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A Qualitative Analysis of Superstitious Behavior and Performance: How it Starts, Why it Works, and How it Works

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A Qualitative Analysis of Superstitious Behavior and Performance: How it starts, why it works,

and how it works

By
Alexandra Farley

Accepted in Partial Completion
of the Requirements for the Degree
Masters of Science

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Master's Thesis

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A Qualitative Analysis of Superstitious Behavior and Performance: How it starts, why it works,

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A Thesis
Presented to
The Faculty of
Western Washington University

In Partial Fulfillment
Of the Requirement for the Degree
Master of Science

By
Alexandra Farley
April, 2015

Abstract

Superstition has been analyzed in prevalence and in performance in the worlds of athletics, academics, and economics (e.g., Bleak & Frederick, 1998; Dudley, 1999; Wright & Erdal, 2008). Superstition has been postulated to be positively associated with external locus of control, high athletic identity, ambiguous intolerance, and high stress situations (Foster, Weigand & Banes, 2006; Todd & Brown, 2003). To date, there has been no research exploring how an individual decides to believe in the power of superstition and how they choose a superstitious behavior (SB). Additionally, no research has been conducted analyzing individual SBs within the military and performing arts communities. The purpose of this study was to qualitatively analyze why and how an individual comes about choosing and relying on a SB in a performance setting. The participants consisted of five athletes, three military members, and three performing artists. Each participant answered questions from an interview guide created by the researcher. The interview focused on three topics: history of SB, perspective around SB, and sustainability of SB. Interviews took approximately 20 minutes and were then transcribed and analyzed for themes. After analysis of the raw data, ten themes were discovered. A model was created, using the discovered themes, depicting how a SB starts, why a SB works, and how a SB works. Future research is needed on the connection between belief in superstition and the behavior as well as the discovered themes; particularly transfer of power, root of power, and ambivalence around SBs.

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Introduction

Superstition is "a behavior which does not have a clear technical function in the execution of skill, yet which is believed to control luck and/or other external factors" (Foster, Weigand, & Baines, 2006, p. 167). Superstition has been analyzed among the athletic population for many decades (e.g., Bleak & Frederick, 1998; Block & Kramer, 2009; Burke et al., 2006; Buhrmann & Zaugg, 1981; Dudley, 1999; Fischer, 1997; Foster et al., 2006; Schippers & van Lange, 2006; Todd & Brown, 2003; Wright & Erdal, 2008). Most commonly, researchers have investigated different types of superstitious behavior (SB) used, individual reasoning for SB, and the effects of superstition and performance (e.g., Bleak & Frederick, 1998; Block & Kramer, 2009; Burke et al., 2006; Buhrmann & Zaugg, 1981; Dudley, 1999; Fischer, 1997; Foster et al., 2006; Neil, Anderson, & Sheppard, 1981; Todd & Brown, 2003; Wright & Erdal, 2008). Overall, superstition has been found to increase performance at both the cognitive and physical level (Damisch, Stoberock, & Mussweiler et al., 2010; Dudley, 1999; Foster et al., 2006; Wright & Erdal, 2008). To date, there is no clear understanding of how an individual chooses a particular superstitious behavior, particularly how that behavior is connected to the belief in the power of superstition itself.

As the Association for Applied Sport Psychology (AASP) continues to expand, the field is specializing in more than just the athletic population. Currently, there are two Special Interest Groups (SIG) that focus on military performance and performance excellence ("Special Interest Group," 2013). The military performance SIG focuses on the research and education of all military members to help them perform at their peak during combat. The performance excellence

SIG was developed to expand the network of sport psychology to other areas outside of sport. These expansions point to the need of research in new performance areas.

To date, no known researcher has analyzed how individuals chose their superstitious behavior, or how they begin to believe in the superstition itself. In addition to the lack of qualitative research for superstitions, there is a lack of distinction and understanding between a superstitious behavior (SB), and a superstitious belief (Damisch et al., 2010). According to Damisch et al. (2010), a superstitious belief differs from a superstitious behavior in that an individual can believe in the power of superstition without having a specific superstitious behavior. Despite this lack of understanding on the origin of a SB, there have been many studies conducted on the benefits of SB.

One common belief for the use of superstition within the athletic population is to help relieve anxiety, particularly in moments of uncertainty (Buhrmann & Zaugg, 1981; Dudley, 1999; Fischer, 1997; Gallagher & Lewis, 2001; Neil et al., 1981; Schippers & van Lange, 2006; Wright & Erdal, 2008). Just as the world of athletics contains an aspect of performance, military and theater also include an element of physical performance. Additionally, both military and performing arts can include moments of uncertainty and anxiety. Regardless of the differing populations, reasoning behind the use and origins of an individual's superstitious behavior across different performance realms are unknown. Having a deeper understanding between the connection of an individual's SB and their belief in the act itself, could lead to further understanding of what makes superstitions so utilized (Damisch et al., 2010; Wright & Erdal, 2008).

Purpose of Study

The purpose of this study was to qualitatively analyze why and how an individual comes about choosing and using a superstitious behavior in a performance setting.

Research Questions

The researcher focused on the following questions: What process does an individual go through when choosing a superstitious behavior? Why, and when, does an individual decide to believe the power of said superstitious behavior? Why, if at any point, does an individual stop relying on a SB? Do different performers experience a different process of choosing a SB?

Significance of the Study

Little to no research has been conducted on the psychological connection between an individual's superstitious belief, and the superstitious behavior used. To date, it is unknown what links people's beliefs in superstition to their behavior. Additionally, no superstition research, to this author's knowledge, has been conducted in either the military or theater population. A qualitative investigation of the linkage between superstitious belief and a superstitious behavior is important to help researchers and sport psychologists understand why an individual relies on a SB. This understanding could, potentially, be used to help those who use a SB with their performance.

Limitations of the Study

This study compiled the following limitations:

1. Although all participants in this study were college students, military members were non-active military veterans, and relied on their recall of superstitious behavior.

2. All participants were college students who lived in the Pacific Northwest.

3. There was variability among the participant's specific superstitious behaviors. Each participant had a unique superstitious behavior. The differences of the participant's having a specific ritual versus a charm add to the amount of variability within the study.

Definition of Terms

Superstitious Behavior: "A behavior which does not have a clear technical function in the execution of skill, yet which is believed to control luck and/or other external factors" (Foster et al., 2006, p. 167). For this study, the operational definition of a superstitious behavior (SB) will refer to superstitions that use both ritualistic behaviors or a keepsake meaningful object.

Superstitious Belief: The belief in the power and effectiveness of a superstitious behavior. As noted in Damisch et al. (2010), individuals who do not have a specific superstitious behavior can still perform better when hearing a good luck phrase, showing some individuals can believe in the power of superstition, but may not have a set superstitious behavior.

Pre-Performance Routine: Preplanned thoughts and/or behaviors performed prior to a specific skill, with the aim to deliberately adjust arousal and/or mental readiness (Foster et al., 2006). The difference between a pre-performance routine (PPR) and a superstitious behavior is that a PPR is designed with the intent to adjust arousal or concentration levels of the performer, whereas a SB is not utilized with that specific distinction.

Chapter II

Review of Literature

Introduction

　　Superstition may often be thought of as the thwarting of bad luck through not breaking a mirror, not walking under a ladder, not opening an umbrella indoors, and many others. When analyzing superstition and performance, there is an important distinction between wishing away bad luck and the belief that a particular behavior, or lucky phrase or charm, will have a positive outcome on performance (Burke et al., 2006; Damisch et al., 2010; Dudley, 1998). A superstitious behavior can be defined as, "a behavior which does not have a clear technical function in the execution of skill, yet which is believed to control luck and/or other external factors" (Foster et al., 2006, p. 167). This definition creates the distinction between a superstitious behavior, and a common sport psychology tool known as a pre-performance routine (Foster et al., 2006). A pre-performance routine is a preplanned thought or behavior performed prior to a specific skill used to deliberately adjust arousal (Foster et al., 2006). Pre-performance routines have been widely studied in the athletic community (Foster et al., 2006; Wrisberg & Pein, 1992). The effectiveness of a pre-performance routine is better studied in comparison to superstition. Additionally, what little research has been conducted on superstition has been mainly restricted to the athletic population. To this researcher's knowledge, there has been no research conducted on individual SBs within the performing art community beyond the accepted subculture theater norms and no research on SB in the military. To understand the impact of superstitious behaviors, it is important to comprehend the context and reasons behind the use of superstition, as well as understand the difference between a superstitious behavior.

Pre Performance Routine

Before discussing superstition in detail, it is important that the distinction between a pre-performance routine (PPR) and a superstitious behavior (SB) be fully understood. According to Foster et al. (2006), a PPR is a thought and/or a behavior performed prior to a specific skill that deliberately adjusts arousal and/or mental readiness. The major distinction between a PPR and a SB is the deliberate purpose; meaning individuals who use a PPR do so knowing how and why it will help them, it is currently unknown why individuals use a SB (Cotterill, Sanders, & Collins, 2010; Foster et al., 2006). Individuals who use a PPR take time and consideration when developing their routine, it is often created for a specific aspect of an individual's performance and is designed with intention of regulating arousal levels (Cotterill et al., 2010; Foster et al., 2006).

It can be difficult at times to draw the line between what qualifies as a PPR versus a SB. For instance, an athlete warming up in the same way could potentially fall into either category. For example, if a track athlete specifically creates a warm up routine that occurs 30 minutes before the event: jogging for the same amount of time, drinking water, stretching with a partner, and eating a small snack. This specific routine has a purpose of preparing that athlete for the event ahead; however, if that same athlete begins to focus on the specific small details that are less about the general preparation it could be considered more of a superstition. For example, if that same athlete believes that stretching in a certain order is what will make him/her win the event, or if they believe that having the exact same amount of water from the exact same water bottle at the exact same amount of time prior to their event is what will allow them to run well, that is a superstition. The key is that these small details do not have a clear direct link to the outcome as perceived by the athlete. Again, it is important to emphasize the task-specific nature

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of a PPR. A PPR is created and utilized for a specific task, as opposed to a SB which has no direct relationship to the task at hand (Foster et al., 2006). Another key distinction between the two is the intentional mental regulation; PPR's are designed with the individual fully understanding its intent and outcome. This intent and understanding is missing in a superstitious behavior. Despite the difference with intent, both PPR's and SB's have been found to help the individual with certain psychological aspects of their performance (Foster et al., 2006).

There are many suggested reasons as to how a PPR helps an individual's performance. These reasons include: diminishing distractions, refocusing, and regulating physical and mental states (Cotterill et al., 2010). PPR's are also designed to be used at certain times regardless of outcome, certainty, or anxiety levels. This differs from a SB in that some research has shown individuals to rely on a SB more in times of uncertainty (Burke et al., 2006; Schippers & van Lange, 2006). Overall, there is a much more deliberate nature to a pre-performance routine compared to a superstitious behavior, which may not begin with a specific purpose or understanding of the action. While there is little to no comprehension on the qualitative aspects of superstitious behaviors, there is sufficient literature on the prevalence of SB.

Superstition

Prevalence. An estimated 80-90% of adults outside of a clinical setting participate in some form of superstitious behavior, such as favoring particular numbers or believing in a lucky charm (Evans, Milanak, Mederos, & Ross, 2002). For example, approximately 10,000 fewer people fly on Friday the 13th in the United States, resulting in loses of 800-900 million dollars in revenue every occurrence, presumably to avoid the belief of bad luck that comes with the date (Block & Kramer, 2009). Gallagher and Lewis (2001) researched the rates of superstitious belief among college students surrounding tests. This particular study included 426 students who

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completed a 22-item questionnaire covering superstitious behaviors related to tests, general

superstitious beliefs ("I would prefer not to take a sociology test on Friday the thirteenth", p. 4),

religion, demographics, and academic standing. Almost half, approximately 48%, of the students

reported feeling luck played a role in every test, and approximately 56% of the total students

reported a small to medium amount of luck rituals for tests. Moreover, there was a positive

correlation between belief in superstition, church attendance and a higher personal emphasis on

the overall grade in class (Gallagher & Lewis, 2001). There appears to be a large percentage of

individuals who have participated in superstitious behavior and the range of areas that the

superstitions are used are varied.

Superstitious behaviors and beliefs have also been found in consumerism, specifically

purchasing and performance ratings. Superstition has also been prevalent in Taiwanese

consumerism (Block & Kramer, 2009). Block and Kramer analyzed if 44 participants were more

likely to purchase a red rice maker versus a green one; in Taiwanese culture, red is considered a

"lucky" color as opposed to a neutral color of green (Block & Kramer, 2009). When analyzing

purchase rates between culturally lucky colors, researchers discovered the participants also rated

the lucky red rice maker as having potentially higher quality. Participants were asked to rate the

likelihood of purchase on a one to seven scale, with one representing *not likely at all to purchase*

and seven representing *very likely to buy* (Block & Kramer, 2009, p. 163). The red rice maker

received a significantly higher mean score of 4.00 compared to a mean score of 2.84 for the

culturally unlucky green rice maker. When reporting the expected quality of the rice makers,

participants used a one to seven scale where one represented *poorly* and seven represented *well*

(Block & Kramer, 2009, p. 163). When ranking the expected quality of the rice makers, the

participants reported a significantly higher expectation of the red rice makers in comparison to

the green ones with mean scores of 5.84 and 4.96 respectively (Block & Kramer, 2009, p. 163). While SB has been studied in academic and consumer settings, the most researched area of SB is within the athletic population.

Moving more specifically into the athletic population, most quantitative studies have been conducted on the prevalence of superstitious behavior in athletes, and researchers recorded many of the most popular behaviors (Burhmann & Zaugg, 1981; Burke et al., 2006; Schippers & van Lange, 2006). Schippers and van Lange (2006) found that approximately 80% of the 158 elite athletes surveyed participated in at least one superstitious behavior. The average number of superstitions for each athlete was 2.6; these superstitions ranged from eating habits 33%, to clothing fetishes 25%, to regulated bathroom schedules 07%. All participants reported both how irritated they would feel if not allowed to partake in their ritual and how essential it was that they perform their ritual. There was a positive correlation between the two questions; individuals who reported higher rates of irritability also reported higher scores of how essential their superstitious behavior was (Schippers & van Lange, 2006). Certain athletes also reported feeling that outcomes would "go wrong" without the ability to perform the superstitious behavior (Schippers & van Lange, 2006, p. 2453). The researchers showed not only the wide variety of superstitious behaviors among athletes, but also their desire to carry out their SB.

Potential theories or explanations for adoption. Human beings tend to learn from observing the events around them (Beck & Forstmeier, 2007). According to Beck and Forstmeier (2007), any animal that is capable of learning through observation is susceptible to becoming superstitious. When learning a SB, humans compare the odds that any outcome is random to the odds that the outcome was more than chance (Beck & Forstmeier, 2007). The author's explained that humans naturally assess situations similar to statistical analysis. For example, according to

the authors, if a performer has a successful outcome and attributes this outcome to something unrelated to the performance, this would then create the superstition. The false attribution to the unrelated behavior can be classified as a Type I statistical error, essentially a false positive result. However, if the success is ignored in this context, this can be similar to a Type II error, or a missed positive result. Beck and Forstmeier also label the later example as "ignorance" (p. 36). Essentially, any false attribution that incorrectly pairs a certain success to a particular cause could be viewed as a superstition. Beck and Forstmeier's model pertains to single moments, rather than an entire performance or permanent behavior. Furthermore, their model has yet to be tested in other research. As Beck and Forstmeier (2007) explained, humans are susceptible to the power of superstition due to learning patterns and this may explain why they adopt them. Particular motivation theories have also been applied to explain superstitious behaviors.

A learning pattern that is reminiscent of Beck and Forstmeier's model is the attribution theory. The attribution theory attempts to assign causality to the outcome of a situation (Weiner, 2011). Essentially, an individual attempts to explain a given any situation by identifying the scenario itself in addition to the reasoning behind the outcome (Weiner, 2011). For example, if a cyclist is riding a bike and gets a flat tire, that individual will try to attribute the reason behind that specific outcome. One individual may attribute the flat tire to the poor conditions of the road; whereas a different individual may attribute the flat tire to poor riding skills, such as not being able to avoid or see a nail in the road. In these examples, the situation is assessed and causality/attribution was determined. The attribution theory can be explored further when examining the concept of locus of control (LOC); there are two forms of LOC, internal and external (Greene, 1985). Using the example above, the individual who attributed the flat tire to the road would be classified as having an external LOC; whereas the second individual, who

attributed the flat tire to her own poor bike handling skills, had an internal LOC. Deciphering

between an internal or external LOC is dependent on the person. Individuals who exhibit more

external locus of control, tend to explain results of their actions to outside factors; whereas,

individuals who view performance results as occurring because of their own action, fit an

internal locus of control view (Schippers & van Lange, 2006). How an individual attributes

behaviors can change depending on an internal or external LOC perspective (Greene, 1985;

Weiner, 2011). LOC has been discussed as a potential determining factor for superstitious use

(Burke et al., 2006; Schippers & van Lange, 2006). While individuals who have both an internal

and external LOC use SBs, individuals with more external LOC are more likely to rely on a SB

(Burke et al., 2006; Todd & Brown, 2003). The reason why both LOC individuals rely on a SB

could be because individuals with internal locus of controls may attribute the success of the

outcome to the SB because they performed the behaviors, in other words. Whereas, external

LOC focused individuals may view the success of their SB as coming completely from the SB

and not themselves (Schippers & van Lange, 2006). The way people learn, view locus of control

and make attributions can explain why SBs are adopted, similarly, there have been theories that

explain why people maintain their use of SBs.

