

THE DEVELOPMENT AND VALIDATION OF A NEW PRE-SHOT ROUTINE MODEL  
FOR GOLF

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Paul Arthur Christianson

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**Title**

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**By**

Paul Arthur Christianson

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The Supervisory Committee certifies that this *disquisition* complies with North Dakota  
State University's regulations and meets the accepted standards for the degree of

**DOCTOR OF PHILOSOPHY**

SUPERVISORY COMMITTEE:

Brent Hill

---

Chair

Joe Deutsch

---

Brad Strand

---

Gregory Carlson

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Approved:

10/08/2020

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Date

Chris M. Ray

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Department Chair

## **ABSTRACT**

The purpose of this study was to gain a better understanding of the past research that has been conducted to date on pre-shot routines in golf via a thorough review of the literature. A historical review is presented in a chronological order of research studies that have been conducted pertaining to pre-shot routines in golf over the last 40 years. From this review, the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf was developed and assessed amongst college golf coaches in the United States.

A total of 36 college golf coaches working at the NCAA Division I level participated in a two-round Delphi study to validate the usefulness and future utility of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf. The usefulness of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf was validated by achieving a 72.73% consensus agreement level amongst study participants. The researchers were unable to reach adequate levels of expert consensus amongst college golf coaches working at the NCAA Division I level pertaining to the future utility of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf in their golf instruction. However, it was found that future utilization rates of the model may increase if the designer of the model were to provide educational sessions to college golf coaches and members of their college golf team.

Practitioners and researchers are encouraged to further examine the efficacy and future adoption rates of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf amongst golfers of all ability levels. In addition, a study examining the real adoption and utilization rates of college golf coaches working at the Division I level is encouraged upon the completion of face-to-face educational sessions by a researcher who has expertise in the area of pre-shot routines in golf.

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## CHAPTER 1: INTRODUCTION

### The Wandering Mind

It has been suggested that the human mind spends a great deal of time in a state of stimulus-independent thought—otherwise known as *mind wandering*—as the default mode of operation (Killingsworth & Gilbert, 2010; Mason et al., 2007). Killingsworth and Gilbert (2010) found that 46.9% of people reported being aware of their minds wandering throughout the course of a day. This type of mind wandering occurs throughout a human's life based upon the tasks at hand and brain function of each human being. In modern society, mind wandering has obvious problematic implications regarding such things as a student's ability to effectively learn, an employee's productivity, and a golfer's ability to focus their attention on the task at hand to accomplish their goals.

#### Mind Wandering in Education

Lindquist and McLean (2011) reported that roughly 33% of students were in a state of task-irrelevant thought during lectures and additional studies suggest that mind wandering may tend to occur more in educational settings (Unsworth, McMillan, Brewer, & Spillers, 2012). Student attention and focus play an important role within educational systems and have resulted in instructors seeking out new ways to engage their students in the classroom and maintain their students' focus on the task at hand (Bunce et al., 2010; Szpunar et al., 2013). Although the research is minimal within the confines of academia, it is apparent that students experience a wandering mind in educational settings and the practical application of attentional control methods may result in increased performance outcomes (Szpunar et al., 2013).

## **Mind Wandering in Golf**

As mind wandering relates directly to the context of this study, it has been reported that a typical weekday 18-hole round of golf has remained consistent at four hours year over year, with the average weekend round increasing to four and a half hours (Last, 2014). Some competitive rounds can run even longer. With golfers found to spend roughly 14 to 20 seconds of time in the process of actually hitting a golf shot, while at the same time averaging 81 shots per round; it's possible that many golfers only spend roughly 19 to 27 minutes of time focused on their actual golf shots during the course of a round of golf (Zienius, Skarbalius, Zuoza, & Pukenas, 2015). This leaves a significant amount of time for a golfer's mind to wander over the course of a golf round and experience task-irrelevant thought.

