphasis on cognitive behavioral models, the paradigm was developed in order to assess thoughts under controlled environmental conditions and to provide empirical support for the cognitive-behavioral and phenomenological assumption that some psychological problems arise from the ways people perceive their world (Zanov & Davison, 2010). Approaching thoughts as an ongoing narrative and providing breaks in the event simulation allows a person the opportunity to articulate his or her thoughts and feelings about a given situation as it unfolds in line with gradual stimuli exposure found in desensitization theory. Additionally, ATSS allows recording of participant's speech in real time which affords several advantages over other, more passive techniques. Capturing the participant's speech as it develops provides an unstructured format for a response that is concurrent with his or her thoughts rather than retrospective (Davison, et al., 1997). Thoughts captured are in response to realistic, small-dosed, timed situations that can therefore determine how people think under stressful and neutral situations. This methodology has been used with demonstrated construct and content validation (Davison, Robins, & Johnson, 1983; Zanov & Davison, 2009; Zanov & Davison, 2010). Because ATSS is being used to both provide a framework for thoughts about a specific situation and to assess those thoughts, the impact of the ATSS methodology itself was also investigated as part of the current study in order to determine the effect of this methodology on the participants.

While ATSS has been developed as an assessment method to be used under controlled conditions, it has been called a mood induction technique as well. A study in 2015 investigated intimate partner aggression and used ATSS to arouse anger and then assess the participant's verbalizations in response to emotionally evocative scenarios involving dating partners (Maldonado, DiLillo & Hoffman, 2015). Additionally, Eckhardt and Crane (2008) called ATSS an anger-induction task when employing it to simulate an interpersonal conflict. The authors concluded the "ATSS anger arousal paradigm" (p. 435) proved to be a useful method of assessing aggression-relevant behaviors and in discriminating between aggressive vs. nonaggressive samples. More studies have described ATSS as a mood induction technique while at the same time using it to measure reactions to violence and anger within a dating situation (Rayburn, Jaycox, McCaffrey, Ulloa, Zander-Cotugno, Marshall, & Shelley, 2007; Eckhardt, Jamison, & Watts, 2002).

Much use of ATSS involves anger, aggression, or abuse assessment. It has been successful at conjuring emotion, placing the participant in a specific imagined place, and accurately assessing cognition. These studies did not call the methodology a mood induction technique but instead used ATSS as an outcome measure. Nesbit and Conger (2011) used videotaped driving situations to assess angry thoughts in the hopes of applying the methodology to treatment of problematic driving. Others found cognitive variables brought out by ATSS were associated with driving anger expression, accident-related variables, and driving-related risky and aggressive behavior (Pinto, 2009). Rayburn and Davison (2002) discovered participants' articulated thoughts revealed more intentions to physically aggress against the

perpetrator, and intervene to help a hate crime victim, while DiLiberto, Katz, Beauchamp, and Howells (2002) used ATSS to look at cognitive activity in aggressive and non-aggressive adolescent boys. Barbour (2006) discovered mean office blood pressure levels were significantly and positively related to self-reported anger suppression following laboratory anger induction when using ATSS.

Findings have repeatedly endorsed ATSS as a method of obtaining valuable information regarding the anxious thoughts of participants. Zanov (2009) used ATSS to assess anxious flyers to determine whether alteration of the standard pre-take off announcement produced greater articulations of anxiety, negative outcome expectancies, pleas for God's help, appeals for explanation, and relief about landing. Findings showed in-the-moment, think-aloud data gathered via ATSS was more informative than those of questionnaires. Investigating social anxiety, a slightly modified version of ATSS was used to assess socially anxious and non-anxious men, finding anxious individuals displayed a greater focus on the self and a concentration on irrational concerns while individuals without anxiety spoke more thoughts regarding the environment and more positive thoughts about other persons (Bates, Campbell & Burgess, 1990). Bates, Jackson, and Lawrence (1996) examined cognitive factors of anxiety and found socially anxious men made more pessimistic self-appraisals, more negative self-focused thoughts, and showed more negative self-other biases than participants who were not anxious when viewing more assertive men in video segments of the paradigm.

It is speaking open about ones thoughts and feelings which provides the ability of ATSS to work as an assessment and conjure emotions in the participants. Free

association, or speaking openly about anything that comes to one's mind, was an evolution in psychoanalysis which eventually replaced the hypnotic technique as a method of disclosing painful memories (Faber, 2005). Since that adaptation, a key component of talk therapy has become a reliance on an individual's ability to accurately articulate his or her own thoughts and feelings using spoken language. For example, the widely used cognitive behavioral therapy teaches clients to restructure words or phrases which indicate negative thoughts and maladaptive beliefs. Similarly a therapist in family therapy uses the family's own language strategically as a means to facilitate joining and rapport-building (Corey, 1996). Findings from research imply not only the possibility of cognitive change from speaking but the use of ATSS as a methodology capable of eliciting the required speech as a method of assessment.

In the current study, participants were placed in an imaginal situation using ATSS. Each participant was then instructed to speak openly about his or her feelings. Such an articulation of thought using speech is hypothesized to lead an individual to change cognition based on insight into one's own thoughts. Using ATSS, cognitions related to one's SE and OE are examined using an analysis of variance and a States of Mind Analysis (SOM) (Schwartz & Garamoni, 1986). Supported hypothesizes can prompt further investigation into the relationship between speaking openly about thoughts and feelings on both SE and OE to eventually open the way to more effective treatment of pathology. In addition, findings from this study may contribute to the fields of cognitive and counseling psychology through a reaffirmation of the effectiveness of speaking as part of the cure in talk therapy and lead to greater understanding of how speech impacts thought. More specifically, further research could investigate client

word choice on clinical outcomes. Finally, the study also seeks to demonstrate how the

ATSS paradigm can be used as a tool to not only assess the thoughts of participants,

but also as a valid methodology capable of placing participants in a desired

hypothetical situation.