Potential theories or explanations for continued use and related factors. In addition

to the theories that attempt to explain the onset of a SB, there are other potential theories that

explain use and maintenance of an SB (Burke et al., 2006; Damisch et al., 2010; Keinan, 1994;

Schippers & van Lange, 2006). Many theories about the reasoning behind continued superstition

use exist, including, but not limited to: reward conditioning, external locus of control, and

outcome uncertainty (Schippers & van Lange, 2006). Reward conditioning occurs when an

individual is conditioned through positive outcomes to believe that a completely random,

unrelated act (the superstitious behavior) is the reason behind their desired positive outcome (Schippers & van Lange, 2006). External locus of control refers to the individual's belief that factors unrelated to their performance specifically have a role in the outcome (Schippers & van Lange, 2006). These elements have been found to potentially explain the onset of superstition use; however, they have also been found when studying individuals' long-term superstitious behaviors (Burke et al., 2006; Burhmann & Zaugg, 1981; Schippers & van Lange, 2006). Further, an individual is thought to be more prone to continued use of superstitious behavior when the outcome is unknown, levels of anxiety are high, and when the thought of control eludes them (Damisch et al., 2010). In addition to improvement in cognitive and motor functioning, superstitious behaviors are thought to decrease perceived stress (Keinan, 1994); however, stress does not have to be present for individuals to participate in superstitious rituals or beliefs.

There may be a neurological explanation to superstitious behaviors. The Chinese culture is one of many cultures that widely accept superstitious behaviors/beliefs, particularly regarding numbers (Rao, Zheng, Zhou, & Li, 2014). The number 16 is recognized within the Chinese culture as a lucky number (Rao et al., 2014). This foundation of the culturally accepted lucky number was used to determine what happens neurologically when deciding wedding dates and prices. Rao et al. (2014) presented 11 female and 10 male participants with the task of choosing a date for both a friend gathering and a wedding. For each scenario there was an economically cheaper option on a culturally insignificant date, January 13th, and a more expensive choice on the culturally lucky date of, January 16th. In addition to the task of choosing a date for a gathering of friends and a wedding, Rao et al. (2014) also had participants complete the Fatalistic Superstition Belief Inventory and focused specifically on the question, "Not choosing a good wedding day will lead to a bad marriage" (p. 769). When picking a date for the friend gathering,

78% of the participants chose the cheaper option over the lucky date; in contrast, 81% of the participants chose the more expensive and culturally lucky option when picking a date for their own wedding (Rao et al., 2014). Furthermore, there was a significant amount of neural deactivation in the superior frontal and right middle gyrus of the brain when individuals chose the superstitious date over the cheaper option. Combining the participants neural deactivation with their results on the Fatalistic Superstition Belief Inventory, researchers found participants who scored high on the inventory experienced greater deactivation in their brain when making the economical choice (Rao et al., 2014). Neurological activation could be a reason for reinforcement of superstitious behavior.

Another theory for the continued use of SBs was researched by Burke et al. (2006) who analyzed specific personality types in regards to superstition use. Regardless of team or individual sport participation, many athletes engage in the belief of the power of superstition and have a particular superstitious behavior (Burke et al., 2006). Despite understanding that a majority of athletes believe in the power of superstition and have individual superstitious behaviors, little is known about what types of personalities believe in the power of superstition. The 208 participants included 55 individual athletes and 112 team athletes, including: baseball, football, track and field, swimming and diving, golf, and men's and women's soccer, basketball, and tennis. There was no significant difference found between the athletes concerning overall usage and belief of effectiveness regarding superstition, or the use of superstition across different genders (Burke et al., 2006). With regard to specific superstitious practices, Burke et al. (2006) found a negative correlation amid the athlete's superstitions surrounding appearance and clothing and internal locus of control; individuals who have appearance and clothing based superstitions had lower levels of internal locus of control. Another negative correlation was found with

perceived God-mediated locus of control and prayer practice in relation to perceived efficiency of prayer, specifically, those who had a lower belief in god not only prayed less, but found prayer less effective. These negative correlations likely occurred because a high score in God-mediated locus of control represents a lower belief in God. A God-mediated locus of control was also negatively correlated with frequency of all superstitious rituals and effectiveness for said rituals; essentially individuals who identified as less religious relied on SBs less (Burke et al., 2006; Burhmann & Zaugg, 1981). On the other hand, not all correlations, discovered by Burke et al. (2006) were negative.

Some specific SBs were found to be positively correlated with individuals who had higher levels of internal LOC. Burke et al. (2006) discovered a positive correlation between individuals with an internal LOC and fetish SB use (e.g., wearing particular clothes or jewelry). Furthermore, excessive internal locus of control was positively correlated with pre-game rituals in addition to the belief of their effectiveness; specifically, those individuals who utilized a pre-game superstitious routine not only exhibited higher scores of internal locus of control, they also had a higher belief in that specific superstitious behavior (Burke et al., 2006). Besides internal and external LOC, researchers have studied the correlations of other personality factors and SBs.

The personality marker of athletic identity could be another potential reason for SB use (Brevers, Dan, & Noe, & Nils, 2011; Todd & Brown, 2003). Athletic identity, the amount to which individuals identify with their role as athletes, has been found to be a factor in superstition (Brevers et al., 2011). Brevers et al. (2011) analyzed male and female non-professional athletes' athletic identity and superstitious rituals through the manipulation of ritual commitment, uncertainty, importance, and tension. At least one superstitious ritual was found in 165 of the 219 participants (Brevers et al., 2011). A positive correlation was found between athletic identity,

superstitious feeling, number of rituals, and commitment to said ritual (Brevers et al., 2011). It should be noted that athletes reporting high in athletic identity also reported feeling significantly more tension prior to a match (Brevers et al., 2011). Psychological tension and uncertain situations are additional potential explanations for continued superstition use.

Athletes faced with uncertain performance outcomes were found to rely more on SBs (Brevers et al., 2011; Schippers & van Lange, 2006). When asked to imagine facing a more difficult opponent, thus making the outcome uncertain, Schippers and van Lange (2006) found participants to report higher levels of superstition use in uncertain situations. Additionally, Brevers et al. (2011) found higher reports of tension increased the number of superstitious rituals performed, commitment to said rituals, and level of superstitious feelings. Furthermore, researchers have found that superstitious behavior increased when performance outcome was uncertain and as the level of competition increased (Bleak & Frederick, 1998; Burke et al., 2006; Schippers & van Lange, 2006, Todd & Brown, 2003; Wright & Erdal, 2008). Females have been found to have higher levels of psychological tension, and therefore, not surprisingly, higher levels of superstitious use.

When analyzing the difference in superstitious use among men and women, Brevers et al. (2011) found female athletes more likely to use superstitious rituals in comparison to men. In the same study, women also reported higher perception of psychological tension prior to each game. The increased perception of psychological tension in women could explain the increase in superstitious rituals among women (Brevers et al., 2011). While females have been found to report higher rates of superstition use, both genders have been found to utilize SBs (e.g. Bleak & Frederick, 1998; Brevers et al., 2011; Burke et al., 2006; Schippers & van Lange, 2006, Todd & Brown, 2003; Wright & Erdal, 2008). Gender is often regarded as a relatively fixed state,

however, changing variables such as age and game time have also been found to be correlated with SBs.

Both age and playing time have been positively correlated with superstition use (Burhmann & Zaugg, 1981). Older athletes have been found to report higher rates of superstition use compared to their younger counterparts. Furthermore, individuals who receive more playing time tend to have higher rates of SBs (Burhmann & Zaugg, 1981). Overall, there appears to be many factors that may explain continued superstition use.

 Superstition use has been found in many different types of individuals with various potential explanations. How individuals explain or attribute certain situations could be a factor in whether or not a superstitious behavior is created (Beck & Forstmeier, 2007; Weiner, 2011). Moreover, LOC, athletic identity, psychological tension, ambivalent situations, gender, age, and playing time have been researched as elements related to superstition use (e.g. Brevers et al., 2011; Schippers & van Lange, 2006). It appears that there is trend for researchers to study who uses superstition, but there is limited research on why certain superstitious behaviors were chosen. Regardless, it may be that the effect of SBs on actual performance may be another reason for continued use.

Superstition and Performance

Most athletic performers seem to participate in some form of superstitious behavior, particularly those performing at top levels, particularly athletes (Schippers & van Lange, 2006). The use of superstitious behavior has been observed and studied in men's and women's hockey, football, basketball, male and female track, women's volleyball, men's and women's tennis, baseball, gymnastics, rugby, and golf (Bleak & Frederick, 1998; Schippers & van Lange, 2006; Burke et al., 2006; Neil et al., 1981; Foster et al., 2006). Superstitious behaviors have been found

in athletes participating in all of the aforementioned sports, while the sport being played does not enhance or hinder reliance on a SB, the difficulty level of the opponent has been correlated to SB use (Brevers et al., 2011; Dudley, 1999; Schippers & van Lange, 2006; Wright & Erdal, 2008).

Difficulty of opponent and task have been found to have a positive correlation to superstitious rituals; the more difficult the opponent and task, the more an individual will utilize a superstitious behavior (Brevers et al., 2011; Dudley, 1999 Schippers & Van Lang, 2006; Wright & Erdal, 2008). When facing a superior opponent, individuals report higher use and commitment to superstitious behaviors (Schippers & van Lange, 2006). Additionally, the more important the game, the more individuals reported superstitious commitment and prevalence (Schippers & van Lange, 2006). Psychological tension was found to mediate the importance of outcome, as well as level of uncertainty (Schippers & van Lange, 2006). While these positive correlations have been observed, it has not been researched if the individual believes more in the power of the superstitious behavior itself during these psychologically tense times.

Overall, there is a positive correlation between task difficulty and superstitious behavior; however, there is a time when a task may be too difficult for an individual to rely on a superstitious behavior. Wright and Erdal (2008) analyzed the use of superstition and skill level in a putting task with the manipulation of task difficulty. Using a distance of a three-foot putt and a nine-foot putt, the researchers analyzed the chance of a participant choosing the same color golf ball after a successful putt (Wright & Erdal, 2008). Participants were split into high skill and low skill performers. Low skill performers chose the same color ball after successfully making a putt significantly more often than chance, whereas high skill performers chose the same color ball more often than chance after a successful putt at the nine foot distance (Wright & Erdal, 2008). This relationship alludes to the theory that rates of superstition increase when uncertainty

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increases (Wright & Erdal, 2008). One possible explanation for the lack of superstitious behavior among the low skill performers during the difficult nine foot putt is thought to be learned helplessness; the concept that when individuals perform so poorly they believe there is no chance of improvement, so they essentially give up and no longer put forth effort (Wright & Erdal, 2008). Without enough random reinforcement, the low skill performers may not have been able to make the connection of a "lucky" ball to their performance (Wright & Erdal, 2008). In this study, the researchers analyzed the effects of superstitious behavior on a physical task. In contrast, other researchers have analyzed the effects of superstitious behavior on cognitive tasks.

Superstitious behavior has been found to increase both cognitive and physical performance (Damisch et al., 2010; Dudley, 1999; Foster et al., 2006; Schippers & van Lange, 2006). Damisch et al. (2010) found that the suggestion of "good luck" increased performance, perception of performance, and willingness to pursue with the given task. Activating superstitions through suggestion of "luck" was also found to increase performance and perception of performance. When placed with the task of golf-putting a ball, participants who were told: "Here is your ball. So far it has turned out to be a lucky ball", performed significantly better than the control group who heard, "this is the ball everyone has used so far" (Damisch et al., 2010, p. 1015). In the same study, performance and perception of performance during a task was measured when participants rolled 36 balls into 36 holes through tilting a labyrinth (Damisch et al., 2010). With direct encouragement of a common good luck phrase, the experimental group not only performed the task significantly better, but also did so with more speed and a better perception of how they felt while performing the task (Damisch et al., 2010). The results from the first two parts of the Damisch et al. (2010) study help point to the difference between a superstitious behavior and a superstitious belief. The participants in the golf-putting

and the labyrinth task did not have a specific SB, but were affected by a belief in superstition. Looking deeper into a superstitious behavior such as a lucky charm, Damisch et al. (2010) analyzed performance outcome on a cognitive level.

Performing superstitions could play a role in increasing an individual's sense of self-efficacy (i.e., an individual's belief to complete the task at hand) and, in turn, increasing their level of performance (Damisch et al., 2010). Hypothesizing that superstition must have effects beyond physical rewards, Damisch et al. (2010) analyzed the effects of a lucky charm on a cognitive skill of a memory game and word anagrams. These experiments included 72 college student participants who had lucky charms in their possession at the time of the study (Damisch et al., 2010). In the first study, 33 females and 8 males were contacted prior to joining the experiment to make sure each participant had a lucky charm that they would be willing to bring with them. Examiners then surveyed each participant about their lucky charm. At the end of each survey, experimenters took a photograph of each lucky charm. For half of the participants, the experimenter told the participant that there were technical difficulties with the camera and asked them to leave their charms on the table while another technician worked on the camera. This rouse forced the participant to complete the second portion of the task without their lucky charm. During the second portion of the experiment, participants were instructed to read the directions for the memory task and rate their self-efficacy on a 9-point scale for the phrase, "I am confident that I will master the upcoming memory task well" (p. 1016). In addition to the measure of self-efficacy, the participants completed the State-Trait Anxiety Inventory. After completing the computerized memory game, participants were asked to rate their mood on a 9-point scale. Damisch et al. measured how long each game took and how many mistakes were made before completion. Not only did the experimental group (participants whose lucky charm was in their

possession) perform better at the task, they also reported higher rates of self-efficacy than the control group. There was, however, no difference in post game mood or in anxiety levels between the two groups. After witnessing the results of performance and self-efficacy related to the memory task, Damisch et al. (2010) conducted a second experiment to further examine the psychological and performance aspect of lucky charm superstitions.

There appear to be other psychological aspects of superstition beyond self-efficacy and mood. To explore deeper into some of the psychological aspects and possible benefits of a superstitious charm, Damisch et al. (2010) asked participants to set goals for the task at hand. For this experiment, half of the participants were forced to leave their lucky charm behind due to photography failure. Participants then read the instructions for the anagram task which included a string of eight letters and were instructed to make as many words as they possibly could ranging from two to eight letters. Participants who were allowed to complete the task with their lucky charm not only found significantly more words than the control group, they also reported significantly higher rates of self-efficacy, set higher goals for number of words they would solve, and also persisted longer at the task than the control group. While these experimenters did delve deeper into the psychological aspects of superstition, there are still a lot of unknown aspects of superstition and performance, particularly around the origin of the SB (Damisch et al., 2010).

In contrast to increasing self-efficacy, many researchers believe superstitious behaviors that increase performance do so to help combat feelings of uncertainty (Dudley, 1999; Keinan, 1994). Dudley (1999) analyzed cognitive performance through solvable and unsolvable word problems. When faced with a forced unsolvable problem, individuals who adopted a superstition or superstitious beliefs did not succumb to the effects of learned helplessness (Dudley, 1999). Additionally, individuals who were given an unsolvable puzzle reported higher levels of

superstition after attempting to complete the unsolvable puzzle (Dudley, 1999). In contrast, after completing a solvable puzzle, reports of superstition were decreased (Dudley, 1999). The contrasting levels of superstitious use between difficulty levels show a possible relationship between stress levels and not only use of, but belief in, superstitious behaviors.

When examining the effects of replacing a superstitious behavior with a pre-performance routine (PPR), Foster et al. (2006) found removal of the superstitious behavior significantly decreased performance. In contrast, replacing the superstition with a PPR helped increase the performance, but not to the same level as the superstition. In this particular study, Foster et al. (2006) included 20 male basketball players over the age of 18 with at least four years of experience. All participants had a SB related to their free-throw shots. Participants were allowed 10 warm up shots and then proceeded with 20 free-throw shots to be counted towards the results. The individuals in the control group (participants who were allowed to keep their SB for all three trials) had an average score of 16.17-16.33 free throw shots. The experimental group had a lower mean score for all three trials. For the first trial (when they still utilized their SB) the participants had an average score of 15.64. In the second trial, participants were not allowed to use their SB and their average score dropped to 13.36. For a third trial, participants used a pre-performance routine (PPR) given to them by the researchers and had an average score of 15.07. The decrease in performance in the PPR trial from the first trial could have been due to the fact that individuals who were forced to replace a PPR were only given 15-minute practices twice a week with their new routine for only three weeks (Foster et al., 2006). This was the first study to replace a SB with a PPR, the study has not since been replicated (Foster et al., 2006). While the purpose of this study was to intentionally replace a SB with a PPR, it is interesting that performance decreased significantly without the use of a SB. Perhaps this decrease in performance indicates a

potential benefit of a SB in performance. In general, superstition appears to have been studied in breadth but not in depth.

One unique study combined both breadth and depth using both qualitative and quantitative aspects. Ciborowski (1997) studied the differences between the causal and coincidental superstitious behaviors among baseball players and non-athletes. Ciborowski distinguished a causal superstition as a deliberate belief versus a coincidental superstition which was of a subconscious or unclear origin. Using psychology and education classes, 348 non-athletes and 83 baseball players completed the Superstitious Belief Questionnaire. Over the course of three seasons, baseball players were filmed while batting to find "distinct batting movements" (Ciborowski, 1997, p. 307). Ciborowski used the questionnaire to determine if there were differences between non-athletes and baseball players use of superstition. Baseball players not only distinguished themselves as more superstitious, they also had a higher intensity for their belief in superstition in comparison to the non-athlete population (Ciborowski, 1997). Once the differences were established between the non-athlete and baseball player participants, Ciborowski (1997) delved deeper into the baseball players batting videos.