### **Theoretical Framework**

#### **Attentional Control Theory**

The Attentional Control Theory (ACT) within education suggests that mind wandering can lead to impaired attentional control and task performance (Coombes et al., 2009; Eysenck et al., 2007). In addition, ACT further contends that impaired attentional control on the task at hand can lead to deficits in task performance and feelings of anxiety (Eysenck et al., 2007). To further understand how educational practitioners may be able to limit the detrimental impacts of task-irrelevant thought, it is important to first understand that under ACT human attention is believed to be regulated by both a stimulus-driven attentional system and a goal-directed attentional system (Corbetta, Shulman, & Corbetta, 2002). Coombes et al. (2009) suggest that the stimulus-driven attentional system is sensitive to salient stimuli (such as when a teacher calls a student's name in class) and the goal-directed attentional system is responsive to a focused attention on accomplishing a specific goal (like trying to hit a golf shot over water). Anxiety inducing

situations that are stimulated by task-irrelevant thought have often been found to prevent athletes in particular from focusing on the task at hand and may result in a phenomenon known as *choking* (Bernier et al., 2011).

Choking is a suboptimal performance outcome resulting from situations in which an individual is experiencing anxiety and has been found to happen in competitive situations that are directly related to a considerable desire to perform well (Hardy, Mullen, & Jones, 1996). Situations of choking can happen both in the classroom and on the golf course. Students failing large examinations due to test anxiety and golfers losing competitions as a result of thinking about prize money during competition are just two examples of where task-irrelevant thought can cause instances of choking. Emerging studies have found that anxiety demands a large allocation of cognitive resources and that pressure situations inducing anxiety prevent athletes from focusing on the task at hand (Bernier et al., 2011). As a result of this potential for choking, athletic researchers and practitioners have begun to integrate attentional focus cues (working on the stimulus-driven attentional system) into performance routines (working on the goal-directed attentional system) as a means of bringing athletes from a state of mind wandering into a state of sustained focus on the task at hand (Connor, 2010).

The primary rationale for the adoption of performance routines in the field of athletic education is to ensure that athletes have the ability to attain consistency in their performance and that positive actions are being implemented to improve sporting performance (Taylor & Wilson, 2005). In a review of the performance routine literature, Cotterill (2010) found that past performance routine studies have been conducted in the sports of basketball, bowling, dance, diving, football, golf, gymnastics, rugby union, skiing, skating, tennis, volleyball, track and field athletics, water polo and wrestling. Multiple types of performance routines have also been shown

to be effective in improving the performance of skilled athletes across a variety of sports (Boutcher & Crews, 1987; Cohn et al., 1990; Crews & Boutcher, 1986a; Crews & Boutcher, 1986b; Lobmeyer & Wasserman, 1986; Lonsdale & Tam, 2008; Mack, 2001; Price, Gill, Etnier, & Kornatz, 2009). In addition, some evidence even indicates that routines may benefit athletes of not only high-skill levels, but low-skill levels as well (Beauchamp et al., 1996; Boutcher & Rotella, 1987; Cohn et al., 1990). As we dig deeper into the current research that has been conducted in relation to performance routines in golf, it is important to understand the historical context in which past research has been conducted.

### **Historical Context**

As an area of research, pre-shot routines in golf have been studied for the past 40 years by academics and practitioners. The works of research pioneers have made profound impacts on advancing the knowledge of pre-shot routines and the role they play in improving task-relevant thought in golfers. As an industry, researchers and practitioners have learned a significant amount since the first works of Kirschenbaum and Bale (1980), Rotella and Bunker (1981), and Yancey (1977) regarding the importance of pre-shot routines and the role they play in improved golf performance. Since this time, observations have been conducted on the pre-shot routines of elite golfers in competition (Crews & Boutcher, 1986a) and assessments have been made as to their applicability on behaviors in beginning golf performance (Crews & Boucher, 1986b). Researchers have introduced cognitive behavioral interventions and assessed their potential benefits on golf performance (Cohn, Rotella, & Lloyd, 1990) and groundbreaking research has been conducted on attentional control methods related to golf performance (Boutcher, 1990). A great amount has also been discovered about the focus of attention in golfers and the task-salient cues they utilize during pre-shot routines (Boutcher & Crews, 1987).