Statement of Hypothesis

Results of the study are expected to uphold the hypothesis that individuals who openly speak about their thoughts and feelings using the ATSS paradigm will experience a greater increase in SE and OE as reported on a scaled assessment when compared to those who speak openly at the end of the imagined situation (ATSS delayed) and those who speak openly about physical aspects of the imagined scenario (control). It is also hypothesized that a mean states of mind average (SOM) higher in positive thought would be present in both the delayed and control ATSS groups using a ratio from Davison et al. (1991). A confirmation of the null hypothesis would be no change between the experimental, delayed and control groups on scaled assessments and states of mind analysis (SOM).

Method

Participants

A total of 81 volunteers comprised of students, faculty, staff, and members of the general public aged over 18 took part in the study at a university in the Midwest and were randomly divided into three groups. The study was terminated early when an analysis of the first 81 participants revealed no possibility of support for the hypothesis. Furthermore, a power analysis determined the effect size was so small that an unreasonable number of participants would be required to achieve significance.
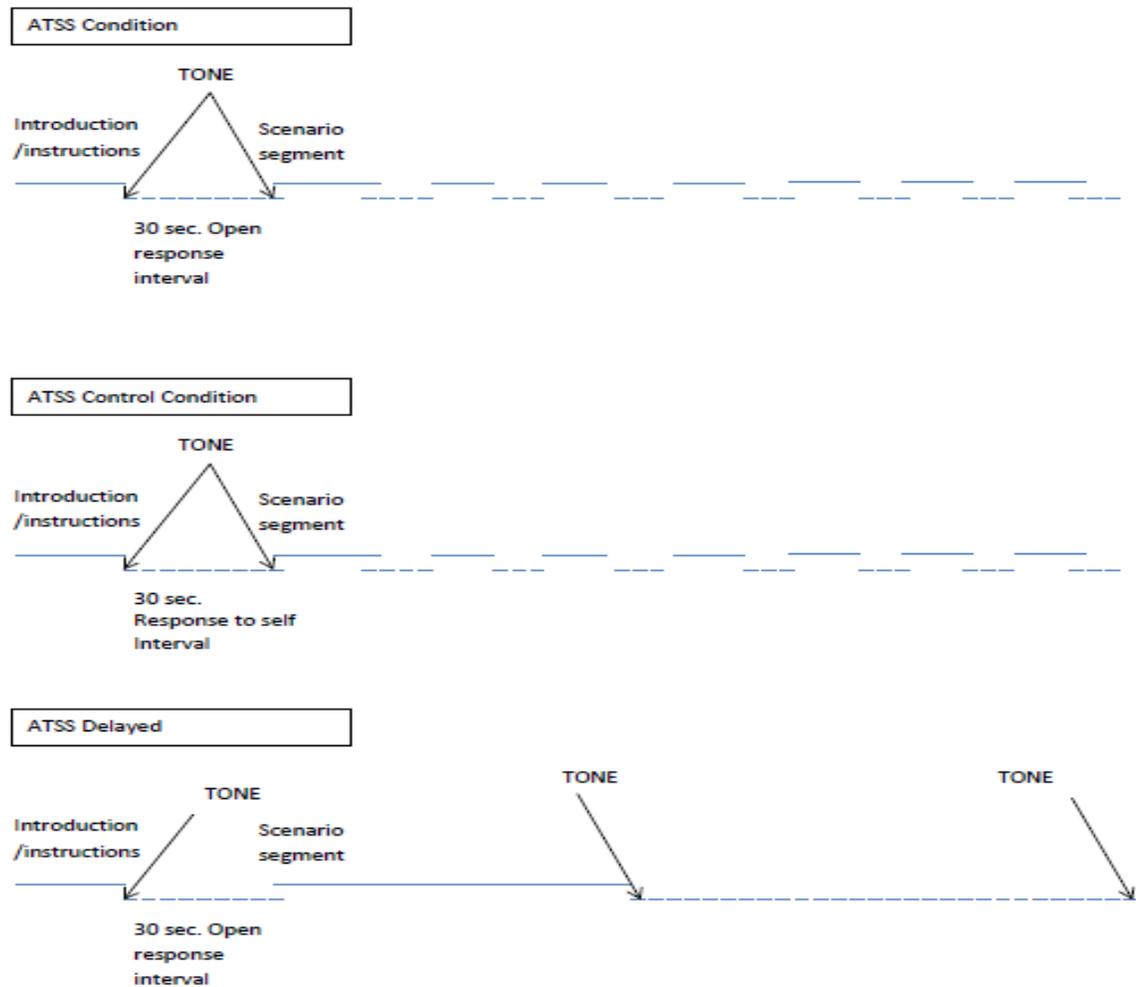
Procedure

Entering a private room on the university campus, volunteers were informed they could withdraw at any time without consequence if they desired and signed an informed consent form prior to the experiment beginning. A trial experiment revealed participants did not clearly understand the recorded instructions and so volunteers were given instructions by the experimenter regarding how prepare for the upcoming experiment as they were seated. Each was told they were to going to be asked to imagine giving a speech to a class and they were to imagine themselves in the situation as best as possible, as if they were actually there. They were instructed to only imagine giving a speech and not to actually give one. Then, based on their group assignment, the experimenter told the participant to respond at the intervals with their thoughts and feelings out loud, listen to the recording and then talk about their thoughts and feelings. In the case of the neutral group, participants were to respond about any physical aspects imagined scenario at each interval, but not how they felt. The experimenter finally instructed each participant to speak clearly into the microphone on the headset in order to aid the voice-to-text software and gave each

participant permission to manually change any translations made in error by the software.

Following the logistical portion of the study (seating, headset, and giving instructions), each participant was left alone to begin work on a packet. After completing the demographic information and the initial SE and OE measures in the packet, participants heard one of three audio recordings. Group one, the ATSS group, heard ATSS instructions and narration. A second group, the ATSS delayed group, heard a delayed response recording. A third group, the control group, heard an ATSS neutral recording. The duration of the experiment was approximately 20 minutes from seating of the participant to conclusion of the experiment.