Trying to establish a difference in physical behavior between causal and coincidental superstitious behaviors, batting videos of baseball players were analyzed for specific movements (Ciborowski, 1997). After the videos were analyzed, interviews were conducted with each baseball player. Once the distinct movements were identified, videos were reviewed with the researcher and player. Once the videos were reviewed with both the player and researcher, it was discovered that 21.7% of the distinct movements were subconscious. While watching the videos, the researcher asked the participants "if they believed in a causal link between their superstitious behaviors and influencing events"; all participants did not think there was any connection

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(Ciborowski, 1997, p. 310). When confronted with the denial of a connection between the behavior and the outcome, the participants responded with such phrases as "you don't want to make a mistake" and "you never can tell" (Ciborowski, 1997, p. 310). One important distinction between Ciborowski's (1997) study and the present study, is that all participants of the present study chose the superstitious behavior discussed, so they were aware of the behavior. Despite the qualitative aspect of Ciborowski's study, origins of the individual's SB were not explored. The researcher emphasized that the origin of these behaviors is unknown and should be studied further (Ciborowski, 1997). Despite the wide variety of research conducted on the topic of superstition, more research is needed to deepen the understanding of the superstitions.

Superstition has been studied among both the general and the athletic populations, spanning levels of competition and varying age ranges (Brevers et al., 2011; Burke et al., 2006; Damisch et al., 2010; Dudley, 1999; Foster et al., 2006; Keinan, 1994; Markle, 2010; Schippers & van Lange, 2006; Todd & Brown, 2003). Superstition has not yet been researched among the military or the theater population. Superstitious behaviors have been thought to reduce psychological tension in both the general and athletic community (Damisch et al., 2010; Dudley, 1999; Schippers & van Lange, 2006; Wright & Erdal, 2008). While superstition use in the military has yet to be researched, psychological stressors within the military population have been greatly studied (Foran et al., 2013; Vujanovic, Pietrefesa, Schmertz, & Potter, 2013).

Military

The number of military members has increased in half of the branches over the past two centuries (Lovering, Proctor, & Heaton, 2013). The Army, representing the largest military branch, and the Marine Corp representing the smallest population in the branches, both had an increase in representation of membership by 15% and 18% respectively (Lovering et al. 2013).

In contrast, the Navy and Air Force had a decrease in population between the years 2000 and 2009 by 10% and 6% respectively (Lovering et al., 2013). With some of the numbers of membership increasing, there is also an increase in psychological distress and psychological disorders diagnosed within the military population (Carlson, Stromwall & Lietz, 2013; Lovering et al., 2013).

Military and Stress

Psychological tension and levels of uncertainty have been linked to increase in use of superstitious behavior (Keinen, 1994; Schippers & van Lange, 2006). Since there has been no study of superstition use within the military population, empirical evidence of the prevalence of psychological tension in the military will be highlighted. Due to advances in protection for military personnel, fewer combatants have perished, however, more soldiers have seen combat as time and wars continue (Carlson et al., 2013). The veteran population is exposed to momentous stressors during deployment and is often faced with an assortment of mental health problems after deployment (Foran et al., 2013). Within the military population the most commonly diagnosed mental disorders are Posttraumatic Stress Disorder (PTSD), Generalized Anxiety Disorder (GAD), and Acute Stress Disorder (Lovering et al., 2013). Posttraumatic Stress Disorder and Acute Stress Disorder are classified under the trauma and stressor related disorders in the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (2013). In the newest edition of the American Psychological Association's (APA) DSM-5, PTSD can now be acquired through a direct life threatening experience, by witnessing such an event, or even having a family member or close friend experience a life threatening event. Intrusive symptoms from PTSD can include: psychological distress at reminders of the event, distressing dreams, involuntary memories of the event, and physiological reactions to cues of the event (APA, 2013). All

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symptoms must be present for longer than one month to be diagnosed with PTSD (APA, 2013). According to the DSM-5, the only diagnostic difference between PTSD and Acute Stress Disorder, is that symptoms with Acute Stress Disorder last between three days and one month. Therefore, an individual who has Acute Stress Disorder who does not resolve within one month would then be diagnosed with PTSD. Individuals with GAD can experience: difficulty with concentration, irritability, tension in muscles, difficulty with sleep, fatigue, restlessness, excessive worry and anxiety (APA, 2013). Symptoms must be present for most days over the past six months (APA, 2013). The combination of the widening criteria for PTSD and Acute Stress Disorder, in addition to the increasing numbers of military members, has been correlated with an increase in psychological disorders among military members (Carlson et al., 2013; Vujanovic et al., 2013). This change in criteria, in addition to the change in population of the armed services, has lead to an increase in diagnosis (Carlson et al., 2013; Vujanovic et al., 2013).

Since Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF), approximately one-third of returning military personnel sought mental health treatment within a year of their deployment (Carlson et al., 2013). Approximately 25.5% of returning veterans from OIF and OEF are reporting to the Veterans Health Administration (VHA) with symptoms qualifying for diagnosis of Posttraumatic Stress Disorder (Vujanovic et al., 2013).

Lovering et al. (2013) found approximately 13%, 25%, 25%, and 36% of the military population was made up of the Marines, Air Force, Navy, and Army respectively. Within those statistics, a little over 14% of the total military population within the last ten years was female. Anxiety Not Otherwise Specified (ANOS) was the highest reported diagnosis, followed by Posttraumatic Stress Disorder. Generalized Anxiety Disorder, Acute Stress Disorder, Phobic Disorder and OCD were the next most common diagnoses in descending order. Between 2000

and 2009, approximately 111,300 thousand individuals sought treatment for ANOS and close to 65,500 individuals reported symptoms of Post Traumatic Stress Disorder within the same nine-year span (Lovering et al., 2013).

Specific numbers for the most common diagnosis, ANOS, were examined more closely (Lovering et al., 2013). The researchers examined ANOS rates of every 100 service individuals by branch (Lovering et al., 2013). The Navy had the smallest report rate with 0.56% per 100, followed closely by the Marines 0.59%. The Air Force had the second highest diagnosis of ANOS with 0.78% and the Army had the highest reported findings with just over 1% for every 100 service members (Lovering et al., 2013). The reports from 2009 were significantly higher than the year 2000 across all branches of the military. There was a significant increase in ANOS diagnosis between men and women when comparing the rates in 2000 to the 2009 rates (Lovering et al., 2013). This psychological tension that military personnel may experience could point to the possible use of superstitious behaviors. Qualitatively understanding how someone connects their belief in the power of superstition with their superstitious behavior, could create better insight into how the use of a SB could decrease psychological tension. With the prevalence of stress disorders among military personnel, techniques to reduce stress should be explored. Reducing anxiety has been linked to the use of superstitious behaviors; however, SB has not been studied within the military population. It is unclear whether or not individuals within the military population utilize a SB and in what contexts. The link between superstition and anxiety, as well as, the link between military and anxiety, points to the likelihood of superstitious behavior within the military. No known research has examined SB in the military.

Only one known researcher has come close to analyzing superstition within the military by examining citizens near combat. Keinan (1994) examined rates of superstition use and

perceived levels of ambiguity in Israeli citizens during the Gulf War. The researcher measured the participants' belief of superstitious behavior through a questionnaire created by the researcher consisting of 16 items tailored for the area and war specifically. Additionally, the participants completed an ambiguity tolerance survey. There was a significant relationship found between the belief in superstition and the individual's tolerance of ambiguous situations. Individuals who were less comfortable with ambiguous situations in Keinan's study had higher rates of belief in superstition. There was no relationship found between education level and belief in superstition. There was a significant correlation found between older individuals and belief of superstition; older individuals were more likely to believe in the power of superstition and perform a superstitious behavior. The relationship with age and SB was consistent with previous findings (Buhrmann & Zaugg 1981). Keinan (1994) also found an inverse relationship between increased perception of stress and tolerance of ambiguity in regards to superstitious beliefs. Specifically, individuals who experienced higher stress, tolerated lower levels of ambiguity and had significantly higher report rates of belief in superstition. Since superstition has been thought to reduce anxiety and military members experience anxiety-inducing situations, research is needed to examine a possible relationship.

Military and Superstition

Considering the previously mentioned factors that potentially relate to superstition use, particularly uncertain situations, psychological tension, and opponent difficulty level (Bleak & Frederick, 1998; Keinan, 1994; Schippers & van Lange, 2006), it would seem likely that the military population would also use SBs given the opportunities for situations with these characteristics. Despite this potential, no known researchers have directly studied superstition within the military population. While there have not been a scientific studies regarding

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superstition and the military, the relationship has been researched through accounts of historical personal journals (Cook, 2013).

In a very rare look at the world of military and superstition, Cook (2013) used historical personal journals from Canada's military members during their participation in World War I to demonstrate the relationship between war and the supernatural. While most of the stories taken from the journals consist of the concept of the supernatural as it pertains to ghosts, there is mention of individual SB. Cook included writings from Gregory Clark who discussed his own personal "magic charms and talismans", which were kept on his person constantly (Cook, 2013). Clark explained that many men were on the lookout for patterns of things to either hold onto or evade that were perceived to help with luck. These things included precise shaving patterns and holding money (Cook, 2013). Another solider Stanley Rutledge wrote, "I would not go so far as to say that every soldier indulges in these fanciful beliefs, but it is none the less true that we have our 'lapses'. If you will remember the old witches in Macbeth, with their steaming cauldrons, recall the whining wind on the waste, dwell on the mysteries of spookland, then you will know of the agencies that are urging-always urging, it would seem, our boys to swear by some charm or ritual." (Cook, 2013, p. 539). Cook goes on to explain that many men avoided writing or admitting to these SBs particularly for fear that vocalizing their power would somehow diminish their positive effect. The author explained that many men believed these objects to bring protection. Despite these interesting accounts from soldiers during the early 1900's, the topic of SBs within the military population has yet to be empirically studied or understood. Similarly, other performance realms have yet to be explored in terms of superstitious behaviors.

Performing Arts and Stress and Performance

The profession of sport psychology is moving away from the restrictive setting of only sports and is expanding into all aspects of performance including performing arts. Hays (2002) emphasized that the common factor between athletics and performing artists is the performance aspect. While the athletic population may label the psychological and somatic experience of stress as nerves, performing artists experience the same psychological and somatic symptoms but merely labels it as *stage fright* (Hays, 2002). Pointing to more similarities between athletics and performing artists, Martin and Cutler (2002) discussed the numerous hours of preparation both populations put into their field. Martin and Cutler continued to connect the sport psychology world with the performing art world through the study of motivation levels. These researchers demonstrated that the field of sport psychology is moving into populations outside of the athletic world. These two articles came from the 14th edition of *The Journal of Applied Sport Psychology,* where the emphasis was on moving beyond the athletic population. While sport psychology professionals are beginning to work with and study new populations, there is still very little information about SB in the performing arts community. Despite there being little research about SBs specifically in the performing art community, there has been research conducted on stress in theater, specifically stage fright (Monks, 2013; Steptoe & Malik, 1995).

Despite the different physical setting of theater compared to athletics and military, all performers can experience some level of performance anxiety, or in the case of theater, stage fright. Steptoe and Malik (1995) analyzed the effects of stage fright on student actors. The 175 participants, 93 males and 82 females, answered two questionnaires, the State Trait Anxiety Inventory and the Performance Anxiety Questionnaire. Of the participants, 9.6% rated stage fright as a *severe problem*, 36.7% rated it as a *moderate problem*, 47.5% rated stage fright as a

minor problem, and only 6.2% reported stage fright as *not a problem* (Steptoe & Malik, 1995, p. 31). This stage fright and anxiety level could lead to a connection of SB and the theater performance population. The theater community is not the only performance community that experiences performance anxiety.

The term stage fright pertains mainly to theater performers within the performing arts community, musicians experience performance related anxiety but have coined their own term, music performance anxiety (MPA). The effects of MPA have been studied within the music performance sub culture of the performing arts world (Sârbescue & Dorgo, 2014). MPA has been defined as "the experience of marked and persistent anxious apprehension related to musical performance that has arisen through specific anxiety conditioning experiences, and which is manifested through combinations of affective, cognitive, somatic and behavioural symptoms" (Sârbescue & Dorgo, 2014, p. 569). MPA has been referenced as the most common non-musculoskeletal issue reported by musicians (Kenny & Osborne, 2006; Sârbescue & Dorgo, 2014). The issue of MPA has been found to effect performers of all ages (Kenny & Osborne, 2006). MPA has can affect three major performance aspects of each individual: psychological, somatic, and performance (Hardy & Parfitt, 1991; Sârbescue & Dorgo, 2014). To measure the multifaceted nature of MPA, Sârbescue and Dorgo analyzed the reliability of the commonly used questionnaires for MPA. The authors found that the physical and psychological aspects of MPA were directly related to frequency of performance, age of the performer, and emotional stability of the performer (Sârbescue & Dorgo, 2014). Musicians who are younger in age with less experience and lower levels of emotional stability tended to exhibit higher levels of MPA (Sârbescue & Dorgo, 2014). Just as MPA is a subculture aspect within the musical performance community, the theater community has its own subculture. Within the theater community, there

are many well-known and accepted universal SBs; while little research has been conducted on individual SBs for performing artists, these widely accepted superstitions have been researched within that community (Dundes, 1994).

Within the theater community there are a few commonly known sub-culture superstitions such as avoiding the phrase "good luck" and instead saying "break a leg" (Dundes, 1994). This particular example of superstition differs from the working definition of a superstitious behavior for this current research study, in that avoiding the phrase "good luck" is done so in order to thwart bad luck rather than bring on a successful performance. Dundes (1994) was hopeful to understand why the replacement phrase for "good luck" had become "break a leg" and decided that it was a vague reference to the hope that the performer's performance would be strong enough for them to take a bow at the end of performance, thus mimicking breaking a leg.

A second widely accepted superstition in the theater community is the superstition of not saying "Macbeth" inside a theater unless performing the actual Shakespeare play (Hildebrand, 1986). The widely accepted superstition of not saying Macbeth has been in practice for 100 of years and it is a very long standing and unique SB (Hildebrand, 1986). This superstition is unique because there are ways in which the negative behavior or phrase can be reversed (Hildebrand, 1986). After mentioning Macbeth, when not in the middle of an actual Macbeth performance, the individual who spoke the name must run outside, spin in a circle three times, spit on the ground, and ask for forgiveness and re-entrance into the theater (Hildebrand, 1986). On top of the rules of reversal for this superstition, the mentioning of Macbeth is believed to negatively impact everyone involved in the production, not just the individual who uttered the name (Hildebrand, 1986). Shakespeare's *Macbeth* actually involves superstition within the play and is considered his darkest of all works (Hildebrand, 1986). While the concept of superstition

within the performing arts culture seems to be widely accepted, little is known about individual superstitions particularly how they originate for each person.

Summary

Superstition has been analyzed in prevalence and in performance in the worlds of athletics, academics, and economics (Bleak & Frederick, 1998; Block & Kramer, 2009; Burke et al., 2006; Buhrmann & Zaugg, 1981; Dudley, 1999; Foster et al., 2006; Fischer, 1997; Gallagher & Lewis, 2001; Neil et al., 1981; Schippers & van Lange, 2006; Todd & Brown, 2003; Wright & Erdal, 2008). Common theories behind the use and belief in superstitious behaviors include: locus of control, athletic identity, ambiguous situations, increased difficulty of task, and high stress situations (Bleak & Frederick, 1998; Block & Kramer, 2009; Burke et al., 2006; Dudley, 1999; Neil et al., 1981; Schippers & van Lange, 2006; Todd & Brown, 2003; Wright & Erdal, 2008). Superstition has been found across a wide variety of ages, culture, religious beliefs, and gender (Buhrmann & Zaugg, 1981; Neil et al., 1981; Todd & Brown, 2003). To date, there is no known direct study about superstitious rituals within a military population, as the world of sport psychology expands into this population, understanding all aspects of their performance, including the potential use of superstition is important. The military population has been found to report rates of high stress and certain ambiguity (Gibbons Shafer, Aramanda, Hickling, & Benedek, 2013; Lovering et al., 2013), pointing to the possibility of superstitious rituals among that population in order to offset the resulting distress. In addition to the lack of research for military and superstition, the same evidence is missing from performing artists and superstition. One of the most common believed reasons why individuals utilize a SB is to help reduce stress and anxiety (Bleak & Frederick, 1998; Block & Kramer, 2009; Dudley, 1999). In addition to the sport performance population, both the military and theater population experience stress in their

own way. Beyond examining new populations, examining the psychological process of relying on a SB could be beneficial as well.

The majority of the superstition research has been focused on the types of individuals who use popular superstitions, and the number of individuals who engage in a superstitious behavior. To the knowledge of this researcher, no qualitative study has been conducted regarding the logical reasoning behind the association of the superstitious acts and performance. Furthermore, no research has been conducted to analyze the rates at which individuals start and stop certain superstitions. As the field of sport psychology continues to grow in both quantity of professionals and reach in practice, it could be very helpful to qualitatively understand superstitious belief and behavior across a wide variety of performers, including the athletic, military, and performing artist community.

Chapter III

Methods and Procedures

Introduction

The purpose of this study was to qualitatively investigate the reasoning behind

superstitious behavior (SB), why individuals believed in the power of that behavior, and if there

were any themes across three performance groups: military veterans, athletes, and performing

artists. Open-ended questions were used to investigate frequency of responses as a determining

factor of themes.