The last 30 years of research have brought upon new systems of achieving peak performance in golf (Cohn, 1991) and provided a better understanding of the attentional focus patterns that exist amongst golfers of a high level of skill (Crews & Landers, 1993). Pre-shot routine frameworks have been developed for researchers and practitioners to build upon (Moore & Stevenson, 1994) and pre-shot routines have even been integrated into a total performance management model for golf performance (Murphy, 1994). As an area of study, researchers and practitioners have been able to better understand the importance of consistency in pre-shot routines (Kingston & Hardy, 2001) and conducted studies confirming the previous findings of researchers who blazed a trail of understanding (Beauchamp, Halliwell, Fournier, & Koestner, 1996).

With the emergence and adoption of information technologies like the internet over the last 20 years, a flurry of research has been conducted with the new ease and speed of gathering information. During this emerging era, advances in a golfer's focus of attention have been discovered (Wulf, Lauterbach, & Toole, 1999) and quickly been utilized by researchers in the field (McCann, Lavalley, & Lavalley, 2001). These rapidly adopted advances in a golfer's focus of attention have produced results of mitigating levels of anxiety and arousal (Tenenbaum, 2003) and provided confirmatory evidence that an external focus of attention is superior to an internal focus of attention during the pre-shot routines of both novice and elite golf performers (Wulf & Su, 2007). These advances have asserted that a pre-shot routine is a prerequisite for superior golf performance (Jackson, 2001) and allowed researchers to propose that golfers need to remain committed to performing a pre-shot routine on every shot in order to reach elite levels of golf performance (Douglas and Fox, 2002).

The past decade of research has brought about new understandings in the study of pre-shot routines, with multiple researchers advancing the field of knowledge surrounding the usage of pre-shot routines as a performance enhancement mechanism (Cotterill, 2008; Cotterill, Sanders & Collins, 2010a; Van, 2010). Across golfers of novice to expert skill-levels, the results of peer-reviewed studies have clearly presented the potential benefits of incorporating pre-shot routines for all golfers in improving their play (Bernier, Codron, Thienot, & Fournier, 2011; Thomas, 2010). However, with the current state of research serving as an indicator as to how far we have come in our learning of pre-shot routines in golf, researchers and practitioners in the field understand that there is still a long way to go in expanding our knowledge base on pre-shot routines and their role in the golf performance spectrum (Davies, Collins, & Cruickshank, 2014; Yancey, Czech, Joyner, Zwald, and Genter, 2011).

### **Rationale for Study**

As this study relates directly to the field of adult education, we know that student attention and focus play an important role within educational systems (Bunce, Flens, & Neiles, 2010; Szpunar, Moulton, & Schacte, 2013). Lindquist and McLean (2011) have reported that roughly 33% of students are focused on task-irrelevant thought (commonly referred to as *mind wandering*) during lectures. As educational practitioners have studied mind wandering, the Attentional Control Theory (ACT) has emerged as a new means of both understanding and applying practical tools to curb task-irrelevant thought (Coombes, Higgins, Gamble, Cauraugh, & Janelle, 2009; Eysenck, Derakshan, Santos, & Calvo, 2007). As ACT informed methods relate directly to the context of this study in the education of adult learners in a sporting environment; performance routines have been found to be a successful tool in focusing an athlete's mind from task-irrelevant thought to the task at hand (Tenenbaum, 2003). In addition, pre-shot performance

routines have been found to potentially be an effective means of practically applying ACT informed methodology in the sport of golf (Thomas, 2010). The rationale for this study is to further research the potential impacts of ACT informed methodologies in golf education and find methods and models in which ACT can be introduced and practically applied to improve golf performance.

### **Problem Statement**

The most recent research to date on pre-shot routines in golf suggests the need to explore and develop pre-shot routines based on the role they fulfill and the key components and behaviors that need to be executed (Cotterill et al., 2014). Furthermore, the research suggests the need to develop a template at the psychological level that underpins the routines in golf and allows golfers to naturally develop their own pre-shot routines within these psychological constructs (Cotterill et al., 2014).

### **Purpose Statement**

The purpose of this study was to gain a better understanding of the past research that has been conducted on pre-shot routines in golf up until this point in time through a thorough review of the literature. From this review, a new pre-shot routine model for golf was developed and assessed amongst experts in the field.

### **Research Questions**

This dissertation manuscript has been organized into two separate but related components (articles). These two articles are presented in Chapters 2 and 3.