Figure 1: Group Recordings Heard

ATSS Condition

TONE

Introduction /instructions   Scenario segment

30 sec. Open response interval

ATSS Control Condition

TONE

Introduction /instructions   Scenario segment

30 sec. Response to self Interval

ATSS Delayed

TONE   TONE   TONE

Introduction /instructions   Scenario segment

30 sec. Open response interval

Materials

Packets were assembled for each volunteer and consisted of an informed

consent form on the cover and first page. The second page held the demographic

information form which consisted of fill-in-the-blank questions. Following that page,

participants were given the SE and OE questionnaire which used a modified version of

Bandura's (2006) driving self-efficacy scale where aspects of driving were replaced

with aspects deemed necessary for successful public speeches (Osborn & Osborn,

2003; see appendix E). Pre-and post-test scales were identical and consisted of ten

questions rating SE items on a scale of 0-100 and five questions relating to OE following Bandura's definition of the likely consequences that a certain behavior will produce and were rated 0-100% (Bandura, 1986). Each post-test questionnaire had one additional question regarding change in overall attitude towards public speaking rated categorically as negatively changed (feel less able), unsure, not changed, and positively changed (feel more able). On page five of the packet, instructions were given to begin the audio recording with page six instructing the participant to "stop here" until the recording finished. Page seven consisted of the post-test as described above.

All recordings consisted of an introduction and instruction narration followed by a delay of 4 seconds allowing participants time to ask questions or quit the study if necessary. Participants were then prompted to envisage the task of giving a public presentation to a group of people in a room of their own choosing. After the first narration segment participants were given 30 seconds to respond aloud if they wished. This first interval was intended to immerse the participant in the situation and get them accustomed to the procedure in general. All groups heard the same scenario narration for the duration of the experiment with only the instructions as to responses, response times, and response intervals changing between groups (see figure 1). Narration of the scenario included common experiences one may encounter while giving a presentation including accidently skipping a slide during the presentation, noisy members of the public walking by outside, and noticing two audience members passing a note.

Recorded narration in the ATSS group was interrupted approximately every 16 seconds so the participants could think aloud for 30 seconds. Control group

participants responded openly at the same intervals about physical aspects of the room or audience members in the room and not their thoughts or feelings. Both groups alternated eight narration segments with nine response intervals (a total of two minutes). ATSS delayed group heard the entire narration without interruption and were given a total of two uninterrupted minutes, at the end of the narration in order to think aloud regarding their thoughts and feelings.

All participants used *Google Voice note II, v 2.5.2* voice detection software online on the desktop computer in front of them and were allowed to make text corrections as needed to the transcriptions in order to maintain the accuracy of what was said for coding. A calculation of the participant's SOM, or a measure of their internal positive and negative thoughts is based on the work of Schwartz and Garamoni (1989) who observed "cognitive balance may represent a crucial aspect of psychological self-regulation, or cognitive homeostasis, that can be measured as a form of mental temperature" (Alsaleh, Lebreuilly, Lebreuilly, & Tostain, 2011, p. 43). The SOM model is a structure which uses a ratio in order to study the relationship between pathology and the balance of positivity and negativity dimensions within the dialog of a participant (Schwartz & Garamoni, 1986). The model also suggests an optimal balance of positive and negative cognitions for psychological wellbeing. In the current study, the SOM was used to measure the verbal responses of participants because ATSS free response measured by traditional rating scales may not be compatible with scaled questionnaires due to the wide range of expression contained in recorded free speech versus controlled, directed questions (Davison, Haaga, Rosenbaum, Dolezal, & Weinstein, 1991).

Results

    A one-way analysis of variance (ANOVA) was calculated on participants' mean response ratings for items on the SE pre- versus post-questionnaire. The analysis was not significant, F (2, 78) = .251, p = .779 (r = .088). Findings were not significant, and did not support the hypothesis in regards to OE, F (2, 78) = 1.18, p=.317 (r=.249). Additionally, the second hypothesis that mean states of mind averages from the ATSS group would be higher in comparison to the delayed and control ATSS groups was also not supported. There was no significant difference between the SOM scores for ATSS and ATSS Delayed conditions, F (2, 78) = 9.51, p=.982 (r=.212).

    SOM analysis was conducted following Davison et al.'s (1991) usage in which a ratio of positive to positive plus negative cognitions (P/ [P+N]) is calculated. Cognitions in the ATSS group averaged a ratio of .46 while the ATSS neutral group averaged .10 and the delayed group averaged .48. These ratios were not statistically significant.

Discussion

Results of this study, while being unable to support the hypothesis should continue to spur further discussion and point to future areas of research into the impact of language on our thoughts. In order to properly understand why hypotheses were not supported, an investigation of the theory used to support the idea is first examined with specific attention paid to SE and OE.

One factor affecting the validity of this study was the relationship between SE, OE, and talk. While mechanisms for the articulation of thought and those mechanisms' ability to alter cognition have been addressed, the current study demonstrated that there may not be an immediate link between these constructs (SE, OE, and speech). Using the multicomponent model of working memory, the phonological loop is part of a system for holding sequences of acoustic and speech-based information in order to be processed (Baddeley, 2015) and not actually the higher processing system itself. It is possible that reliance on the phonological loop itself was not likely to alter SE and OE, however evidence exists (as noted earlier) that this component could indeed be a mechanism by which cognitive appraisal takes place. Indeed, Baddeley does not consider the phonological loop as passive but rather part of an active system comprising a passive store and an active rehearsal component (personal communication, November 3, 2015). Additionally, one participant remarked on the negative impact of seeing (and processing) her words on the screen as she spoke noting "I felt weak and miserable seeing how bad I felt on the screen." While this study sought to utilize the loop in order to change cognition, it still cannot be directly related to SE and OE but rather the immediate emotional state of the individual. So,

while there appears to be theoretical support for the role of the phonological loop in appraisal of one's spoken words, the link between this component and SE and OE remains unclear.