Description of Study Population

Snowball sampling was used to find participants. Each participant was screened prior to

participation (Appendix A) to include individuals who could easily identify a superstitious

behavior that is/was used related to their performance (either pre, during or post performance).

The eleven participants who completed the study attended local public two and four year

universities. The participants were between 19-28 years of age, with a mean age of 23, and all

used at least one superstitious behavior at the time of their interviews. Nine (81%) of the

participants reported their ethnicity as Caucasian and two (18%) reported a mixed ethnicity.

Participants were categorized by three distinct performance groups: military veterans (n =

3), athletes (n = 5), and performance artists (n = 3). The five athletes included: one equestrian,

two crew, one ultimate Frisbee, and one track athlete. The three performing artists consisted of

two theater performers, one of whom was primarily a drama actor and one who primarily did

improvisation, the third performing artist was a violinist. The three military members were out of

service for an average of four years. Two of the three military participants had been in combat

and used their SB during their deployment. There was no restriction on military branch or

ranking of participants. The five participants in the athlete category were club athletes. All athlete participants were a part of team sports only, this was to create consistency between all groups. The three performance artists consisted of two theater performers and one musician, who were rehearsing regularly but not involved in a major production or performance at the time of the interview. The average years of performance experience for the military participants was 5.3 years, the athletes was 7.4 years, and the performing artists was 15.3 years. Some participants had more than one superstitious behavior, some performed rituals, while others had superstitious objects that they carried and others only used their SB during performance settings (and not during training). Individual grouping, gender, superstitions and superstition characteristics can be found in Table 1. Each participant was labeled with a letter to signify their group.

Table 1

Code Numbers, Gender, Superstitions and Superstition Characteristics

Participant	Gender	Superstitious Behavior	Gift?	Performance Only
A1	Male	Carrying a piece of leather rein	Y	Y
A2	Male	Hung brother's army name tag & oar blade from coach visible in the boat	Y	Y
A3	Female	Wears buff on head	N	N
A4	Male	Specific routine in the morning; laying out clothes/getting dressed/different SB for each event	N	Y
A5	Male	"Jiggles Legs"; eats M&M's during travel only; wears neon socks	N	Y
P1	Male	Prays to "theater gods" before each performance and swipes his right foot in front of him once on stage	N (for both)	Y
P2	Female	Eats banana & must play her favorite piece of music	N (for both)	Y
P3	Male	Must hear "break a leg" before performance (cannot hear the phrase "good luck"; cannot hear/say Macbeth while in a theater unless specifically performing Macbeth	N	Y
M1	Male	Medallion & Brief period of listening to the same song	Y (medallion) N (song)	N
M2	Male	Wears chain with a cross around his neck	N	N
M3	Male	Carried picture of significant other	N	N

Note. A = athlete, M = military, P = performer. Y = yes, N = no.

Design of the Study

This study was a qualitative interview design with a sample of convenience (Gould, Eklund, & Jackson, 1993; Vernacchia, McGuire, Reardon, & Templin, 2000)**.** Participants were asked open-ended questions to determine common themes of how their superstitious behavior began and how they began to believe in the power of said superstition. All interviews had a 40 minute limitation. The time restriction was regulated by the interviewer.

Data Collection Procedures

Instruments. A semi-structured interview guide was used during the interviews (Gould, Eklund, & Jackson, 1993). The interview guide followed themes of history of the superstitious behavior (SB), significance of SB (belief behind the behavior), and sustainability of SB. The guide served as a tool to discuss possible themes surrounding adoption and choices of superstitious behaviors. The interview guide included the following questions:

1. History of superstitious behavior

    a. Please describe your SB related to (military, athletics, theater). If more than one please pick one.

        i. Prompt for both behavior and belief components of SB

    b. Why did you first engage in this SB?

2. Perspective around SB

    a. I am interested in knowing what made you decide that _____ behavior was linked to that belief of_____, can you recall how/why you made that connection?

    b. Can you recall when you decided to believe in the power of superstition?

        i. Prompt, was it before or after your SB was created

3. Sustainability of SB

    a. How long have you or did you use this SB?

    b. If stopped, why did the behavior stop, or why did you stop it?

    c. How has this SB morphed from its onset if at all?

        i. Prompt was the behavior substituted or was the belief?

        ii. If you have multiple SB, why do you feel the need for multiple superstitions?

        iii. Did the pairing of the start/stop of the behavior have similar patterns for these other superstitions, if so can you elaborate?

Each interview was audio recorded and later transcribed verbatim by the researcher. Each participant completed a demographic form (Appendix B) prior to the interview, which included age, gender, performance group, race/ethnicity, years in performance group, and how many years out of performance group (if applicable).

Measurement techniques and procedures. The following procedures were accepted by the Institutional Review Board of Western Washington University. All participants were currently taking undergraduate coursework from a two-year or four year university in one county within the Pacific Northwest. The first wave of participation recruitment occurred through an email (Appendix B) to team captains, theater instructors, and Veterans Association directors, who will be asked to forward the email to their group members for a sample of convenience. If there were not enough participants reached through the first wave of recruitment, the researcher attended team meetings and rehearsals for in person recruitment. All 11 participants were informed that they would have at least a 1 in 5 chance of winning 20 dollars for participating (the

performing artist and military groups had a 1 in 3 chance in winning because money was divided by group).

All participants volunteered and were contacted prior to the interview to determine that each participant engaged/engages in a superstitious behavior. Each participant completed an informed consent and demographic form (Appendix C and Appendix D). All interviews were digitally audio recorded and all responses were transcribed verbatim. A copy of each transcript was provided to each participant to verify the information transcribed through a password protected pdf file that was emailed to each participant.

Data processing. Responses were analyzed through multiple steps previously suggested by others (see Gould et al., 1993; Vernacchia et al., 2000). The primary researcher transcribed and did the initial analysis of the raw data. After all interviews were transcribed the primary researcher read all transcripts and analyzed for general and emerging themes through frequency (Gould et al., 1993; Vernacchia et al., 2000). These themes were then compared back to the researchers original research questions: what process does an individual go through when choosing a superstitious behavior, why and when does an individual decide to believe the power of said superstitious behavior, what if at any point does an individual stop relying on a SB, and do different performers experience a different process of choosing a SB?

All transcriptions were read in the order that the interviews took place. Similar responses were categorized into a theme if at least four participants contributed to said theme. Emergent themes were identified after general themes were found from the raw data. All themes were identified by title and then defined by the primary researcher. Proof of theme was represented through direct quotes from the raw data. Raw data responses were not restricted to a single theme (Vernacchia et al., 2000). After the primary researcher analyzed the raw data, two secondary

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researchers analyzed the themes and quotations for consistency and resulting adjustments were

discussed as a group

Chapter IV

Results and Discussion

The purpose of this study was to qualitatively analyze why and how individuals chose a SB in a performance setting specifically in the athletic, military, and performing arts communities through guided interviews. The original research questions were: what process does an individual go through when choosing a superstitious behavior, why and when does an individual decide to believe the power of said superstitious behavior, what if at any point does an individual stop relying on a SB, and do different performers experience a different process of choosing a SB? General and emerging themes were identified in an attempt to answer the original research questions.

Results

Superstitious behaviors (SB). All participants who began an interview identified at least one SB and 63% reported more than one SB. The SBs were varied and ranged from behaviors to superstitious objects that had to be in their possession. The equestrian rider's (A1) carried a gift of a piece of leather rein that belonged to his grandfather. One crew member (A2) had two separate objects that made his specific SB. A2 was given a piece of an oar blade by a coach and his brother's army name tag, these two objects were hung in the boat so he could see them while rowing. The ultimate Frisbee player (A3) wore a buff around her head whenever she played ultimate Frisbee. The track athlete (A4), a decathlete, had a specific routine of setting out his clothes each night and putting on his clothes in a particular order, additionally, he had a set SB before each specific event. The final athlete and second crew member (A5) had three separate SB's. Prior to each race, A5 performed "leg jiggles" and wore neon socks for every race. For

every travel trip, A5 ate M&M's throughout the trip, and he bought a new bag of M&M's each time the team stopped.

The first performing artist (P1) had two SB's, one included praying to the "theater gods", a term and thing he made up with his friends, before each performance. For P1's second SB, he swiped his right foot in front of him as soon as he got on stage. The second performing artist (P2) was a violinist who has two SB's. Both of P2's SB's must be completed prior to her performance. The first superstitious behavior P2 described was that she had to eat a banana 30 minutes prior to the performance and her second SB entailed playing her favorite piece of music at least once 20 minutes before her performance. The third performing artist (P3) followed the traditional theater community SB's of avoiding hearing "good luck" and Macbeth, additionally, P3 has an SB of wanting to hear the phrase "break a leg" prior to each performance.

All military participants had at least one object as their SB. The first military participant (M1) had two SB's, but only one was used during his entire deployment. M1's SB of listening to the same song each night was only used for the first four months of his first deployment; his second SB was used during his entire service. M1's second SB was to carry a medallion that his Uncle had given him. The second military participant (M2) wore a chain around his neck whenever he reported for duty. The final military participant (M3) had an SB of carrying a picture of his significant other. This picture was replaced in the middle of his first deployment after it was lost after receiving an injury in battle. All participants had a superstition that was unique to them. Despite the uniqueness of each SB, consistent results were discovered through the raw data.

Themes. All themes were placed into tables (see Appendices E through N) with quotes that supported said theme. The researcher defined each theme based on the quotes from the

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participants. The three general themes were determined from the guided interview used during

the study: history of SB, perspective around SB, and sustainability of SB. Emerging themes were

any theme that did not fit within the three general themes. The emerging themes were:

ambivalence around SB belief, external root of power, transfer of power, rules around SB,

thoughts of SB during performance, positive effects on performance with SB, negative effects on

performance without SB, and religion.

Discussion

The questions used in the guided interview were intended to answer the research

questions originally posed for this study. The first two questions, what process does an individual

go through when choosing a superstitious behavior and why and when does an individual decide

to believe in the power of said superstitious behavior were originally separated because some

literature emphasized the difference between a superstitious behavior and the belief in the power

of superstition (Damisch et al., 2010; Rudski, 2001); this difference was primarily demonstrated

through studies where researchers created a superstitious behavior in their participants. The

current researcher found no difference regarding how a specific superstitious behavior was

chosen. Additionally, there was no difference between the three groups, therefore themes and

evidence reported may include quotations from participants in any of the three groups. There

was, however, a difference between when a participant decided to believe in the power of their

behavior. This difference was seen through the general theme of perspective around the SB.

General Themes. The theme of *perspective around superstitious behavior* (Appendix E)

was used to discover how the participants originally made the connection between their behavior

and the belief in the power of superstition. The primary goal of this general theme was to

discover how individuals who rely on a SB make the connection between the behavior and the

belief in the power of superstition. All participants identified when they made that connection for their SB(s). That connection was made through one of three ways: 1) one extraordinary performance the first time their SB was used, 2) a string of good performances with the SB and the connection was eventually made, or 3) through one poor performance without their SB.

Two participants had an immediate connection between their behavior and their belief after an extraordinary performance. A2's immediate connection was shown with the following quote:

> "I beat my PR by like four seconds, I was like half a second off our school record on that piece. I, so I was like, wow, shit, okay, so that was when I locked and ever since then when I have a substantial erg piece or substantial race…I bring them with"

M1 also had an immediate connection with the belief and the behavior with the medallion that his uncle gave him as evidenced through this quote:

> "But once I deployed I had it [medallion] on, and probably immediately felt like this is something that is important to me and I want to have it and always have it on. *So you recognized right away as soon as your uncle gave you the chain and the medallion that it was…* significant."

The majority of the participants made the connection between their belief in the power of superstition and their specific SB through a string of good performances and then gradually made the attribution that the SB must have been the cause. The equestrian athlete, A1, described making the connection over several showings:

> "Yeah, when the first time when I showed I got fifth place. I said, 'okay, it's better than nothing'. And then the second time I showed I started carrying it and then I continued

placing, so it was, that's when I made the connection in my head. Like, after the second

time, I kept, when I realized I kept placing."

Another athlete, A4, discussed his gradual realization of the connection between his behavior

and the belief in the power of superstition:

"Yeah, it wasn't like I did it once and had some outstanding performance in which, uh, I

was like, alright, got to stick with this all the time now. It was definitely, I would say,

more slow and progressive and evolved over time."

Two participants made the connection between their SB and the belief in the power of

superstition through a poor performance without said behavior. In other words, these performers

were relying on their SB during performances, however, their belief in the power was not

established until their first performance without their SB. After they performed poorly, these

participants attributed their poor performance to their missing SB in that instance. The violinist,

P2, mentioned her first performance without her SB of eating a banana 30 minutes prior to a

performance:

"I mean, I remember that performance that I didn't get my banana and it didn't work. I

mean, I didn't play the best I could, after that I was like, oh my god, I have to eat a

banana every time."

The other participant who had made the connection between the behavior and the belief after a

negative performance was P3. He described a time of saying "Macbeth" outside of the actual

performance:

"I have, I feel like I've noticed when the word Macbeth is said, you just, you get off to a

rough start sometimes. Uh, I did, I studied Macbeth, um, this past fall, me and my friend

were doing a scene from Macbeth and my teacher was like, you know, she kind of

cringed and I was like, 'get over it [name of instructor]', and we did it and it was just

kind of off, the performance was, which was weird because we rehearsed it just the night

before. We had been rehearsing it for like three weeks."

The connection made between the behavior and the belief fits with Beck and Forstmeier

(2007), as well as, the attribution theory (Weiner, 2011). As Beck and Forstmeier explained,

humans use causal thinking to help explain their surroundings. Within this *perspective around*

SB theme it appears that, eventually, each participant attributed some aspect of their performance

to their superstitious behavior. Interestingly, this attribution did not follow the same pattern for

each participant in either time line (immediate or gradual) or by performance (after a success or

failure). This attribution fits with the attribution theory of motivation discussed earlier (Beck &

Forstmeir, 2007; Weiner, 2011). It is still unknown how or why each of the participants made

this connection at a different rate and why a different performance outcome (extraordinary,

gradual, or poor) still lead to the same attribution of behavior and belief in the power. Although

there is diversity in the three methods observed, it was promising to observe that one of the three

options could be applied to all participants. The one potential missing option could be a gradual

connection made after a string of poor performances. Perhaps with additional participants, this

connection would have been heard. Overall, it appears that there are three distinct patterns, with

potential for a fourth, in which a person will make the connection between their belief and their

superstition. After investigating when participants decided to believe in the power of their

superstition, the next area to explore was how long they had been relying on their behavior and if

they had made any adjustments.

The *sustainability/loyalty* (Appendix F) theme was initially investigated by questions

about changes in the participants' SB. The original purpose of this theme was to discover what

the process is if an individual stops performing or believing in their SB; however, only one of the participants discussed stopping a specific SB. This general theme was then defined as: some individuals expressed loyalty to their SB through repetition of use or patience if the SB did not lead to a perfect performance; loyalty was also expressed by not altering their SB. The majority of the participants denied changing or altering their SB. Some participants expanded that they have not stopped or altered their SB because it was still working for them. The following quote was from P1 who described why he has not altered his SB of swiping his foot across the stage before he performs:

> "And it's one of those things where I guess it's so engrained in me, it's just automatic that I do that. I guess you could potentially say that I'm, that I rely on it to a degree. You know, because I've done it so long and I've believed in it and I haven't been totally screwed over, you know, I haven't lost my foot; um, I think it's worked and it's kept me going and it's kept my work to be good too."

A4 expanded on the sustainability of his SBs with the following:

> "Even if, even if, like, I do, like, something doesn't go right and I still perform well, I won't go back, I won't do that same thing, where that, I guess, where that error occurred again, even though, I'm, that might have helped me perform well. *Why not?* Cause, it's just like, this is, this is what has worked in the past, even though this might have, this might have helped me, maybe it was just a fluke. That variation wasn't actually responsible for the improvement."

The concept of sustainability and loyalty within the literature on superstition has been primarily focused by reporting how many people have multiple SBs (Bleak & Frederick, 1998; Burke et al., 2006). Of the participants in the study who had multiple SBs, there was not enough

data to create a theme in regards to why an individual stops or alters behaviors. However, because all 11 participants had at least one SB that was not altered or stopped since its adoption, this could possibly answer the research question: why, if at any point, does someone stop relying on an SB? It appears that there may be a difference between sustainability and loyalty to a specific SB and the desire for multiple SBs. This difference may be because the individuals who had multiple SBs still expressed some sort of loyalty to all of their behaviors. The general theme of sustainability of SB was originally created to answer the research question: what if at any point does an individual stop relying on a SB? Because most of the participants have not altered their SB, this research question was unanswered. From the current data, it appears that it is rare to stop or alter an SB once it has been adopted. It should be noted that the military members were the exception to this trend of present use (at time of interview) of their SBs. Only one military participant, M3, continued to use his SB post deployment. M3 stated that he still carries a picture of his significant other when he flies helicopters. Because the military veterans discussed SBs related to their active service (or for the context of this study, their performance) they did not stop or alter their behavior during the time of their performance. Therefore, for the purpose of this study, the military members' SBs were not classified as abandoned because it was the performance that stopped, not the behavior. It should be noted that the researcher did not ask the military participants if they would begin to use their SB if they were to continue their service.