## **Research Question for Article 1 (Chapter 2)**

The first article, *A Historical Review of Pre-shot Routines in Golf and the Introduction of a New Model*, focuses on the following research question: What scientific research has been conducted to date on pre-shot routines in golf?

## **Research Questions for Article 2 (Chapter 3)**

The second article, *Attaining Consensus Among Collegiate-Level Golf Coaches on the Usefulness and Utility of the STOP S.L.O.W. GO Pre-shot Routine Model for Golf—A Delphi Study*, is based on the following two research questions:

1. What aspects of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf achieve a level of consensus amongst collegiate-level golf coaches in the United States as to its overall usefulness?
2. How likely are collegiate-level golf coaches in the United States to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf in their golf instruction?

## **Significance of the Research**

This study provides important insights on the history and current status of research on pre-shot routines in golf. Additionally, it presents a new STOP S.L.O.W. GO Pre-Shot Routine Model for Golf that has been validated and can be utilized by researchers and practitioners in the field.

## **Organization of the Remaining Chapters**

In order to achieve the objective of this research, the remainder of this dissertation is organized in chapter format. Chapter 2 provides a review of the research that has been conducted on pre-shot routines in golf to date and introduces the new STOP S.L.O.W. GO Pre-Shot Routine Model for Golf. Chapter 3 provides a thorough assessment of the STOP S.L.O.W. GO Pre-Shot

Routine Model for Golf in which the Delphi method is utilized to validate the usefulness and future utility of the model amongst a panel of experts in the field. Chapter 4 concludes the findings of the research and presents areas for future research.

## **CHAPTER 2: A HISTORICAL REVIEW OF PRE-SHOT ROUTINES IN GOLF AND THE INTRODUCTION OF A NEW MODEL**

### **Performance Routines: An Overview**

Routines are behaviors and thoughts that have automatically been ingrained in our daily lives and utilize a combination of physical, technical, and psychological strategies to enhance performance (Hackfort, Duda, & Lidor, 2005; Thomas, 2010). *Performance routines* (as they are commonly described in literature) are meant to ensure that the positive influences of performance are supported and negative influences of performance are minimized (Thomas, 2010). Cotterill (2010) found that there are two common terms that are referred to in research when looking at performance routines. The previously mentioned term of performance routines has been referred to in a multitude of studies (Cotterill, 2008; Holder, 2003; Jackson, 2001, 2003; Lonsdale & Tam, 2007; Marlow, Bull, Heath & Shambrook, 1998; McCann et al., 2001; Moran, 1996, 2004; Singer, 2002). Also commonly found in the golf literature has been the term *pre-shot routines* (Cohn et al., 1990; Crews & Boutcher, 1986b; Douglas & Fox, 2002; Gayton, Cielinski, Francis-Keniston, & Hearn, 1989; Harle & Vickers, 2001; Mack, 2001; Moore & Stevenson, 1994; Shaw, 2002).

In a further dissection of performance routines, Thomas (2010) suggested that performance routines can be broken down even further and conceptualized in three ways: pre-performance, between-performance, and post-performance routines. Pre-performance routines are described as enabling athletes to prepare for competition by consistently integrating the same strategies and by minimizing distractions. This would be akin to a golfer starting their practice routine on the driving range the same way every morning before the start of the actual competition. Between-performance routines are described as routines that can be utilized in

sports with a series of period breaks (like hockey and volleyball) that enable athletes to remain consistent throughout their performance. One example of a between-performance routine would be a basketball player warming up prior to the start of the second half the same way that they warmed up prior to the start of the first half. Lastly, post-competition routines are described as those that allow for time to reflect on one's performance, evaluate performance, consider lessons learned, and plan for future training (Taylor & Wilson, 2005). An example of this type of routine would be a football quarterback watching film every Monday morning at 8:00am during the football season to enhance their on-field performance.