As one looks at ATSS and its use in the study it becomes apparent the methodology of the study itself was unable to adequately address the hypothesis. For instance, testing the idea of whether or not speaking aloud affects cognition may not be compatible with SE and OE in and of themselves. While the paradigm held promise as a way to study speaking as an active ingredient of therapy, the types of speech elicited without direction is not enough to change SE and OE itself. Quite simply, ATSS is not a mechanism to change SE or OE. In fact, ATSS has never been used to change or even measure SE or OE in participants. While this was known prior to the beginning of the study, ATSS remained the most effective way of conjuring the requisite articulation of thoughts.

Another consideration to this point is the use of the theory linguistic relativity. It may have been applied to this study too narrowly as the concept denotes a larger social component rather than an individual, internal set of ideas as participants related their thoughts to the simulated situation. While there is little doubt the content of participants' speech reflected an internal, noumenal world, it remains unclear just how that world, without direct challenge or application to the situation would alter SE or OE. It is also true that most research for the principle rests on multi-cultural relations and translation rather than the content of an individual's inner thoughts (Hunt & Agnoli, 1991). Furthermore, there is also growing discussion surrounding the idea of

linguistic relativity as being unable to be supported in any true scientific fashion with some even going so far as to call the theory a hoax (Lucas, 2015).

Ideas of metacognition also are unable to support the hypothesis because participants did not actively listen to or read their own analog. While this was assumed to occur via the phonological loop, without direction it appears not to have occurred and thus metacognitive change was inhibited, left only to inference by the participant, not acting on its own. Additionally, participants in the study, unlike the previous self-talk, metacognitive and desensitization studies cited had no expectation of change. Participants simply spoke out loud without a reason as to why they were speaking.

In addition to not providing a direction or goal to work towards, prompts used during the recording were not in and of themselves anxiety-producing but rather a collection of conceivable events which could occur during a public presentation (i.e. accidently skipping a slide, noise in the hallway, students exchanging a note). This normality of experience also explains why groups' SE and OE remained unaffected as well as why SOM differences were insignificant and in line with Davison et al.'s (1991) assertion that SE is inversely correlated with anxiety. When little anxiety was produced, little effect was found. Davison et al. (1991) compared groups using a stressful, but not supportive situation and a simply challenging situation. The current study made no such variations. It is important to note however, this was done not so the effect of anxiety could be measured but so that the speech itself and the interval at which it was spoken could be measured. However, given the lack of anxiety induction, it was unlikely the ATSS or ATSS delayed methodology would have altered

SE and OE. Leary (1988) also suggested as much when he posited higher anxiety may in fact boost SE and OE when goals regarding success are determined before participation in the situation is begun. The key word in this phrase is goal. As noted earlier, no goal was presented to participants and thus statements made were not directed towards increasing SE or OE. Furthermore, a way of engagement towards the anxiety producing stimuli was not provided either. That is, in exposure therapy the practitioner will assist the individual while the stimuli is presented, aiding and directing the participant towards the end goal. This study did not frame the stimuli at hand in any particular fashion in order to present a way of approaching the stimuli but rather simply presented it with the expectation of individual engagement through speech. As Bandura (1982) put it, "people rarely construct hierarchies of emotionally disturbing situations and systematically engage in covert extinction trials" (p. 438), meaning without proper guidance as to how to engage the stimuli little hope for change could be assumed.

Along with the lack of anxiety, ATSS as a method of desensitization needs to be investigated as well. While many participants noted relief at the end of the procedure, they did not appear to change thoughts as the segments of the procedure continued. That is, exposure to the situation occurred via the imaginal segments but the accompanied relaxation did not. In this way, participants were unable to extinguish the emotional response. Thus, instead of each segment being a desensitization session with the capacity to alter cognition, the entire procedure was viewed as one, continuous segment. In fact, several participants noted they were glad when "it was over" with one participant seeking further discussion of their negative emotions and

reminded of the presence of counseling services at The University's Wellness Center. While this statement seems to contradict the above notion regarding the lack of anxiety producing stimuli, one must be reminded of the insignificance of the results. Perhaps some participants were effected more by the situation than others, with the situation proving more fearful in some than in others, or some participants willing to imagine more in depth and encounter their internal feelings more deeply than others. In conjunction with this, a ceiling effect could be seen on scaled scores as well with participants initially rating themselves high in SE and OE had little or no movement in scores. Indeed, the variation in these arguments alone point to an explanation of the insignificance. Similarly, while it is clear from the above incidents of relief following the experiment, there was no measure used looking at anxiety. Clearly some participants did experience anxiety while others may have not. Overall effect of anxiety on the participant's ability to articulate is or her thoughts was unknown as was the moderating effect of anxiety on SE and OE itself. Indeed, looking further at desensitization as a factor, anxiety should have certainly been considered especially with the sample being a non-clinical population.

In all, several flaws have been shown in the study which contributed to the unsupported hypotheses. In sum however, it is the belief of the researcher that SE and OE are not immediately impacted by the articulation of thoughts but rather articulation of thought is simply a step towards application of the idea that speech can change thought. Further research may seek to determine how speech related to specific internal cognitions affects thought rather than the generality of thoughts studied here.