The third and final general theme investigated was *history of the SB* in order to understand, out of all of the various behaviors or objects that each participant interacted with, how participants decided that a specific behavior or object was significant to them or their performance. The guided interview began with questions asking each participant to describe their SB. Those questions were asked with the intention of finding consistent data to answer the

question: what process does an individual go through when choosing a SB and do different performers go through a different process when choosing a SB? There was no consistent data among the participants for this theme, which could be because each behavior was unique to the participant and many were not intentionally chosen. As stated above, there appears to be less of a difference between the process of choosing a superstition and believing in the power of that SB than what previous researchers have suggested; the process and belief, potentially, occurs simultaneously (Damisch et al., 2010).

While there was no pattern in the specific process of choosing a superstitious behavior, there appeared to be a difference in superstition between groups. The three performing artist participants had ritualistic behaviors as superstitions, compared to all three military participants who had objects for their superstitions. The pattern of object versus behavior could be due to the nature of each group. Performing artists may be restricted by what they are allowed to wear or carry, whereas, military members may be restricted in their behaviors. Therefore, performing artists and military members may only be able to use behaviors and objects respectively for superstitions. This pattern should be interpreted with caution as the small sample size makes it difficult to draw a firm conclusion to this difference. Despite the inability to draw conclusions regarding *the history of SB* theme, there were several emerging themes discovered upon analysis.

Emerging themes. The emerging themes that were discovered ranged from topics such as ambivalence around superstition use to various effects on performance.. One surprising emerging theme was about *ambivalence around their belief in the power of superstition* (Appendix G). This theme was defined as: certain individuals felt ambivalent about some aspect of the power of superstition, particularly, they questioned why they believed/followed a certain

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SB. This ambivalence was discussed in at least one participant from each group. A4 discussed his ambivalence with his SB:

"Maybe cause I try not to believe in superstition, even though I do it. I don't know, I feel like there's, I don't know, because I'm very, like, science minded, so I think that, like, superstition, not that, like, there is no direct correlation, like, or just correlation does not equal causation right? So I try to think that way, but then, I still do it, just for whatever reason, just to relax or focus, or what have you."

The performing artist participant, P3, discussed his ambivalence with his SB in the following quote:

"But when you asked me if I, like, believed in these superstitions, I guess it's in the same sense of, do I believe in god, or that god exists; I mean, yeah, but not really, like I do, but I don't think that, if there is, if there is some force that is controlling superstitions, you know, it's intangible. I think, you know, I think the force exists in our minds, so that makes it real."

P3 continued to discuss ambivalence about believing in the power of superstition particularly about how other people would perceive him if he were to correct them on saying "good luck" rather than "break a leg":

"But it's almost not worth it to like text back, and I'm almost, I'm almost like afraid to, like, I'm almost afraid to when someone does say good luck, like, if it's, like, passing, or if it's like over the phone, I'm afraid to correct them of like, because, I would seem like a superstitious theater kid."

The military participant, M2, who discussed some level of ambivalence with his SB said the following:

"Yeah, I mean, I don't know if I buy into it or not, the point is, like, I don't know for sure, so I like to keep my bases covered. And so, so there's a thing, if it's a thing that I've been doing for a long time, I'm going to keep with it because I think it's going to help me continue to do what I've been doing in the past. Whether or not it actually does or not, it's totally irrelevant, so I think it's going to, so I'm going to keep doing it."

The concept of ambivalence around SB has never been discussed in the literature regarding the individuals' perspective of their own behavior. Researchers have, however, explored the concept of uncertainty in regards to the surrounding, particularly the environment or performance outcome (Burke et al., 2006; Bleak & Frederick, 1998; Brevers et al., 2011; Dudley, 1999; Keinan, 1994). More specifically, researchers who examined ambiguous situations found that uncertain situations increase the likelihood of a SB being performed (Burke et al., 2006; Bleak & Frederick, 1998; Brevers et al., 2011; Dudley, 1999; Keinan, 1994; Schippers & van Lange, 2006). In the current study, it was somewhat surprising that several participants openly questioned their belief in the power of SB, but they continued to use at least one. Despite some participants' experiencing ambivalence surrounding their SB, they continued to rely on their SB.

Questions pertaining to reasons for use led to a very strong emerging theme: *positive effects on performance with SB use* (Appendix H). Almost every participant made some comment about the positive performance aspects that their SB has brought them. This emerging theme was defined as: performing an SB provides a sense of comfort, balance and/or confidence and helps focus attention on the performance at hand. The positive effects were observed by an influence on either mental and/or physical aspects of the participants' performance.

Every athlete made at least one comment about a positive impact their SB had brought to their performance. A3 said the following:

"I remember when we came back from that tournament the weather was pretty awful and

I went and got a buff and wore it to practice and it made me feel so much better at

practice, it was like, comforting, kind of to have it, it reminded me of like when we were

playing in sunny California and I had been playing so well… It just makes me think of,

makes me feel like I'm ready to play, like, hard."

One of the performing artists, P2, described how her SB positively impacted her performance:

"But for some reason when I eat the banana before a performance, it just kind of clears

anything else around the world that's going on, aside from what I'm doing. Then I kind

of get these little flashbacks of me going to the practice room and me practicing that one

spot that I had trouble with before, but I know I did it, you know, I must have already

gotten it done, it should be no problem. Then I don't worry about it after that."

Two of the military participants, M1 and M3, made comments of how their SB brought them a

sense of safety in a very unsafe situation. M3 described how his SB positively impacted his

performance while deployed:

"Every time I just, you know, grab it and look at it and it kind of would calm me down

and it would help me focus on what was happening or what has happened, you know, the

situation we were in."

Previous superstitious literature has mentioned that an increase in psychological tension

has been positively correlated with superstitious use (e.g., Bleak & Frederick, 1998; Keinan,

1994). Additionally researchers have suggested that potential benefits of the use of superstition

was to reduce levels of anxiety (e.g., Schippers & van Lange, 2006). The theme *positive effects*

on performance with SB demonstrated confirmed some of the benefits of superstition use. The

emerging theme of positive effects on performance with SB was contrasted with an emerging

theme of *effects on performance without SB/negative effects on performance* (Appendix I). This emerging theme was defined as: not using a SB created varying levels of discomfort, uneasiness, and or imbalance for the individual. Effects on performance without the use of a superstition had not been discussed in previous superstition literature.

The ultimate Frisbee athlete, A3, demonstrated the negative effects on her performance without her SB with the following quote:

"I feel like I noticed it more after I got into the habit of wearing it, and then I found myself not wearing it, and I noticed the absence more and I noticed how it made me feel uncomfortable and off balance and just, like, weird. So I feel like I don't notice it so much when I'm wearing it, I notice it a lot when I'm not wearing it. Which is weird."

P1 described the negative effects on his performance without his SBs with the following:

"There have been times where I haven't done it [SBs], right, and it's always a weird feeling, it's like, something's up…I think because I've done it [SBs] and it's consistent and it's brought forth a lot of amazing things for me, it [not using SB] just, it just feels weird, it's a weird feeling."

These two emerging themes of positive and negative effects on performance with and without the use of the SB have been quantitatively studied by researchers; however this is the first study that used qualitative data from participants expressing their perception of what their SB does for their physical and mental performance. Previous literature has measured the effects of SBs on performance through an objective measure performing with or without a SB (Damisch et al., 2010; Dudley, 1999; Foster et al., 2006). Previous researchers have hypothesized that one possible reason why individuals rely on a SB was to reduce levels of anxiety (e.g., Schippers & van Lange, 2006; Todd & Brown, 2003; Wright & Erdal, 2008). The current results confirm

stress reduction as a reason for use of a SB, particularly by providing comfort to the user. However, stress reduction was not the only aspect of performance affected because of an SB as a sense of comfort or balance was seemingly equally important to the SB users.

Performance was also affected by way of another emerging theme, *thoughts of SB during performance* (Appendix J). Some participants made comments about thinking specifically about their SB in the middle of their performance. This theme was defined as: some individuals would think about their SB in the middle of a performance, either as a reminder that they did their SB, or blamed a poor performance on the inability to conduct their SB prior to performance. One crew athlete, A5, described a performance where he did not perform one of his SBs and began to think about it mid race:

"Yeah, actually, like right at the start, I'm like, oh man, I didn't get that in. And then I'm like, but I can't focus on that, I got to ignore it. So I managed to ignore it like the first half of the race and then once things start hurting, oh, I should've shaken out my legs."

The violinist described thinking about her SB of eating a banana in the middle of a performance with the following quote:

"Sometimes my brain goes off and whatever when I'm on stage, and I start to get nervous in a place and I could forget everything that I am supposed to be doing then, but then I'm like, oh wait, I ate the banana, it's magic."

The concept of becoming distracted by the SB mid performance has also never been discussed in the superstition literature. Participants who expressed this form of distraction mentioned both positive and negative effects on their performance depending on whether or not their SB was actually performed. In other words, there may be power in just the thought or reminder of a superstition being followed. Potentially, this thought of SB during performance

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could also lead to reinforcement of the behavior itself. For the individuals who reminded themselves that they had conducted their superstition, they were able to continue to perform well. For the individuals who forgot to follow their superstition, they then had a negative performance. Interestingly, both outcomes appeared to reinforce the power of the superstition for that individual. Identifying the power of the superstition led to an additional theme.

The *external root of power* was another emerging theme (Appendix K). This is another emerging theme that has not been discussed in any superstition literature. Where do individuals' perceive the power of their behavior to come from? This emerging theme was defined as: the effectiveness/power of the SB, while not always directly identifiable, seems to come from outside of the individual (e.g., an object and/or a person). It appears as if there was some power outside of self that was believed to be causing any effects on performance.

All three performing artists made some comment about an external root of power for their behavior. P3 described the root of the power for his SB's:

> "I think it's kind of like, that thing of like, quantum physics, you look at an atom and it behaves differently, like things essentially behave differently if you give them attention and so, because I've given these things, these superstitions, and because enough people in the world of theater have given these superstitions in theater enough attention throughout history, I think it does make them real…So I think there's something to be said about superstitions and the way these, the fact that superstitions exist, has to do with that like the same kind of effect and energy that can't really be explained but there's something about putting enough thought into something that it will make it happen."

A2 described the root of the power of his SBs (which were both objects, one of which was a gift) with the following quote:

> "You know what I think of it [two SBs] as, I think of it as a funnel of sorts, I've got a lot of potential shooting around but there is nothing, like, that brings it down."

M1 who had an object that was given to him described the root of the power of his medallion with the following quote:

> "I, um, I guess I feel like it comes from, maybe, somewhere else, maybe, just like the spirit of it you know? Or like, the idea that the chain is special…The soul, comes from the soul, I mean, it's just like a thing you know?...I guess both of the people involved in the transaction. So, my uncle gave it to me, he had a feeling about it and when he gave it to me, I had a feeling about it, so I guess that mutual understanding between he and I, that is like the soul."

This qualitative study allowed for new aspects of superstition, such as external root of power, to be discovered. Previous research, again, has focused on the objective performance outcomes of a performer when using a SB (Damisch et al., 2010; Dudley, 1999; Foster et al., 2006) rather than why that behavior is effective or where that effectiveness or power comes from. While the concept of where the power itself comes from has not been explored in the superstitious literature, the concept of external root of power may be related to the external locus of control (Todd & Brown, 2003; Schippers & van Lange, 2006). External locus of control, refers more to the individual attributing their success or failure to a factor that is not within his control (Todd & Brown, 2003). This could be different from the emerging theme of external root of power because the participants were attempting to identify from where the power of the SB came. Additionally, external and internal loci of control have been commonly used more as a tool to define what type of person relies on a SB (Todd & Brown, 2003; Schippers & van Lange, 2006). For example, individuals higher levels of external LOC have been positively correlated

with higher levels of superstition use (Burke et al., 2006). No methods were used in this study to determine the participant's level of locus of control so that relationship could be further explored. Regardless of their LOC or whether or not the external root of power was identified, the concept of power was explored through additional raw data statements.

A complimentary theme to external root of power was an emerging theme of *transfer of power* (Appendix L). This theme was unique because it only pertained to participants who had carried objects rather than performed behaviors as their SB (A1 was the only exception to this, he had an object but did not mention the idea of transfer of power). This theme was defined as: individuals who have objects as a SB believe that the power can be transferred either through gift or through replacement. This theme was seen in five participants who use some sort of object as their SB. The following quotes are from M1 who had a medallion and chain (both gifts from his uncle) that he wore while on deployment. After being deployed he lost the medallion part, the following quote describing how he felt when realized the medallion portion was gone:

> "Yeah, when I lost the medallion I was really bummed because I thought the medallion part was really important, and you know, it was my uncle's, it wasn't mine…But when I lost that medallion, I felt comforted that I still had the chain part of it and I continued to carry that chain. I think I, I didn't necessarily reassign value to the chain, but I continued to hold the same value of at least having the chain."

When asked if the medallion could be gifted to someone else and provide the same sort of luck to another, M1 responded with the following:

> "Yeah, I think it, if it were given, you know, if it were like gifted to somebody. If my uncle decided to give it to someone or if my uncle gives it back to me one day and I know somebody and I give it to them you know. I would do that, it's gone through, I guess,

three conflicts now, so I would give it to somebody, but I don't think that, I would like to think that if it were stolen, that it would not carry any luck."

A2 described a similar train of thought about the concept of gifting one of his two SBs with regards to the power itself being transferred with the object:

"Not the name tag, I think the oar, I could see passing along the oar blade at some point. I don' think it would even have to be a teammate, I think it could just be someone significant to me within the rowing community. Cause that's kind of how it came to me. It was someone completely unrelated in terms of, like, genetics, you know, but, yeah, I think it's, if I found someone who would see the significance of it maybe [teammate name], I think he might get something out of it. I don't think the name tag, I think the name tag is me. I think it was intended for me from my brother."

The theme of transfer of power appeared to follow some sort of guideline created by the individuals who made comments regarding a transfer of power. Essentially, there appeared to be specific rules or desires for how the power of the SB could be transferred from one person to another. One key component of this emerging theme was that participants who contributed to this topic had a superstitious object as their SB rather than a specific behavior or routine. Perhaps this perspective of transference of power occurred because superstitious objects are physical and tangible versus superstitious behaviors that are not tangible. It appears that this physical aspect may be the reason for the concept of power transference. Because this theme did not emerge with the first few interviews, the concept of transfer of power was not asked or heard from all participants. Further research is needed to understand if individuals who use some sort of behavior as their SB believe in the concept of transfer of power.

Another emerging theme that followed some level of an internal guideline was the theme of *rules around SB* (Appendix M). It was found that most participants had created additional rules of *how* to use their SB in order for it to work on influencing outcomes or comfort. This emerging theme was defined as: supplemental rules for some SB were present; rules were created and fully understood by the individual. These rules were not included in the structure of the actual SB because they were identified by the individual as separate from the actual superstitious behavior. These rules were specific to each individual. The following from A4 is a simple quote showing his rule about completing his SB:

> "…and if for some reason, any of those routines I mess up, I have to start over."

P2 had specific rules about getting through her favorite piece of music and eating a banana in a set amount of time prior to her performance:

> "It's 30 minutes before that I eat the banana and 20 minutes before I have a performance that I go through my piece."

When asked what happens if she got through her piece immediately and she still had a large amount of time left before the performance, she responded:

> "I have to get through it once perfectly, it doesn't matter where in those 20 minutes before, I just have to get through it perfectly. *So if you do it perfectly the first time and you still have like 15 minutes…*I'll push myself to do it again, but I don't care necessarily. I do have to get through it perfectly once."

A2 had a rule regarding not only when he would utilize his superstition but also a general philosophy of the importance of respect for his superstitious objects:

> "I try to use them [ore blade and brother's name tag] at critical moments when I know they will bring me back to where I want to be. I don't want to use up whatever

significance they bear for me…as long as I treat the tokens with respect, I think that

respect will transfer back to me…So I think there is a certain process I should follow for

if I am going to use it."

Interestingly, P3 had rules about undoing superstitions that negatively impacted his performance

particularly if someone says Macbeth at the wrong time:

"So really what you are supposed to do is…you are supposed to run out of the theater, go

outside, spin around, and spit on the ground. Then, like, you are supposed to say a prayer

or something, but then you run back inside."

Because *rules around SB* was an emerging theme, clarifying questions about where these

rules originated from were not asked. The concept of rules surrounding a SB is also a new topic

within the individual superstition behavior literature. The separation between what makes a rule

versus what makes a SB should be studied further. These rules could, in some way, tie into the

research question of the process of choosing a superstitious behavior especially if these rules

affect the effectiveness of the SB in some manner. All of the participants, except one, had rules

pertaining, in some way, to how their specific superstition had to be conducted. The exception to

that statement was P3 who had a specific rule regarding the reversal of a superstition that had a

negative impact on his performance. Much like the Macbeth superstition itself, the reversing rule

appears to be widely accepted within that community since Hildebrand (1986) discussed a

similar version of reversal of the Macbeth superstition. Besides that theater community

exception, all other rules and guidelines appear to be very personal to the individual. These rules

appear to potentially affect the perceived results of the superstition. These rules could, in some

way, tie into the research question of the process of choosing a superstitious behavior especially

if these rules affect the effectiveness of the SB in some manner. Further exploration should be done to understand the timeline of these rules.

While the *rules around SB* theme appeared to affect the performance of the individual, the final emerging theme *religion* (Appendix N) was not directly related to performance. The connection between religion and superstition use has been explored within the superstition literature (Burhmann & Zaugg, 1981; Burke et al., 2006). Only one participant had a superstition that was directly related to religion; P1 prayed to theater gods, which (admittedly) he created from his own imagination. No other participants had a SB related to religion, however the emerging theme *religion* was found. This theme was defined as: some individuals connected/compared SB to religion. A2 connected his religious past with his current use of a SB:

> "I grew up really religious, I'm not so religious anymore, but I grew up very religious. I think it's kind of, like, a natural continuation of having symbolism with items."