When describing performance routines and their usage in golf, pre-shot routines have been found to be the most frequently adopted intervention in golf literature attributed to mind wandering and are based on the assumption that a key aspect of successful task performance is the ability to attend to the task-relevant cues, processes and behaviors during the actual process of hitting a golf shot (Wilson, 2008). In activities such as golf, the automatic nature of the skill creates ample opportunities for attention to focus on other areas such as negative thoughts and irrelevant stimuli (Niedefffer, 1976). The implementation of Attentional Control Theory (ACT) informed methodology suggests that the integration of a pre-shot routine can assist athletes in filtering out distractions and maintain their focus (Boutcher, 1990; Boutcher & Crews, 1987). Taylor and Wilson (2005) have also suggested that the importance of pre-shot routines is to assist athletes in the preparation of their next shot and help them refocus with Schmidt (1982) finding that a pre-shot routine may provide a way of reactivating an appropriate physiological and mental state before each shot.

In order to gain a better understanding of pre-shot routines and their usage in the field of golf education, it's important to first gain a better understanding of how past research over the

course of time has informed our current understanding of pre-shot routines in golf. Utilizing a chronological review of the literature, we are able to further understand how past research over certain time periods may have informed future research and knowledge construction. In addition to previous research in the field, a chronological review may also better allow future researchers to identify research trends that were taking place during different eras based upon the knowledge and beliefs at that time.

### **Pre-Shot Routines in Golf: A Historical Perspective**

Pre-shot routines have been described in golf as a sequence of task-relevant thoughts and actions that an athlete engages in systematically prior to his or her performance in a sport (Moran, 1996). Prior to the groundbreaking studies of pre-shot routines on golf performance by Crews and Boucher (1986a) and Boucher and Crews (1987), little empirical research had been undertaken on the integration of pre-shot routines on golf performance. Kirschenbaum and Bale (1980) had previously conducted research on the positive performance benefits of cognitive behavioral skills training in golf and trailblazers such as Yancey (1977) and Rotella and Bunker (1981) had published magazine articles related to pre-shot routines in golf, but no additional empirical research could be identified prior to that point.

In one of the first empirical research studies on pre-shot routines in golf, Crews and Boucher (1986a) used trained observers to record pre-shot routines in female golfers in tournament play. This study revealed that the pre-shot routines of players at this level were remarkably consistent during the course of a competitive round of golf and that the consistency of the pre-shot routines could suggest that competitive golfers playing at a higher level spend less time mind wandering and more time focused on the task at hand. From that research, Boucher and Crews (1987) went on to add that the task facing golfers is to efficiently focus

attention on the most task-relevant cues while simultaneously screening out and ignoring irrelevant information during pre-shot routines in golf. In their study, the subjects (six male and six female) participated in a six-week putting protocol that found attentional routines effectively control mental and physiological states associated with a closed-skill performance. The findings within both Crews and Boucher (1986a) and Boucher and Crews (1987) studies really began to set the foundation of our empirical understanding of how pre-shot routines could be an effective method of curbing the negative impacts of mind wandering on golf performance through the utilization of pre-shot routines.

Cohn et al. (1990) followed up the work of Crews and Boucher (1986a) and Boucher and Crews (1987) by introducing a cognitive behavioral intervention via the adherence of pre-shot routines in collegiate golfers. Although immediate improvements in performance did not occur as a result of the intervention, it was found via post intervention interviews that the golfers felt the implementation of a pre-shot routine had a positive effect upon performance. This finding suggested that a properly adhered to pre-shot routine may have a statistically significant impact on the performance of golfers if adopted over a longer period of time and provided direction for future research.

During this time frame, Crampton (1989) also conducted a study attempting to establish pre-shot routines in golf and suggested that pre-shot routines are essentially an ordered collection of thoughts and behaviors. The study of Crampton (1989) held significance in that it allowed researchers to better begin to operationalize the impactful thoughts and behaviors that provide the foundation for effective pre-shot routines in golf. In a further investigation during this time frame, Boucher (1990) also researched the role of performance routines in sport and introduced the potential benefits of ACT informed methods on golf performance by contending that the

value of performance routines was to aid athletes in maintaining focus and eliminating distractions. Furthermore, Boutcher (1990) introduced the importance of cue words (falling under ACT's stimulus-driven attentional system) and breathing as part of performance routines and suggested that they could have a stabilizing effect on performance.