The human mind is capable of thought unconstrained by physical boundaries. Thought occurs on many levels. Speech, however allows the transmission of only a single word or line of thought to occur at a particular time, like a digital signal in your phone or television where a zero or one represents a part of the information (00011001000111011). However, humans do not think like this; humans think on differing levels (see Ridgeway, 2009) whereby what one is saying out loud, is heard by both the speaker and the listener and then changed by the speaker based on the message one wants others to hear. Humans change their words, and to some extent their thoughts, based on context, audience, social norms, available vocabulary, meaning, and several other factors. The goal of the present study was to determine if a false situation could be created by which language could be used to alter thoughts. If speaking out loud causes one to change what one is thinking so the listener gets the appropriate information, then what information is being missed? Is that missed information relevant? In what way could that information be relevant? Does that information more easily access a maladaptive belief? If any of the above questions are answered, then how speaking could be changed to access those layers of thoughts? As one can ascertain then, attaching SE and OE to one's spoken thoughts was far too general of a proposition. What should have been investigated was a way of accessing the varied levels of cognition though speech perhaps by still using ATSS as it may be possible to get "deeper" cognitions like schemas and beliefs and assumptions (Davison, personal communication, October 2, 2015) and surveys as an affidavit of validity.

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Appendices

Appendix A

ATSS Paradigm Conditions
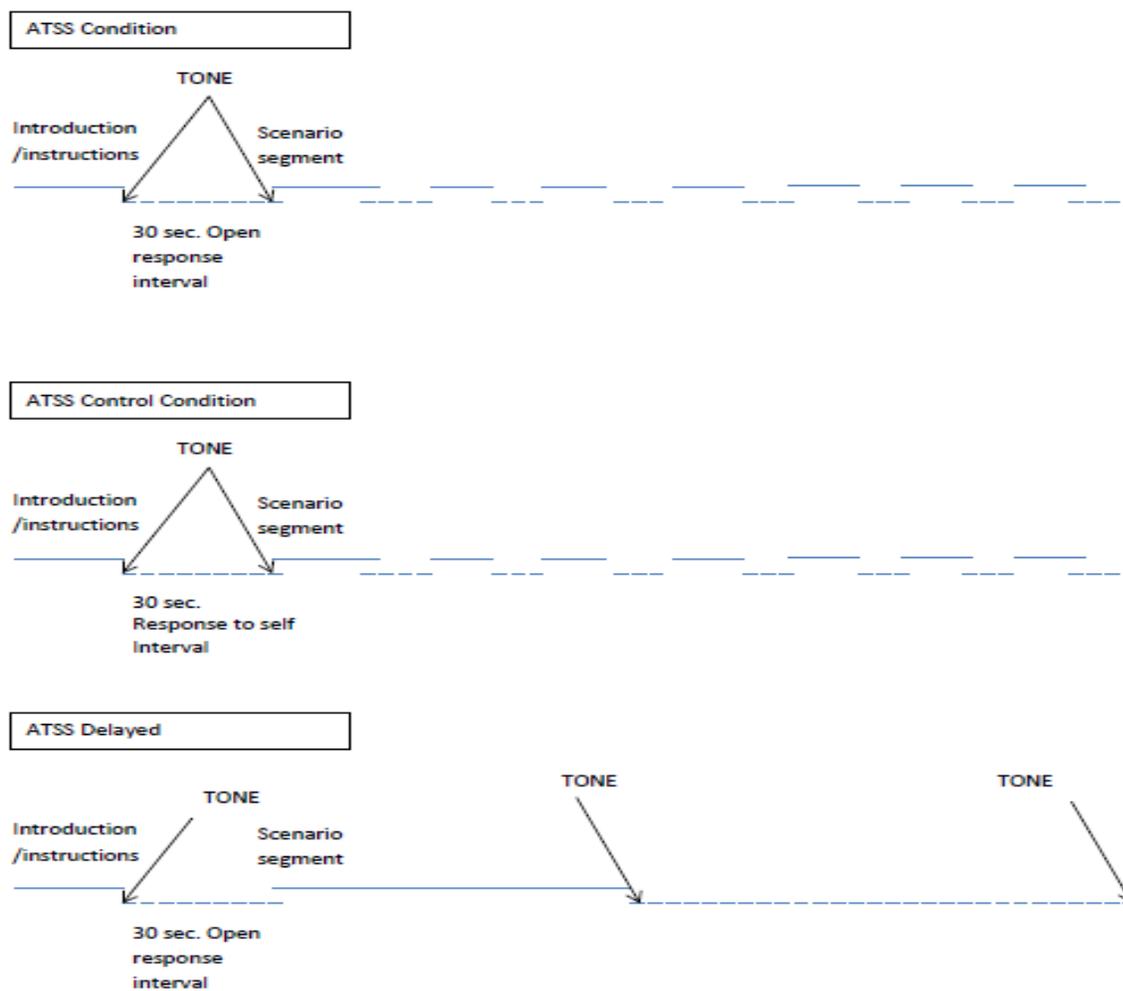
Appendix B

ATSS Group Narration Sequences

AUDIO RECORDED SCRIPT (ATSS) (ATSS GROUP)

Thank you for your participation. You will be asked to place yourself in an imaginary situation. Image the situation for yourself as if you are actually there. You will hear the narrator prompting you to think about the situation using questions. These questions are to help you create an accurate mental image and really give you a sense of being at a particular place, to do a particular task; in this case to give a speech. So when you hear a tone and the narration stops, speak whatever it is that comes to your mind. Do not worry about the content of what you say as only a transcript will be made available to the researchers. No one will know it was you who said those words. When you hear a second tone another segment of audio recording will begin, followed by another period where you can freely speak. This process will repeat for a few segments.

To summarize, in a moment you will hear a narrator asking rhetorical questions so you can accurately come up with a realistic picture and feeling of giving a presentation to a class. When you will then hear a tone which sounds like this (*TONE*), speak freely about how you feel and what your thoughts are about the situation. Please try to keep in the mindset as if you were still in the room, accurately describing the thoughts and feelings you are experiencing as if you are actually there, like time has stopped. You will hear a tone again which will start the narration over. This process will repeat itself a few times. Remember, you are not actually to give a speech but reflect on your own thoughts and feelings about the situation.

If you have any questions now please pause the recording and contact the administrator outside the room. The administrator will not be able to answer any questions from now on so please ask now if anything is on your mind. Similarly, if you feel that this process will cause you unnecessary anxiety or discomfort, you make end your participation now without prejudice. All documents related to your visit will then be destroyed.