One performing artist, P3, described the relationship between superstition and religion with the following:

> "But at the same time, theater provides an emotional catharsis for people in a lot of the same ways that religion can and that praying to god can, and it's a place where things are talked about and history is talked about and, like, struggle is talked about and where things are sort of just figured out; the same way a church is. Churches and theaters have pretty identical pieces of architecture. So, I believe in the power of story, and, and, so I guess, if I am a medium for that story, I have to do things, I have to do things to, like, strengthen my connection to the power of story."

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Even though this religion theme emerged, it is unknown if all of the participants came from a religious background. Previous researchers have found that individuals who identify as religious do use superstitious behaviors more than those who do not identify as religious (Brevers et al., 2011). Since religion, specifically prayer, is often regarded as a form of a SB (Brevers et al., 2011; Burke et al., 2006; Fischer, 1997; Keinan, 1994), it is unclear if the relationship between religion and superstition should be explored further. The current data support the connection between religion and SBs for some individuals.

Superstition model. Beyond the connection between religion and superstition, all of the themes, both general and emerging, may potentially be connected on a larger scale. A proposed model of the apparent connections of themes can be found in Figure 1. The connections proposed by the researcher are the first of their kind and are a working hypothesis of the proposed connections of the themes identified in this study. The proposed diagram depicts how a superstition starts as well as how and why superstition may work for an individual. The model includes how SBs begin, factors that perpetuate how the SB works, factors that perpetuate why the SB works, and how *thoughts of SB during performance* perpetuate SB use.

Figure 1.

Superstition Model for How it Starts, Why it Works, and How it Works

HOW IT STARTS

Behavior/Object
+
Perspective (possibly religion)

Superstitious Behavior (SB)

Sustainability/Loyalty   Sustainability/Loyalty

WHY IT WORKS   Thoughts of SB during performance   **HOW IT WORKS**

Ambivalenc   Ambivalence   Ambivalence   Ambivalence   Ambivalen

Positive Effects w/ SB   Negative Effects w/o SB   External Root of Power   Transfer of Power   Rules around SB
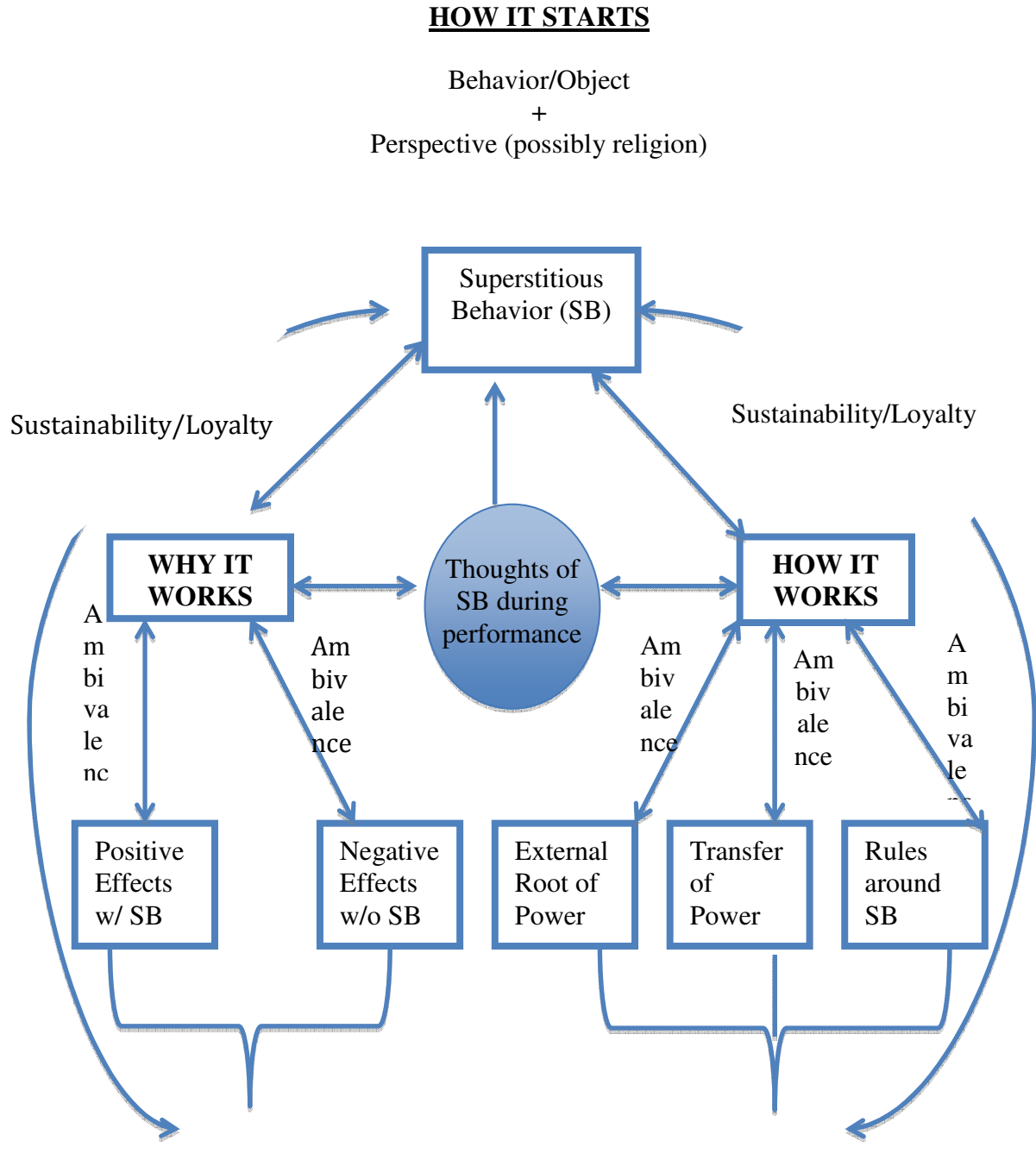
For those who have ongoing superstitions, the origin of that SB appears to be influenced by a combination of items. All SBs begin when a potential behavior/object is paired with one of the *perspectives around the SB* discussed above (i.e., an extraordinary performance, a string of good performances, or a poor performance without the SB). The emerging theme *religion* was placed at the top because it potentially influenced the individual, particularly through perspective. However, religion does not appear to influence how or why a SB works, at least in the present study. Once the SB is in place, the individual realizes how the SB is powerful, which perpetuates the SB use. The remaining emerging themes (*positive effects on performance with SB*, *negative effects on performance without SB*, *external root of power*, *transfer of power*, *and rules around SB*) were separated into two distinct categories, *how* it (the SB) works and *why* it (the SB) works.

There were three themes that appeared to explain individuals' perspective toward *why* their SB worked for them. Themes that fit the category of *how it works* include: *external root of power*, *transfer of power*, and *rules around SB*. All three of these emerging themes appear to be related to the concept of power, thus referring to how the SB works. Previous literature has never included a discussion of perceptions of specifically how a SB works for the individual. Defining how a SB works, could lead to better understanding of superstition as a whole. Individuals had ideas of where the power of their SB came from in the *external root of power* theme. *Transfer of power* referred to participant's perspective of how the power of their SB could move between people or through replacement. Individuals also had *rules around SB* that had to be followed in order for the SB to make their SB more effective. These emerging themes appeared to be related to an attempt, by the participants, to explain how the power of the SB works. Again, previous researchers have never attempted to define how the perceived power of the SB works. These

emerging themes categorized in the same segment identify perceived mechanics of how the

power of superstitions work.

In addition to how the power of SB works, the proposed model includes a categorization

of themes that appear to explain why SBs work toward enhancing performance. The emerging

themes *positive effects on performance with SB* and *negative effects on performance without SB*

could be reinforcing factors for the use of SB because these appear to be the perceived

connection to a performance outcome. When a participant identifies perceived positive and

negative effects on performance with or without their SB respectively, these effects could be

interpreted as why their performance was a success or not. These positive and negative effects on

performance could be understood by application of the attribution theory (Weiner, 2011). When

an individual attributes a successful outcome to the fact that she used her SB, that individual

attributed that success to the SB; essentially attributing the "why" of the success to her SB. The

same could be attributed to the negative performance outcomes without the SB. The failure, or

negative performance, has been attributed to the lack of or forgetting the SB. Why the

superstition works could be most identifiable through effects on performance. Essentially, an

individual who relies on a superstition looks for the effects of the SB on their performance, thus,

explaining why the SB works for that individual.

One emerging theme, *thoughts of SB during performance*, appeared to fit both categories

of how and why a SB works. When considering *thoughts of SB during performance*, there

appeared to be power in the mere thought of the SB. Individuals who performed their SB prior to

performance were comforted by the thought or reminder of actually performing the SB. Further,

those who had forgotten to conduct their SB and thought about that during a performance,

blamed a poor outcome on their lack of SB. The resulting comfort or perceived failure falls into

the why it works category and thereby influenced by thoughts during performance. On the other hand, the identification of power (*external root of power* or *rules around SB*) from the thought or reminder falls into the how it works category There appeared to be power in the mere thought of conducting (or not conducting) a SB. Because *thoughts of SB during performance* were articulated by the participants through performance outcomes and believed to have influential power, *thoughts of SB during performance* is appears to influence both how SB works and why SB works.

The final concept included in the superstition model is *ambivalence around SB belief*. Despite the identifiable effects on performance, certain participants described uncertainty, or ambivalence, with their SB. *Ambivalence around SB belief* was added to the link between how and why the SB works and the concepts in those categories. Individuals appear to struggle with their inability to distinctively identify exactly how and why a superstition works; however, they did perceive positive effects of their SB on their performance. In other words, participants in this study could identity that the SB somehow made enhanced performance, but they could not explain exactly how. Despite their recognition of effects on performance, some participants made remarks of ambivalence around how those effects worked. When trying to identify where the power of the SB came from (i.e., how the SB works), participants also expressed comments of ambivalence. Regardless of expressed ambivalence, participants continued to rely on their SB.

When considering all elements of the diagram, *sustainability/loyalty* was observed by consistent use of the SB (not altering) and not stopping the SB. Therefore, *sustainability* was indicated on the most outer arrows to indicate that all elements of the diagram perpetuate the use of a SB. Because every participant had at least one SB that had never been altered or stopped, all other themes could be considered as supporting elements for the continued use of SB. While all

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of these themes perpetuate the use of SB, the importance or weight of each element is unknown. To clarify, certain themes may be more important than others in regards to sustainability, this concept should be studied further in future research.

To summarize, the current researcher created the model in attempt to define the pattern in which a SB starts, how a SB works and why a SB works. More research is required to fully understand how SBs start, how and why a SB works, and how they are perpetuated; however, it appears plausible that there were concepts identified in the current study that could help explain an individual's development and loyalty to an SB in regard to performance. The current model is the first to attempt to identify the complexity of SBs. The model could serve as a platform for future research to deepen the understanding of how a SB starts, how a SB works, and why a SB works.

Conclusion

Several general and emerging themes were discovered from the raw data of this study. Overall, this researcher found the process of choosing a specific superstitious behavior does not appear to be as significant as the connection between the behavior and the belief in that behavior. Overall, there was no significant theme discovered about why individuals chose one behavior over another and labeled it as their SB; however, all participants identified when they believed in the power of their SB. The discovery of the connection between the belief and the behavior answered one research question of when an individual decided to believe in the power of their specific SB. Additionally, there was no difference between groups regarding when the connection between belief and behavior was made. Beyond the two research questions that were targeted, many additional themes emerged that were unrelated to the original research questions.

Many of these emerging themes warrant further research for better understanding of the larger

picture of superstitious behavior.

Chapter 5

Summary, Conclusion, and Recommendations

Summary

The purpose of this study was to qualitatively analyze why and how an individual comes about choosing and using a superstitious behavior in a performance setting. The proposed research questions were: what process does an individual go through when choosing a superstitious behavior, why and when does an individual decide to believe in the power of said superstitious behavior, what if at any point does an individual stop relying on a SB, and do different performers experience a different process of choosing a SB? These research questions were initially examined through the three general themes illustrated in the guided interview: perspective around SB, sustainability of SB, and history of SB.

The general theme, *perspective around SB* answered the research question when does an individual decide to believe in the power of said superstitious behavior. Participants decided to believe in the power of their superstitious behavior through one of three methods: 1) an extraordinary performance that occurred immediately during the first time the SB was used, 2) a series of good performances with the use of the SB, or 3) through a poor performance without the SB. The general theme of *sustainability/loyalty of SB* was intended to answer the research question: why, if at any point, does an individual stop relying on a SB. Why an individual stops a SB could not be examined because only one participant stopped using one of his SBs. However, there is valuable information in the fact that all participants had at least one SB that has been maintained since its creation. This dedication could indicate that there are important perpetuating factors for the continued use of a SB. Therefore, the research question exploring why an individual stops relying on an SB may be less important than understanding why an individual

continues to use a SB. The proposed model demonstrates potential reasons for perpetual use of a SB.

Moving beyond the proposed model, the raw data was used to answer the remaining research questions. When referring to the raw data, differences were observed in remembered use of a SB, but not in the process of choosing a SB. There were differences in remembrance of use of a SB, particularly when comparing objects to behaviors. It was observed that all individuals who had an object as their SB never forgot to bring or use it during performance. Therefore, those individuals who had objects as SBs appeared to be more careful about having their object versus individuals who relied on a behavior. Those who had behaviors as their SB were not as careful in consistent use and occasionally spoke of times that they forgot or did not have time to perform their specific superstitious behavior. The two remaining research questions regarding the process of choosing an SB, both as an individual, as well as, between performance groups, were answered as there did not appear to be a specific process by which the actual behavior was chosen. The remaining research questions were explained by general themes outlined above: 1) why and when does an individual decide to believe in the power of superstition and, 2) what, if at any point, does an individual stop relying on a SB *perspective around SB* and *sustainability/loyalty to SB*

Upon analysis of the raw data, eight emerging themes were discovered: ambivalence around SB belief, positive effects on performance with SB, negative effects on performance without SB, thoughts of SB during performance, external root of power, transfer of power, rules surrounding SB, and religion. Some of the emerging themes may be semi-related to previously discussed concepts within the superstition literature (Bleak & Frederick, 1998; Brevers et al., 2001; Burke et al., 2006; Dudley, 1999; Keinan, 1994; Schippers & van Lange, 2006). The

concept of religion has only been discussed in the superstitious literature either by classifying

prayer as a form of a SB or through demonstrating that individuals who identify as religious

report higher rates of using a SB (Brevers et al., 2011; Burke et al., 2006; Keinan, 1994). The

emerging theme *religion* was placed at the *how it starts* section of the proposed model because it

was considered a potential influencing factor to SB origins. Positive and negative effects on

performance with and without SBs have been objectively measured within the superstitious

literature through performance outcomes only; performance was improved with use of a SB

(Damisch et al., 2010; Foster et al., 2006). Several statements were collected in the present study

that subjectively showed perceived benefits for performance and these benefits were expressed

for both psychological and physical aspects of performance. These two themes were later

categorized in the proposed model as *why* the SB works. Other previously studied aspects of

superstition could be connected to the *how* the SB works.

The concept of external locus of control has been studied by previous superstition

researchers (Todd & Brown, 2003; Schippers & van Lange, 2006) and this concept may tie

loosely into the emerging theme *external root of power*. While both external root of power and

external locus of control have an external element, the concept of external locus of control is

focused more on an external attribution of success, rather than a definition for where the power

of SB stems. External root of power was categorized as one theme that explained *how* a SB

works. The other two concepts included in the *how* a SB works, *transfer of power* and *rules

around*, SB have never been discussed in literature about superstition. The emerging theme,

transfer of power, was only discussed by individuals who had an object as a SB. This theme of

transfer of power appeared to follow rules created by the individual; therefore, it could be related

to the final emerging theme of rules around SB. Individuals who contributed to the theme of

rules around SB had both behavior and object SBs. Both of these new themes should be studied further perhaps on an independent aspect, in addition to their role within the proposed model. While *transfer of power* and *rules around SB* only fit within the *why* a SB works category, some emerging themes affected all aspects of the proposed model.

The emerging theme, *ambivalence around SB belief*, appears to effect both *how* and *why* a SB works. Ambivalence has been discussed within the superstitious literature by way of ambivalent situations increasing the use of SBs (e.g., Keinan, 1994); however, it has not been discussed regarding an individual's own ambivalence about that person's belief in the power of superstition. *Thoughts of SB during performance* was also connected to both *how* and *why* a SB works. Thoughts of SB during performance could be considered closely related to the positive and negative effects of the SB on performance; however, the theme appears to be different because the physical act of carrying out the superstitious behavior is not required or conducted to experience the perceived benefits. Each thought about the SB effect on performance was represented in a retrospective manner of thinking about whether or not the SB was performed mid performance. It appears that there is potential for the *mere thought* of conducting a SB to be beneficial for the individual if the SB was performed or detrimental if the SB was not executed. The concept of *thoughts of SB during performance* has not been discussed by researchers in previous literature and should be analyzed in the future. These two themes *ambivalence around SB belief* and *thoughts of SB during performance* affected both *why* and *how* a SB works, however, all themes new or previously researched require more attention.

Overall, many themes emerged from this particular study and will require future research. The researcher's proposed model organizes these themes into how a SB starts, why a SB works,

and how a SB works and how SB use is perpetuated. Future research could use this model as a platform to confirm those elements, particularly how and why a SB works.