In a study introducing the experience of flow states, Csikszentmihalyi (1990) went on to address the importance of gaining control over one's mental processes in an effort to obtain optimal experience or a "zone-like" state of mind. In this groundbreaking study, Csikszentmihalyi (1990) found that one of the most frequently mentioned dimensions of flow experience (and potentially expert performance) was having the ability to focus one's concentration on the task at hand and eliminate the wandering mind. The importance of this study introduced the prospect that golfers may be able to attain a state of flow (or total concentration on the task at hand) via the adoption of effective pre-shot routines that allow golfers to achieve this level of performance on a consistent basis. States of "flow" could adequately be described as a state of optimal concentration and performance in which pre-shot routines seek to achieve on a consistent basis. Golfers may experience a state of flow during a specific golf shot, however the overall objective is to attain this state of flow during the course of an entire round and fall into a "zone-like" state of total concentration on the task at hand (Csikszentmihalyi, 1990).

As researchers embarked on the early nineties, Cohn (1991) conducted an exploratory study on the aspects of peak performance in golf and found that certain psychological qualities of peak performance in elite golfers exist. Directly related to characteristics still included in common pre-shot routines today, Cohn (1991) found that golfers were a) highly focused and immersed in the task at hand, b) performed the tasks effortlessly and automatically, c) felt

physically relaxed and mentally calm, and d) felt in control of themselves during peak performance. Additionally, the golfers had no fear of negative consequences, maintained high self-confidence, and experienced fun and enjoyment. These findings better helped researchers to understand the important aspects that could be integrated into the development and activation of effective pre-shot routines in golf.

In an attempt to try and activate a state of flow as previously investigated by Csikszentmihalyi (1990), Murphy (1994) presented a new 'performance management model' where a four-point method of 1) practice, 2) preparation, 3) performance, and 4) analysis was advocated. Murphy (1994) suggested this approach could lead to peak performance given that athletes have control over the internal environment in which the game is played, but not the external environment that can cause athletes to fall out of their flow state. An internal environment suggested that more of a top-down approach (which would fall in-line with ACT's goal-directed attentional system) allows athletes to better control their thoughts based upon the goals that are set forth in the task at hand. In addition, the impact of the external environment (which would fall further in line with ACT's stimulus-driven attentional system) was also noted to have a potentially damaging impact on a golfer's performance. In that same year, Kingston and Hardy (1994) also found that the consistency of routines can be compromised in situations when the golfer over internalizes thoughts and feelings that can be brought on by salient cues. This type of breakdown would also be found to be working on a golfer's stimulus-driven attentional system within ACT.

As researchers began to build upon the work of previous studies, Beauchamp et al. (1996) later adapted the cognitive behavioral program utilized by Boutcher and Rotella (1987) and compared it to a physical skills training and control group. The results of the study supported the



conclusion drawn by Whelan, Myers, Berman, Bryant, & Mellon (1988) that cognitive behavioral approaches (such as pre-shot routines in golf) are effective for performance enhancement. The results of these compiled studies further fall in-line with the suggestions of ACT in that golfers may better be able to control their behaviors on a golf course by having a goal-directed control over their cognitive thoughts. This also may support the constructs presented by cognitive behavioral theorists in that cognitive thoughts can have a major impact on controlling actions and behaviors.

As the field of research entered the late nineties, researchers such as Wulf et al. (1999) found that an external focus of attention had the ability to enhance golf shot accuracy in both beginners and experts. To gather this information, the researchers studied the pitch shot performance of 22 subjects without experience in golf. One group was told to focus their efforts internally (focusing on the arm swing) whereas the other group was instructed to focus externally on the club swing. It was found that the external-focus condition was more effective for performance during both practice and retention for novice performers. These findings were important in that they provided researchers with a better idea of exactly where to direct a golfer's attention during the pre-shot routine process.

Entering a new decade of study, Jackson (2001) began to study whether or not a pre-shot routine is a prerequisite for superior performance. In a review of the experimental evidence at the time linking routine consistency and performance, Jackson (2001) found that pre-shot routines did have functional significance and concluded that golfers may benefit from their utilization. However, Jackson (2001) also found that there was no experimental evidence to conclude that a golfer's performance will improve by simply increasing their cognitive behavioral consistency.