3 second delay…..

Okay, let's get started.

Before we begin our scenario please take a moment to relax. Take a deep breath or two and notice that you are completely alone. Try to empty your mind of pressing matters as this study will not take long, and right now there is nothing to distract you.

4 second delay…

Imagine that you chose a topic to present to a class of students who are aged 19 to 30. What could your topic be? How have you prepared? Now, let's assume you have

completed a power point slide show for this presentation. What do the slides look like? What are the graphics? How much content are on the slides? Do you have notes? Thinking about physical space, where is the room and what does the room look like? What will the audience members look like? What do you look like? For this initial segment think and place yourself into the situation. For this initial segment think and place yourself into the situation you may remain silent if you wish for this one segment.

(TONE) 30 sec. delay (TONE)

You are now outside, walking into the building where your presentation is to be given. You open the doors and walk down a hallway to the room. At the tone describe your thoughts and feelings regarding this situation.

(TONE) 30 sec. delay (TONE)

You enter the room close to last and are greeted by the professor who asks if you are ready. You reply yes and walk over to the computer at the front of the room to upload your slides. As you do this the professor is addressing the room, telling them who you are and what you are presenting on.

(TONE) 30 sec. delay (TONE)

Slides uploaded you look to the professor who takes a seat and nods to you. You begin speaking. As you speak you look at your slide and then the audience. Advancing the slide you notice a short delay from slide to slide

(TONE) 30 sec. delay (TONE)

As you continue to speak you skip a slide and need to adjust things accordingly. Looking back out into the audience and see they are focused on you. Everyone is watching you and listening to what you are saying. Some are taking notes, others just watching. The professor is taking notes.

(TONE) 30 sec. delay (TONE)

Presenting materials you notice a couple of people in the back of the room are talking to each other and laughing quietly. The also pass a notebook to each other, taking turns writing things in the book. Others are looking at you, their eyes from time to time scanning you but otherwise just watching. Many are nodding long and a few are looking downward.

(TONE) 30 sec. delay (TONE)

People are walking by the room outside as you are talking and everyone can hear their voices. You are still presenting materials. Many of the people in the room are slouching in their chairs and the professor appears interested in the presentation although a couple of people look perplexed.

(TONE) 30 sec. delay (TONE)

From time-to-time the professor displays a furrowed brow and writes notes. You are describing materials that you, yourself find difficult to understand. Many in the audience are watching you while others are looking away. The two people in the back have stopped talking. Most people are focused solely on you.

 (TONE) 30 sec. delay (TONE)

You have now finished your presentation. Finishing the assignment you say 'that is it' and wait. There is applause from the room. You remember to ask if there are any questions. There are none. Many audience members seem disinterested and are talking to one another. The professor thanks you approaching the front of the room.

(TONE) 30 sec. delay (TONE)

Thank you for completing this portion of the study, you may now turn the page in your packet and complete the final survey

Audio Recorded Script (ATSS-D) (Delayed Group)

5 second delay

Thank you for your participation. You will be asked to place yourself in an imaginary situation. Image the situation for yourself as if you are actually there. You will hear the narrator prompting you to think about the situation using questions. These questions are to help you create an accurate mental image and really give you a sense of being at a particular place, to do a particular task; in this case to give a speech. So when you hear a tone at the end of the narration stops, speak whatever it is that comes to your mind. Do not worry about the content of what you say as only a transcript will be made available to the researchers. No one will know it was you who said those words. You will have a few minutes to speak, so do not rush, but do speak about your thoughts and feelings regarding the situation.

To summarize, in a moment you will hear a narrator asking rhetorical questions so you can accurately come up with a realistic picture and feeling of giving a presentation to a class. When you will then hear a tone which sounds like this (*TONE*), speak freely about how you feel and what your thoughts are about the situation. Please try to keep in the mindset as if you were still in the room, accurately describing the thoughts and feelings you are experiencing as if you are actually there, like time has stopped. You will hear a tone again which will start the narration over. This process will repeat itself a few times. Remember, you are not actually to give a speech but reflect on your own thoughts and feelings about the situation.

If you have any questions now please pause the recording and contact the administrator outside the room. The administrator will not be able to answer any questions from now on so please ask now if anything is on your mind. Similarly, if you feel that this process will cause you unnecessary anxiety or discomfort, you make end your participation now without prejudice. All documents related to your visit will then be destroyed.

3 second delay…..

Okay, let's get started.

Before we begin our scenario please take a moment to relax. Take a deep breath or two and notice that you are completely alone. Try to empty your mind of pressing matters as this study will not take long, and right now there is nothing to distract you.

4 second delay…

Imagine that you chose a topic to present to a class of students who are aged 19 to 30. What could your topic be? How have you prepared? Now, let's assume you have completed a power point slide show for this presentation. What do the slides look

like? What are the graphics? How much content are on the slides? Do you have notes? Thinking about physical space, where is the room and what does the room look like? What will the audience members look like? What do you look like? For this initial segment think and place yourself into the situation. In order to properly place you in the situation, there will be a delay of 30 seconds in the recording, think about the situation silently until narration resumes.

30 second delay…

You are now outside, walking into the building where your presentation is to be given. You open the doors and walk down a hallway to the room.
You enter the room close to last and are greeted by the professor who asks if you are ready. You reply yes and walk over to the computer at the front of the room to upload your slides. As you do this the professor is addressing the room, telling them who you are and what you are presenting on.

Slides uploaded you look to the professor who takes a seat and nods to you. You begin speaking. As you speak you look at your slide and then the audience. Advancing the slide you notice a short delay from slide to slide

As you continue to speak you skip a slide and need to adjust things accordingly. Looking back out into the audience and see they are focused on you. Everyone is watching you and listening to what you are saying. Some are taking notes, others just watching. The professor is taking notes.