Conclusion

Superstition appears to be a more complicated concept than merely a perception that an unrelated behavior (or object) can improve performance. An individual who utilizes a SB appears to go through a process of determining when the behavior is recognized as superstitiously powerful through one of three ways. Further, the continued use of SB may include perceptions of external roots of power, separate rules pertaining to use of SB and effects of reminders of SB execution during performance. A deeper understanding of SBs could benefit sport psychology professionals, particularly how to incorporate mental skills training such as pre-performance routines or refocus routines if the performer does or does not use a SB prior to performance. Overall, sport psychology professionals should discuss a performer's SB to understand the areas of performance perceived to be affected by the superstition. Previous researchers have discussed themes of positive effects on performance, religion, elements of ambiguity and the connection between the belief and the behavior (e.g., Block & Kramer, 2009; Brevers et al., 2011; Keinan, 1994). While these themes have been discussed in previous literature, the current study was the first known to qualitatively explore these topics. The current study explored many new concepts within the superstition literature; therefore, more research in these new concepts is required. A model was created to attempt to depict how the general and emerging themes are related in addition to how those themes perpetuate the use of a SB.

Recommendations

The present study was the first to include an examination of individual superstitious behaviors within the performing arts and military communities; therefore, future qualitative and

quantitative research should be conducted within these populations. When considering the theme of sustainability, future research should be conducted with individuals who stopped their SB use, particularly because that population was not adequately represented in the present study. Future research regarding superstition should focus on any of the unique themes identified in the current study: external root of power, transfer of power, rules around SB, ambivalence around SB belief, and thoughts of SB during performance. Understanding where the SB power comes from could create greater understanding of why individuals use SBs. Additionally, understanding the concept of the power of superstition could lead to further understanding of concepts such as rules around SBs and transfer of said power. Given that 80-90% of the non-clinical adult population believes in some sort of superstition (Evans et al., 2002) and SBs are prevalent in the performance arenas, researchers should continue to gain a deeper understanding of details of the power of superstition.

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Appendix A

Recruitment Questions

Please answer all questions as accurately as possible

A superstition is defined as a behavior which does not have a clear technical function in the execution of skill, yet which is believed to control luck and/or other external factors" (Foster & Weigand, 2006, p. 167).

Some examples of a superstitious behavior include: wearing a lucky charm (like a necklace or shirt), eating the same meal prior to a performance, and listening to the same music prior to performance.

The belief in superstition is defined as the belief in the power and effectiveness of a superstitious behavior and is different than a superstitious behavior itself (Damisch et al., 2010).

1. Do you use (have you used) a superstitious behavior? Y/N

2. If yes, please describe your superstitious behavior: _____

_____

3. Do you use/Did you use/rely on a superstitious behavior while engaging in or as preparation to your _____ (military/sport/theater) performance? Y/N

If you have never used a superstitious behavior for your performance you will be excluded from the study.

Appendix B

Recruitment Email Sent to Captains, Directors, and Instructors

Participants Needed!

Did you know that 80-90% of the adult US population use a superstitious behavior?

Are you currently a club sport athlete or theatre performer or have you served in the military?

Do you currently use a superstitious behavior?

Would you like to help a student with her master's thesis?

My name is Alex Farley and I am currently working towards my master's degree in kinesiology/sport psychology at Western Washington University. I am doing my thesis on superstition and performance and am in need of participants to interview.

The interview will consist of a few open-ended questions about your superstitious behavior and your belief in that behavior and will not last longer than 30 minutes. For the purpose of my study, I am defining a superstition as "a behavior which does not have a clear technical function in the execution of skill, yet which is believed to control luck and/or external factors" (Foster & Weignad, 2006, p.167). Examples of superstitious behavior can include carrying a lucky charm (pendant, necklace, photo etcetera), any sort of ritual (eating restrictions, order of dressing/undressing), or listening to the same song prior to a performance. The belief in this superstitious behavior is an important aspect as well, meaning you believe that your superstitious behavior is beneficial to your performance.

The interviews will take place during fall quarter. Participation is completely voluntary and all information collected will be kept confidential. All participants will receive 20 dollars for their participation in the interview.

To see if you qualify for the study please contact me at: farleya3@students.wwu.edu or (509) 994-9699.

If you have any questions feel free to email me as well. Thank you!

Informed Consent Form for Interviewees

Department of Physical Education, Health, and Recreation
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Responsible Faculty Member	Primary Researcher
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(360) 650-3514	(509) 994-9699

_____   _____
Participant's Name   Date

PROJECT TITLE: PERFORMANCE AND SUPERSTITION

You are being asked to participate in a qualitative research interview described in this form below. All research projects carried out within this department are regulated by Western Washington University and the United States Federal Government. Both governing bodies require that the investigator obtain your consent through a signed agreement to participate in this study. For participating you are receiving 20 dollars as an incentive. You may drop out of this study at any time without penalty and your participation in this study is completely voluntary. If you drop out of the study, you will be able to keep the 20 dollar incentive.

The purpose of this interview is to investigate some psychological aspects of superstitious behaviors, particularly the connection between when you began your superstitious behavior and your belief in the behavior itself. The interview will last approximately 20 minutes, and the entire interview will recorded with an audio recorder. All of your responses will be transcribed verbatim and given to you to confirm that you agree with what was transcribed.

Because these are open-ended questions there are unknown potential side effects through answering these questions. You are allowed to not answer any question or questions that make you uncomfortable in any way. Should any unforeseen psychological distress occur no financial compensation will be provided. In the event that you suffer psychological damage related to the research, please contact the primary researcher listed above. For more information concerning your rights as an interviewee in this study contact Janai Symons, Research Compliance Officer at 360-650-3082.

All participants who sign this form will receive a copy.

I CERTIFY THAT I HAVE READ AND FULLY UNDSTOOD THE ABOVE PROJECT. I WILLINGLY CONSENT TO PARTICIPATE.

I am at least 18 years of age (please circle): Yes   No

_____

Signature of Participant

_____

Date

Appendix D

Demographics

1. Age:_____

2. Gender identity: _____

3. Ethnicity/prefer not to respond: _____

4. Years experience in military/sport/theater performance:_____

5. If no longer performing/serving in specific group, how many years has it been since your

    last performance/service? _____

Theme:
Connection between belief and behavior
Definition:
There are three ways in which these participants made the connection between their SB and their belief in the power of SB: 1) there was an extraordinary performance the first time the SB was used, 2) there was a string of good performances with the SB and the connection was eventually made, or 3) there was one poor performance without the SB and the performance was attributed to not doing the SB.

Participant	Quote
A1 *Gift: Gradual*	"I felt like it [reins from grandfather] would, you know, since it reminds me of him, I felt like it would improve my riding. Not directly obviously, but you know…" "Yeah, when the first time when I showed I got fifth place. I said, "okay, it's better than nothing". And then the second time I showed I started carrying it and then I continued placing, so it was, that's when I made the connection in my head. Like, after the second time, I kept, when I realized I kept placing"
A2 *Gift: Extraordinary/ Immediate*	"I beat my PR by like four seconds, I was like half a second off our school record on that piece. I, so I was like, wow, shit, okay, so that was when I locked and ever since then when I have a substantial erg piece or substantial race… I bring them with." "Cause there is nothing else that really was beneficial for me"
A3 *Behavior: Gradual*	"Well I guess, we played a lot of games through the weekend, so I guess I felt like my whole play throughout the weekend was awesome, and because it was something new that I was wearing, I was just like, always noticing it and always playing with it. I don't know how to explain how I attributed it to that." "I mean, there are good players on our team who wear them so maybe I was like, oh, I should get one, that will help me. I don't think I consciously said that, but, that could be why."
A4 *Behavior: Gradual*	"Yeah, it wasn't like I did it once and had some outstanding performance in which, uh, I was like, alright, got to stick with this all the time now. It was definitely I would say more, slow and progressive and evolved over time."

A5 *Behavior:* *Gradual*	"I think it was just because I associate it with the trip in general. Um, it was my first time actually racing, um, in a regatta, racing in a boat, um, and it was awesome. So, uh, between enjoying M&M's I guess and loving the race, it just got stuck together."
P1 *Behavior:* *Gradual*	"And that [prayer to theater gods] slowly but surely became sort of a thing that we did, even though it was sort of fantastical"
P2 *Behavior:* *Poor* *performance*	"When the concert went well, I was like, okay, I believe it now, for real, I believe it." "I mean, I remember that performance that I didn't get my banana and it didn't work. I mean I didn't play the best I could, after that I was like, oh my god, I have to have a banana every time." "Just because, I think, I came to that because it has always worked for me except for the one time I did not do it, and, I guess, I count that as like, breaking the pattern in some way."
P3 *Behavior:* *Poor* *performance*	"I have, I feel like I've noticed when the word Macbeth is said, you just, you get off to a rough start sometimes. Uh, I did, I studied Macbeth, um, this past fall, me and my friend were doing a scene from Macbeth and my teacher was like, you know, she kind of cringed and I was like, 'get over it [name of instructor]', and we did it and it was just kind of off, the performance was, which was weird because we rehearsed it just the night before. We had been rehearsing it for like three weeks."
M1 *Gift:* *Extraordinary/* *Immediate*	"But once I deployed I had it [medallion] on, and probably immediately felt like this is something that is important to me and I want to have it and always have it on." *So you recognized right away as soon as your uncle gave you the chain and the medallion that it was…* "significant"

M2 *Behavior: Gradual*	"Um, I don't know how it started, one day I had the chain and I just started wearing it and it seemed like I needed to wear it every time. I just kept doing it."
M3 *Behavior: Gradual*	"Um, well, it was probably more after we deployed when I really started believing, you know, that it was bringing me good luck…"

Theme:
Sustainability/Loyalty
Definition:
Some individuals expressed loyalty to their SB through repetition of use or patience if the SB did not lead to a perfect performance. Loyalty was also expressed by not altering the behavior.

Participant	Quote
A1	*If your performance changes do you think you are going to keep using it [carrying rein]?* "I'd probably keep using it just because it's close to my heart as far as family goes"
A2	*Have you ever thought about adjusting your behaviors [the oar blade and brother's name tag]?* "No not yet, cause it's worked out really well. I mean like, maybe if I hit a rough period then maybe, but right now it's been very successful."
A3	*Have you ever stopped or altered your behavior [wearing buff on head]?* "I don't think so…I have got new ones, but I keep wearing the old ones too. So I don't think I've altered it too much."
A4	"Even if, even if, like, I do, like something doesn't go right and I still perform well, I won't go back, I won't do that same thing, where that, I guess, where that error occurred again, even though, I'm, that might have helped me perform well." *Why not?* "Uh cause it's not part of the routine, um, I don't know, yeah, I don't know…Cause, it's just like, this is, this is what has worked in the past, even though this might have, this might have helped me, maybe it was just a fluke. That variation wasn't actually responsible for the improvement." "I was just super comfortable and would just kind of trust it after those years before."
A5	*How would you know that these things aren't working?* "I don't know if there would be a hard stopping point, I think it would be like a slowly fading out thing I guess. I feel like that is how it started, I don't know if there is like a hard, all of the sudden, this is what I have to do, it just sort of slowly became that way."
P1	"And it's one of those things where I guess it's so engrained in me it's just automatic that I do that. I guess you could potentially say that I'm, that I rely on it to a degree. You know, because I've done it so long and I've believed in it and I haven't been totally screwed over, you know, I haven't lost my foot; um, I think it's worked and it's kept me going and it's kept my work to be good too."

P3	*Have you ever varied eating the banana?* "…no, not really, I kind of try to stick with the same thing, because I've gotten so used to the routine now it's like if I mess it up or change it at all it's going to throw me off completely."
P3	"I have to do things, I have to do these rituals so that I will, so that I will believe in myself, so that I'll believe that this matters, like, oh yeah, theater actually matters, it's a big thing in the world and it's, it's real."
M1	*You mentioned the medallion part broke off the chain, can you talk about what happened and how you felt?* "Yeah, when I lost the medallion I was really bummed because I thought the medallion part was really important…But I, when I lost that medallion, I felt comforted that I still had the chain part of it and I continued to carry the chain…So I think that the chain and the medallion together were one and it was really sad that I last that part of it, but I still had something and I held onto."
M2	*Have you changed anything about the chain you wear?* "No, it's always the same, I always keep it with the dog tags and I wear it exclusively with the dog tags."
M3	*Did you ever stop or change that behavior [carrying a picture] at all?* "No, I never, no, I always had it."

Appendix G

Theme:
Ambivalence around SB belief
Definition:
Certain individuals felt ambivalent about some aspect of the power of superstition, particularly they questioned why they believed/followed a certain SB.

Participant	Quote
A2	"I think it's, no, I don't want to think about it too much, I feel like it's working and I don't want to ruin it. I guess, I mean, I'm not avoiding it, but up until this point it has always worked so I've just gone with it."
A4	"Maybe cause I try not to believe in superstition even though I do it. I don't know, I feel like there's, I don't know, because I'm very, like, science minded, so I think that like, superstition, not that, like, there is no direct correlation, like, or just, correlation does not equal causation right? So I try to think that way, but then, I still do it, just for whatever reason, just to relax or focus, or what have you."
A5	"…I feel like races where I don't do that [leg jiggle], just because of time constraints, usually don't go as well, even though I know that's just in my head." "Well, I guess between relaxing me, um, I like to think that it would also help keep lactic acid away. I mean, neither of those are necessarily true, but that's how it works in my head." "Uh, I just kind of always feel silly when I'm using the word superstition; like, all of the sudden it's got some sort of higher importance."
P2	"Actually, coming to college has kind of like, made me ask that, because, when you get to the college level in music it's way different than high school. Um, they, people judge you more on your talent than, like, obviously your rituals or whatever get you there… I don't know, I'm still kind of playing with that a little, playing with it, maybe I don't eat the banana. But ultimately, when it comes to the concert day, I always go back anyways, just because I think it's habit now."
P3	"But when you asked me if I, like, believed in these superstitions, I guess it's in the same sense of, do I believe in god, or that god exists; I mean, yeah, but not really, like I do, but I don't think that, if there is, if there is some force that is controlling superstitions, you know, it's intangible. I think,

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	you know, I think the force exists in our minds, so that makes it real."
	"But it's almost not worth it to like text back, and I'm almost, I'm almost like afraid to, like, I'm almost afraid to, when someone does say good luck, like if it's, like, passing, or if it's like over the phone, I'm afraid to correct them of like, because, I would seem like a superstitious theater kid."
M2	"I'm a really logical person, so logic tells me that superstition is stupid right? But there's the other half of me that is just like, okay, but I'm still going to do the knock on wood just because."
	"Yeah, I mean, I don't know if I buy into it or not, the point is, like, I don't know for sure, so I like to keep my bases covered. And so, so there's a thing, if it's a thing that I've been doing for a long time, I'm going to keep with it because I think it's going to help me continue to do what I've been doing in the past. Whether or not it actually does or not, it's totally irrelevant, so I think it's going to, so I'm going to keep doing it."

Theme:
Positive Effects on Performance With SB
Definition:
Performing their SB provides a sense of comfort, balance and/or confidence and helps focuses their attention on the performance at hand. These effects are observed by effects on either mental and/or physical aspects of their performance.

Participant	Quote
A1	"I felt like it [reins from grandfather] would, you know, since it reminds me of him, I felt like it would improve my riding" "Like when I feel like he's watching over me, it makes me want to try harder in specific things that normally I wouldn't try in. It's like I want to make good to him almost"
A2	"The degree to which he [brother in the army] has made, you know, the degree to which he's made sacrifices and stuff like that for people that are far beyond, like the scope of people that he's ever going to reach personally, that sort of, I take the significance of that with me that way I don't forget, I don't forget what I should be capable of doing" "So I try to carry that [name tag and oar] with me, to remember, you know, plenty of people have worked with me and have worked for me in that case. So that's something significant, I try to carry that and get myself really grounded. I feel like if I don't have some sort of appreciable element to carry with me, it's something that will slip away quicker" "I kind of view it with the name tag, that's what keeps me centered and the fact that it's not just me that I'm working for during a race or during a piece." "I like the aid that it [name tag and oar] provides, it's very direct" "Usually when I feel that intense desire to quit, I'll look at it [name tag and oar] again and it'll kind of push me through to the next one…So I kind of, I kind of look at it when I really need to get over that hump" "Seeing that is very much a direct reminder of what I'm doing it for, kind of clears the fog I guess"

A3	"I remember when we came back from that tournament the weather was pretty awful and I went and got a buff and wore it to practice and it made me feel so much better at practice, it was like, comforting, kind of to have it, it reminded me of like when we were playing in sunny California and I had been playing so well." "It [buff] just makes me think of, makes me feel like I'm ready to play like hard." "I can feel it [buff] on my head, it just feels comforting and reassuring." "I feel like I play well, better, with it [buff]."
A4	"It [dressing routine and individual behaviors] puts me at ease, it relaxes me, um, kind of helps me focus…"
A5	"…it's [the SB] like a physical reminder that I've got a lot of workouts behind me and I've developed just these huge quads." "I was in Philadelphia about to race, it was our semifinals, all sorts of nervous, and uh, I could feel myself like clench my shoulders, and, took a moment to focus in, do my little leg jiggle thing and I could feel my shoulders just relax." "It keeps me focused, centers me in…it focuses me mentally, you know, brings me into the race, it brings me into why we are there. And, it helps me focus on what I can control, there are a bunch of things that you can't control during a race."
P1	"…when it [foot swipe SB] first started happening, I think it was again, just a security blanket. It was like, this is what I'm doing, it relaxes me and it also puts me in a state of, time to do a show, time to perform…" "Even though, you know, it was made up, you know the theater gods were simply a made up term, it brought a lot of comfort and a lot of security and a lot of good vibes." "It's [SB swiping my foot] kind of this idea of ownership, like, this is my territory."

P2	"There's this thing where I have to play, like, my favorite piece before any performance, just because it's a really comfortable thing. So I know what I am doing, I can validate what I am doing. I think it's more of like, my personal belief in myself."

"I think just having that is saying I have security to a fruit helps me, kind of, not obsess over what if I make a mistake because of this. It was more like instead, it changed my, like, mind pathway of, okay I can't mess up because I have a reason why I can't now…"

"It kind of, like, clears my head when I play…But for some reason when I eat the banana before a performance, it just kind of clears anything else around the world that's going on, aside from what I'm doing. Then I kind of get these little flashbacks of me going to the practice room and me practicing that one spot that I had trouble with before, but I know I did it, you know, I must have already gotten it done, it should be no problem. Then I don't worry about it after that." |
| P3 | "I, yeah, I want to tell people a good story, I want, I want, I want to play pretend, I want to like, to get them to go, I want to get them to play pretend with me, and so to do that, I have to be convincing, and to convince myself, I have to do these things that sort of, like, open up, yeah, open me up a little, I guess." |
| M1 | "I thought that it [medallion] would give me protection, like it would protect me, I would be more safe, less likely to get harmed."

"I feel like they [medallion and song] maybe both provided me with the same value-ish, which means that I feel that both of them comforted me, both of them were like positive things that I had that made me feel lucky maybe, or that made me feel like, if I have this, than this will be okay."

"I guess I feel like the medallion itself would have been more of a keep me safe and the song would have been more like a keep me sane type thing." |
| M2 | "It [chain] makes me feel more complete." |

M3	"…we would think that it would bring us good luck and we would always, we, you know, when we were super tired or whatever be the case, we'd always just have our picture and we'd always, you know, it keeps us motivated and alert."
	"Every time I just, you know, grab it [picture] and look at it and it kind of would calm me down and it would help me focus on what was happening or what has happened, you know the situation we were in."

Appendix I

Theme:
Effects on Performance without SB/Negative Effects on performance
Definition:
Not using a SB creates varying levels of discomfort, uneasiness, and or imbalance for the individual

Participant	Quote
A1	"Yeah it [not having reins from grandfather] would make me feel anxious, I don't doubt, or I, I wonder if I would not do as well. I don't know for sure, It would definitely make me feel anxious, cause it's just been something I've been doing for a period of time"
A3	"I just feel like off balance, or like, I hate playing without one [a buff] on my head." "It just felt wrong not to have it [a buff] on." "I feel like I noticed it more after I got into the habit of wearing it, and then I found myself not wearing it, and I noticed the absence more and I noticed how it made me feel uncomfortable and off balance and just like, weird. So I feel like I don't notice it so much when I'm wearing it, I notice it a lot when I'm not wearing it. Which is weird." "I just felt like I was having a terrible time, and I was like, oh, I forgot my buff! I was like, oh, I should get my buff back."
A4	"If I don't do it [getting dressed routine and/or event behaviors] then I get anxious and so I'm not relaxed"
A5	"I just felt, I just felt uncomfortable during the piece; didn't feel focused." "Then all the sudden it was tradition, all of the sudden I was buying M&M's every trip and for the little segments of road where I don't have M&M's it feels weird, it doesn't sit right."
P1	"There have been times where I haven't done it [pray to theater gods and foot sweep], right, and it's always a weird feeling, it's like, something's up." "Probably, probably, um, probably I was rushed or something or I didn't have time to do it [prayer to theater gods and foot

	sweep] or I was running late. It's apparent, oh yeah, it's apparent and um, um, it just, it doesn't feel right."
	"I've been doing it consistently for a while, and it [prayer and foot sweep] gets missed, you know, um, it's kind of like going out there in the dark."
	"I think because I've done it [prayer and foot sweep] and it's consistent and it's brought forth a lot of amazing things for me, it [prayer and foot sweep] just, it just feels weird, it's a weird feeling."
P2	"Yeah, it [forgot to eat banana] was really bad…I remembered all I could think about was I didn't eat that banana."
P3	*Have you noticed a difference in performance?* "I have, I feel like I've noticed when the word Macbeth is said, you just, you get off to a rough start sometimes...it [a performance where Macbeth was said and not corrected] was just kind of off, the performance was, which was weird because we rehearsed it just the night before."
M2	"Yeah, it [not wearing chain] feels wrong if I don't do it anymore, so I always do it every time now. I don't know why it feels wrong, it just feels wrong to not wear it."
	"Um, I probably feel better when I wear it, only when I recognize that I am not wearing it."
	"Yeah, I don't feel naked, but I feel like I'm missing something."

Theme:
Thoughts of SB during performance
Definition:
Some individuals would think about their SB in the middle of a performance, either as a reminder that they did their SB, or blamed a poor performance on inability to conduct SB prior to performance.

Participant	Quote
A1	"When I actually get in the saddle that's when I'm really feeling it, and that's when I think back and realize, I got it [reins from grandfather], you know?" *Do you think about carrying the rein mid ride?* "For a moment, yeah. I'll just think…I'll tap my chest or something, make sure I've got it. I'm ready"
A2	"I always try to keep my brothers name tag in sight so I can see it like if I need to remember stuff [during a piece]." "Uh, there's always a point where there's absolutely, like the easiest thing would be to take an easy stroke and just quit. And, yeah, that's usually the time that I try, I choose to look at my brother's name tag then. And the thing is, if I can look at that and remind myself, that's sort of a reminder directly, like, no, you have to, if you can just drop a split on that next stroke, then it's a little buffer zone I bought myself…Usually when I feel that intense desire to quit, I'll look at it again and it'll kind of push me to the next one."
A5	"Yeah, actually, like right at the start I'm like, oh man, I didn't get that [leg jiggle] in. And then I'm like, but I can't focus on that, I got to ignore it. So I managed to ignore it like the first half of the race and then once things start hurting, oh, I should've shaken out my legs." "I remember distinctly thinking, it was like the 3rd 500 meters, probably one of the most painful parts of a race, I thought, "why isn't the penny working", I decided it wasn't working and I got rid of it." "…it's [the leg jiggle] like a physical reminder that I've got a lot of workouts behind me and I've developed just these huge quads."

P2	"I would think of it while I was performing and say there's no way for me to be nervous because I ate the banana and that fixed everything."
	"Sometimes my brain goes off and whatever when I'm on stage, and I start to get nervous in a place and I could forget everything that I am supposed to be doing then, but then I'm like, oh wait, I ate the banana, it's magic."
	"I remembered all I could think about was I didn't eat that banana."
	"Yeah, I started thinking during that performance that, oh, this is going bad because I didn't have it, or this is the one thing that changed that out of my normal routine thing that is effecting all of my, why am I even thinking about this right now!"

Appendix K

Theme:
External Root of Power
Definition:
The effectiveness/power of the SB, while not always directly identifiable, seems to come from outside of the individual (e.g., an object and/or another person).

Participant	Quote
A1 *Object*	*Can you talk about why you wanted to carry this thing from your grandfather?* "So what it was, was mostly, just because he was a good rider with horses. He was well experienced, I felt like it would, you know, since it reminds me of him, I felt like it would improve my riding. Not directly obviously, but you know…" "it [reins from grandfather] kind of reminds me, you know, of my grandfather and it keeps…It kinda like, I don't know, when I have it I feel like he's watching over me a little bit you know?"
A2 *Objects*	"…as long as I treat the tokens[name tag and oar] that sort of get me centered with respect, I think that respect will transfer back to me" *Why do you have two SB's?* "You know what I think of it [name tag and oar] as, I think of it as a funnel of sorts, I've got a lot of potential shooting around but there is nothing, like, that brings it down." "It's like, alright, you know, he [man who gave him one SB object] assigned significance to it, maybe I should treat it with some sense of gravity" "Cause it was more like a "oh I'll just bring them with me, it'll be fine" and that's when I discovered, no it's actually the process with it that makes it important. Like, I can't just throw this shit around. That's where, yeah, the genesis of treat it reverentially, so that I would gain the most from it" "I like the idea of there being a physical medium that sort of transferred in some capacity of what I'm getting out of it." "Yeah a vessel I guess, a vessel of sorts. Um, maybe like, uh, yeah, like a film canister. So like you know, it's got all the

	stuff in there if I know how to go about using it, but, it's just you know a physical item to everyone else"
P1 *Behaviors*	"It's also like, well, I leave this in the hands of whoever, you know, them or us, or whatever. So I think it's kind of a weird vibe but I totally believe in it. I totally do and I think it's totally great." "If there is such a negative connotation towards saying Macbeth on stage, you know, there needs to be the other way around which is you sending these good vibes and you're doing stuff that's, in order to create a positive person or, you know, a positive entity; you're bringing forth good stuff you know, which is very true." "That's kind of nudging, but also respecting this higher power slash respecting the thousands of people that have done scenes before us."
P2 *Behaviors*	"…then I'm like, oh wait, I ate the banana, it's magic." "She [mother] said 'eat the banana, it'll give you special powers and it'll erase all fear, people are going to love you anyways, but if you really need something to take your mind off of, you know, messing up or something going wrong, just eat the banana and all of your nerves will go away…but I was like, my mom gave me the banana, I trust my mom." "Yeah, it was mainly because my mom told me to, and you know, if your mom tells you something is going to happen, it is going to happen."
P3 *Behaviors*	"I think it's kind of like, that thing of like, quantum physics, you look at an atom and it behaves differently, like things essentially behave differently if you give them attention and so because I've given these things, these superstitions, and because enough people in the world have given these superstitions in theater enough attention throughout history, I think it does make them real." "So, I think there's something to be said about superstitions and the way these, the fact that superstitions exist, has to do with that like same kind of effect and energy that can't really be explained but there's something about putting enough thought into something that it will make it happen." "…if there is some force that is controlling superstitions, you

	know, it's intangible. I think, you know, I think the force exists in our minds, so that makes it real."
M1 *Object and Behavior*	"…I immediately thought that it was important and significant because it was something that he [my uncle] valued and shared with me…I felt that it was like, a good luck charm, you know, I thought that it provided me with luck and safety." "I, um, I guess I feel like it comes from, maybe, somewhere else, maybe, just like the spirit of it you know? Or like, the idea that, that chain is special." "The soul, comes from the soul, I mean it's just like a thing you know?... I guess both of the people involved in the transaction. So, my uncle gave it to me, he had a feeling about it and when he gave it to me, I had a feeling about it, so I guess that mutual understanding between he and I, that is like the soul"
M3 *Object*	"I never really thought about that [where the power came from], I just, yeah, I just thought it brought me good luck and like I said before, kept me calm and everything. *But so you didn't think that luck came, again, like, from the actual picture and just from somewhere else?* Um, I think it came from the picture, yeah."

Theme:
Transfer of Power
Definition:
Individuals who have objects as a SB believe that the power can be transferred either through gift or through replacement.

Participant	Quote
A2 *Objects*	"I like the idea of there being a physical medium that sort of transferred in some capacity of what I'm getting out of it." "I think I could replace it maybe if something happens, but it wouldn't be in the same way." *Do you think if you gave those objects to someone else on your team, do you think they would help them? "*Not the name tag, I think the oar, I could see passing along the oar blade at some point. I don't think it would even have to be a teammate I think it could just be someone significant to me within the rowing community. Cause that's kind of how it came to me. It was someone completely unrelated in terms of, like, genetics, you know, but, yeah, I think it's, if I found someone who would see the significance of it, maybe [teammate name], I think he might get something out of it. I don't think the name tag, I think the name tag is me. I think it was intended for me from my brother."
A3 *Object*	"I have gotten new ones [buffs], but I keep wearing the old ones too. I think I have three, they are all blue. Actually, I did get one more like the one I borrowed, this one was plain, the one's I originally borrowed were patterned, and I was like, those ones are cool, I'm going to get a patterned one too. *Why did you go get extra ones, or that first extra one?* Um, because they started to stink some so I needed another one."
M1 *Object*	"Yeah, when I lost the medallion I was really bummed because I thought the medallion part was really important, and you know, it was my uncle's, it wasn't mine...But I, when I lost that medallion, I felt comforted that I still had the chain part of it and I continued to carry that chain. I think I, I didn't necessarily reassign value to the chain, but I continued to hold the same value of at least having the chain." "Yeah, I think it [the medallion] if it were given, you know, if

	it were like gifted to somebody. If my uncle decided to give it to someone or if my uncle gives it back to me one day and I know somebody and I give it to them you know. I would do that, it's gone through, I guess, three conflicts now, so I would give it to somebody, but I don't think that, I would like to think, that if it were stolen, that it would not carry any luck." "Okay, so my uncle gave me the medallion probably a month before I deployed to Iraq and I immediately thought that it was important and significant because it was something that he valued and shared with me. Like I said, he had carried it in Vietnam so I thought, okay, well it got him through Vietnam and like, he really cherishes it now he's giving it to me, so like, I want to cherish that. And I want to like, have that, and I felt that it was like, a good luck charm, you know, I thought that it provided me with luck and safety."
M2 *Object*	"I mean you can't go and get the same one, because, I mean, it's not like it's unique, I'm sure there are thousands out there, it's unique to me in that I can't find another one that is going to be the same; one that has been with me for the last three years." "I mean, I feel like I could just go out and get another one that's similar to it, but and it would still have the same function in my mind, but then the sentimental factor says it means more now because you've had it for so much longer and used it for so long and you worn it for so much, and it has been with you so long that you want to keep it and keep using it. It won't feel like the same thing if you have a different one; at least not at first [but you think eventually it could?] I think eventually, yeah, over time, I think time heals everything."
M3 *Object*	"Yeah, I just wanted a more recent picture. Cause, the first picture I had, it kind of went through the ringer a little bit."

Appendix M

Theme:
Rules around SB
Definition:
Supplemental rules for some SB were present. Rules were created (except for one theater performer) and fully understood by the individual.

Participant	Quote
A2	"I don't think anything is going to be 100% all the time. I mean, yeah, I think it's just natural law, you can't have something go 100%. There's some sort of science aspect to things. So I feel like with this, they have born significance for me, but I don't want to exploit that. So I try to use them at critical moments when I know they will bring me back to where I want to be. I don't want to use up whatever significance they bear for me…" "…as long as I treat the tokens that sort of get me centered with respect, I think that respect will transfer back to me…" "So I kind of, I think, there is a certain process I should follow for if I am going to use it"
A4	"…and if for some reason, any of those routines I mess up, I have to start over."
A5	"Yeah, I try to get different ones each time but it always has to start or at least be a pack of pretzel or peanut butter." *So it's only for traveling?* "Yeah it's only for away."
P2	*Okay, do you have a set, is it like 20 minutes before that you eat the banana?* "It's 30 minutes before that I eat the banana and 20 minutes before I have a performance that I go through my piece." "I have to get through it once perfectly, it doesn't matter where in those twenty minutes before, I just have to get through it perfectly. *So if you do it perfectly the first time and you still have like 15 minutes…,* "I'll push myself to do it again, but I don't care necessarily. I do have to get through it perfectly once."
P3	"I would say right up until I go on stage, if they, like, if I was walking away and then they called after me like, shit, dude, I mean break a leg. I would be lie, thank you, and I would take that, I would be very appreciative of that."

	So what are the ways to correct if someone says Macbeth? "so really what you are supposed to do is, and there is a lot of different versions of this, but really, you are supposed to run out of the theater, go outside, spin around, and spit on the ground. Then, like, you are supposed to say a prayer or something, but then you run back inside."
M3	"Yeah, so before we would go out on patrols and everything, we would always, everybody would always make sure they had their picture with them. It was kind of like our platoon thing, it was our good luck charm." "It was always in my top left pocket. I just kept it over my heart, just trying to bring me the best luck." "Yeah, it was replaceable, it was just always having one [a picture] on you, basically."

Theme:
Religion
Definition:
Some individuals connected/compared superstition to religion

Participant	Quote
A2	"I grew up really religious, I'm not so religious anymore, but I grew up very religious. I think it's kind of, like, a natural continuation of having symbolism with items"
P1	"I guess my past is that I am also a fairly religious person. You know, the idea of faith, you know, so I guess I brought a little of that faith to the performing arts side."
P3	"There's something almost, like, um, religious about it in the theater and maybe in the same in like sports and military also, in the sense of like, like, it is my ritual to show up a half an hour early from call time, do all these things to get ready, brush my teeth, make sure that someone, like tells me break a leg; it's almost like, it becomes part of a routine and, you, a lot of theater people, and me included, like we consider the theater our temple, and so, these are just sort of like, I don't know anything about religion, but those are just like, I'm sure religion has plenty of routines, these are just like the routines that we have to do to appease something." "But at the same time, theater provides an emotional catharsis for people in a lot of the same ways that religion can and that praying to god can, and it's a place where things are talked about and history is talked about and, like, struggle is talked about and where things are sort of just figured out; the same way a church is. Churches and theaters have pretty identical pieces of architecture. So, I believe in the power of story, and, and, so I guess, if I am a medium for that story, I have to do things, I have to do things to, like, strengthen my connection to the power of story."
M2	"Well, I think it is probably because it links up with religion in some respect. Which, I'm not really super religious but I am somewhat religious, and so, when I don't wear it, it feels, just wrong because of my religion and how I've kind of put the two together."