Presenting materials you notice a couple of people in the back of the room are talking to each other and laughing quietly. The also pass a notebook to each other, taking turns writing things in the book. Others are looking at you, their eyes from time to time scanning you but otherwise just watching. Many are nodding long and a few are looking downward.

People are walking by the room outside as you are talking and everyone can hear their voices. You are still presenting materials. Many of the people in the room are slouching in their chairs and the professor appears interested in the presentation although a couple of people look perplexed.

From time-to-time the professor displays a furrowed brow and writes notes. You are describing materials that you, yourself find difficult to understand. Many in the audience are watching you while others are looking away. The two people in the back have stopped talking. Most people are focused solely on you.

You have now finished your presentation. Finishing the assignment you say 'that is it' and wait. There is applause from the room. You remember to ask if there are any questions. There are none. Many audience members seem disinterested and are talking to one another. The professor thanks you approaching the front of the room. At the tone, speak freely about your thoughts and feelings, you will have several minutes to speak without interruption.

(TONE) 4 minute delay (TONE)

Thank you for completing this portion of the study, you may now turn the page in your packet and complete the final survey

Appendix D
<u></u>   Audio Recorded Script (ATSS-N) (Neutral Group)

Thank you for your participation. You will be asked to place yourself in an imaginary situation. Image the situation for yourself as if you are actually there. You will hear the narrator prompting you to think about the situation using questions. These questions are to help you create an accurate mental image and really give you a sense of being at a particular place, to do a particular task; in this case to give a speech. So when you hear a tone and the narration stops, speak about specific details regarding the room, people in the room, your slides, about specific details regarding the room, people in the room, your slides, anything other than how you feel. Do not worry about the content of what you say as only a transcript will be made available to the researchers. No one will know it was you who said those words. When you hear a second tone another segment of audio recording will begin, followed by another period where you can freely speak. This process will repeat for a few segments.

To summarize, in a moment you will hear a narrator asking rhetorical questions so you can accurately come up with a realistic picture and feeling of giving a presentation to a class. When you will then hear a tone which sounds like this (*TONE*), speak freely about the physical space and other individuals in the situation. Please try to keep in the mindset as if you were still in the room, accurately describing the thoughts and feelings you are experiencing as if you are actually there, like time has stopped. You will hear a tone again which will start the narration over. This process will repeat itself a few times. Remember, you are not actually to give a speech but reflect on your own thoughts and feelings about the situation.
If you have any questions now please pause the recording and contact the administrator outside the room. The administrator will not be able to answer any questions from now on so please ask now if anything is on your mind. Similarly, if you feel that this process will cause you unnecessary anxiety or discomfort, you make end your participation now without prejudice. All documents related to your visit will then be destroyed.
3 second delay…..

Okay, let's get started.
Before we begin our scenario please take a moment to relax. Take a deep breath or two and notice that you are completely alone. Try to empty your mind of pressing matters as this study will not take long, and right now there is nothing to distract you.
4 second delay…

Imagine that you chose a topic to present to a class of students who are aged 19 to 30. What could your topic be? How have you prepared? Now, let's assume you have completed a power point slide show for this presentation. What do the slides look like? What are the graphics? How much content are on the slides? Do you have notes? Thinking about physical space, where is the room and what does the room look like? What will the audience members look like? What do you look like? For this initial segment think and place yourself into the situation. For this initial segment think and place yourself into the situation you may remain silent if you wish for this one segment.

(TONE) 30 sec. delay (TONE)

You are now outside, walking into the building where your presentation is to be given. You open the doors and walk down a hallway to the room. At the tone describe your thoughts and feelings regarding this situation.

(TONE) 30 sec. delay (TONE)

You enter the room close to last and are greeted by the professor who asks if you are ready. You reply yes and walk over to the computer at the front of the room to upload your slides. As you do this the professor is addressing the room, telling them who you are and what you are presenting on.

(TONE) 30 sec. delay (TONE)

Slides uploaded you look to the professor who takes a seat and nods to you. You begin speaking. As you speak you look at your slide and then the audience. Advancing the slide you notice a short delay from slide to slide

(TONE) 30 sec. delay (TONE)

As you continue to speak you skip a slide and need to adjust things accordingly. Looking back out into the audience and see they are focused on you. Everyone is watching you and listening to what you are saying. Some are taking notes, others just watching. The professor is taking notes.

(TONE) 30 sec. delay (TONE)

Presenting materials you notice a couple of people in the back of the room are talking to each other and laughing quietly. The also pass a notebook to each other, taking turns writing things in the book. Others are looking at you, their eyes from time to time scanning you but otherwise just watching. Many are nodding long and a few are looking downward.

(TONE) 30 sec. delay (TONE)

People are walking by the room outside as you are talking and everyone can hear their voices. You are still presenting materials. Many of the people in the room are slouching in their chairs and the professor appears interested in the presentation although a couple of people look perplexed.

(TONE) 30 sec. delay (TONE)

From time-to-time the professor displays a furrowed brow and writes notes. You are describing materials that you, yourself find difficult to understand. Many in the audience are watching you while others are looking away. The two people in the back have stopped talking. Most people are focused solely on you.

 (TONE) 30 sec. delay (TONE)

You have now finished your presentation. Finishing the assignment you say 'that is it' and wait. There is applause from the room. You remember to ask if there are any questions. There are none. Many audience members seem disinterested and are talking to one another. The professor thanks you approaching the front of the room.

(TONE) 30 sec. delay (TONE)

Thank you for completing this portion of the study, you may now turn the page in your packet and complete the final survey

Appendix E

Sample packet given to Participants

INFORMED CONSENT

Outcomes of using Articulated Thoughts during a Simulated Situation

27th of April, 2015, amended 19th of May 2015

My name is Corey S. Didier. I am graduate student in the Clinical Psychology program at Cardinal Stritch University. This is part of my master's thesis and a requirement of the program.

Procedure: As part of my thesis, I will be conducting a research study. You will be asked to do the following:

1. Fill out a short survey
2. Attach a small, lightweight, and painless pulse monitor to the lobe of your ear
3. Listen to an audio recording and follow the instructions given
4. Complete another survey

The study should not exceed 30 minutes.

Confidentiality: Your responses and pulse are number coded. Names are not being included.

Risks: You will be asked to imagine a situation. While this situation is not out of the possibility of normal events, you may feel some anxiety. If you are uncomfortable you may end your participation at any time. There are no known risks to use of the pulse monitor; it is a passive device.

Benefits: Although you may not directly benefit from this study, it is hoped this study will provide further information to psychologists regarding how speaking out loud could impact beliefs and expected results.

Participation is Voluntary: Your participation is strictly voluntary and you may end participation at any time (in which case any information I recorded would be destroyed upon your request). Your will not be penalized for leaving the study.

Contact Information: Once the project is completed, I would be glad to share the results with you. In the meantime, if you have any questions, concerns, or comments on this project, please contact:

Corey S. Didier	Trevor Hyde PhD.
(Advisor)	
Department of Psychology	Department of Psychology
Cardinal Stritch University, Box 102	Cardinal Stritch University, Box 102
6801 N. Yates Rd.	6801 N. Yates Rd.
Milwaukee, WI 53217	Milwaukee, WI 53217
414-410-4834	414-410-4834

If you have any complaints about your treatment as a participant in this study, please call or write:

Terrance Steele PhD.
Chair, Institutional Review Board
Cardinal Stritch University, Box 358
6801 N. Yates Rd.
Milwaukee, WI 53217-3985
(414) 410-4474
tlsteele@stritch.edu

Although your name may be asked, all complaints are kept in confidence.

I have received an explanation of the study and agree to participate. I understand that my participation in this study is strictly voluntary and that I may end my participation at any time without consequence or prejudice. I further understand that my words may be transcribed to written text and coded by researchers.

_____   _____

__

Your Signature   Date

Thank you for your cooperation.

This research project has been approved by the Cardinal Stritch University Institutional Review Board for the Protection of Human Research Participants on May 15, 2015 (to be changed per approval date), for a period of 12 months.

Participant Questionnaire

What is the highest grade level achieved so far to date?

(H.S. Diploma, College Diploma, Associates degree, freshman, junior, etc., B.A., M.A., Dr., etc.)

_____

What is your age?   _____

What is your gender (male/female)?   _____

This academic year (August 2014 to May 2015) How many public speeches have you made by yourself to groups of more than ten people? (Circle one)

     0   1   2   3   4   5   6   7   8   9   10
or more

If You Were To Give Public Speech Now, To An Audience Of Peers, And Given An Adequate Time To Prepare, Please Rate Your Ability Level Based On The Following:

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

0	10	20	30	40	50	60	70	80	90	100

Cannot Do at all   **Moderately can do**   **Highly certain can do**

Confidence Level
(0-100) using the scale above

Overall ability to give a good presentation   _____

Maintain an appropriate attitude about subject matter   _____

Speak clearly and loud enough for all to hear   _____

Move around during presentation   _____

Use hand, facial, and body gestures   _____

Respond to audience feedback during presentation   _____

Control Emotions   _____

Explain topics according to planned presentation   _____

Listen and respond to questions appropriately   _____

What do you feel your level of anxiety is when having to give a speech using 0 as none and 100 as high anxiety

_____

NOW, USING 0 AS 0% AND 100 AS 100%

What percentage of the class is likely to understand the topic when done   _____

What percentage of the class is likely to relay the information to another   _____

What grade do you think a professor would give you   _____

What grade do you think students would give you   _____

How likely do you think you are to be asked to present again   _____

1). Follow the recorded instructions and speak into the microphone.

        Please be sure the microphone icon in the lower right corner is

        the color red before speaking

2). NOW, PRESS 'PLAY '   ▶   **on the windows media player**

3). TURN THE PAGE

STOP HERE

LISTEN TO THE RECORDING

RESPOND ACCORDING TO THE INSTRUCTIONS

TURN THIS PAGE OVER WHEN THE RECORDING HAS FINISHED

Recalling This Exercise, Let's Say You Need To Give A Speech Now Using A Similar Circumstance As You Imagined And An Adequate Time To Prepare.

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

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

Cannot   Moderately   Highly certain
Do at all   can do   can do

Confidence Level
(0-100) using the scale above

Overall ability to give a good presentation _____

Maintain an appropriate attitude about subject matter _____

Speak clearly and loud enough for all to hear _____

Move around during presentation _____

Use hand, facial, and body gestures _____

Respond to audience feedback during presentation _____

Control Emotions _____

Explain topics according to planned presentation _____

Listen and respond to questions appropriately _____

What do you feel your level of anxiety is when having to give a speech using 0 as none and 100 as high anxiety

_____

NOW, USING THE SCALE ABOVE, WITH 0 AS 0% AND 100 AS 100%

What percentage of the class is likely to understand the topic when done _____

What percentage of the class is likely to relay the information to another _____

What grade do you think a professor would give you _____

What grade do you think students would give you _____

How likely do you think you are to be asked to present again _____

Overall, what do you think about your attitude towards public speaking after listening?

CHANGED (feel less able)   UNSURE   NOT CHANGED   CHANGED (feel more able)

Appendix F
APPENDIX OF THESIS PROPOSAL

Name of Student	Corey S. Didier
Address	645 N. Milwaukee Street
	Port Washington, WI
	53074
Telephone	(414) 218-7833
E-mail	csdidier1@wolfmail.stritch.edu

The Thesis Committee has approved a thesis proposal submitted by the above student and has granted permission for this student to begin work on the thesis project described in that proposal.

Title of Thesis:

Use of Articulated Thoughts during a Simulated Situation to Change Self-Efficacy and Outcome Expectations

The thesis project is to be conducted in the manner described in the proposal without exception

Date of Approval

_____

Advisor/Chair of Thesis Committee

_____

Reader, Thesis Committee

_____