The findings of Jackson (2001) were followed later that year by McCann et al. (2001) as they attempted to further examine the effects of pre-shot routines on the wedge shot performance of non-golfers and golfers of low skill. Utilizing intervention strategies in both physical skill and cognitive behavioral routine programs, participant performance was measured on a pre- and post-intervention test with groups of non-golfers and golfers of low skill being grouped together. The findings found that non-golfers had the greatest level of performance improvements when a cognitive behavioral routine was integrated into their practice. In addition, golfers of low skill also attained performance improvements via the utilization of a cognitive behavioral routine, but the findings did not reach levels of statistical significance. Although the findings were not statistically significant, the study by McCann et al. (2001) was important in that it was one of the first of its kind in examining the proven performance outcomes of pre-shot routines utilizing a cross-sectional research design.

Douglas and Fox (2002) further argued that in order to reach very peak levels of performance, professional golfers must remain committed to performing a pre-shot routine on every shot, regardless of the situation. These findings further supported the construct that golfers should seek to adopt a repetitive pre-shot routine in order to build habits of mind that lead to optimal performance outcomes. Although pre-shot routines are often to vary slightly based upon the shot that is required, the premise is that a repetitive routine should be built that incorporates important elements to achieve a desired performance outcome.

In further support of the utilization of ACT informed methodology, Tenenbaum (2003) proposed that during golf routines, task-relevant information is systematically processed by the golfer utilizing different dimensions of attention and through a continuous interaction between working memory and long-term memory. As such, high levels of anxiety and arousal could

impede the attentional aspects required to process task-relevant cues and thus compromise both the quantity and quality of information that is being processed during a pre-shot routine. This study falls in-line with ACT informed methodology and further suggests the need to control both the stimulus-driven attention system and goal-directed attentional system in order to generate positive performance outcomes in a competitive golf environment.

As research began to build upon itself and in a follow up study to the work of Wulf et al. (1999), Wulf and Su (2007) later conducted a study assessing a golfer's external focus of attention and how it enhances golf shot accuracy in both beginners and experts. The replicated findings reiterated the performance benefits of having an external (relative to internal) focus of attention and provided converging evidence that adopting an external focus of attention enhances learning and promotes a more automatic type of movement control. The overall premise is that golfers may achieve better performance outcomes if they focus on external thoughts (such as the golf club head location in space) as opposed to internal thoughts (like the rotation of a golfer's elbow during the swing).

In a thorough review of the literature and seeking to further knowledge in the field of pre-shot routines in golf, Thomas (2010) conducted a single-subject design study examining the efficacy of pre-shot routines on improving competitive youth golf putting and approach shot performance. The first focus of the study was to determine the impact of learning mental skills components related to the pre-shot routine in golf and the second focus of the study was to examine the impact of learning the pre-shot routine on competitive performance from the subjects' perspective. In an assessment of three youth high school golfers, performance improvements were observed by the investigator utilizing performance scorecards, mental skills scorecards, adherence logs, thought sampling, and interviews. The results of the study found

putting and approach shot performance occurred in two of the subjects. In addition, subjects found the intervention to be helpful and agreed that their performances (ball striking, overall performance, iron, wood, and sand shots) improved. Although the design of the study presented challenges in attaining statistical significance in its results, the study presented valuable investigative tools that future researchers may be able to utilize in longitudinal studies with youth and low skill level golf performers.

In the same year, Van der Lei (2010) also conducted a thorough study on the attentional and affective states of golfers during performance. The study implemented a multi-modal assessment approach where the relationship between affective states of both performance process and performance outcome measures were determined. The researchers studied three collegiate golfers and revealed distinguishable and idiosyncratic individual affect-related performance zones associated with physiological and introspective measures for each golfer. In addition, the patterns during the pre-shot routines were found to be highly consistent (Van der Lei, 2010). As found previously by Crews and Boucher (1986a), the development of *patterns* in pre-shot routines may assist in the development of consistent pre-shot routines that can have a positive and repeatable impact on golf performance.

In a study working on the ACT informed stimulus-driven attentional system, Bernier et al. (2011) explored the attentional focus of expert golfers. Within the study, eight male professional golfers were filmed in both a training and competitive context. The results of the study found that golfers adapt their attentional foci depending on the context, which would further reiterate findings presented within ACT in relation to the potential negative ramifications of salient cues on golf performance. In addition, Bernier et al. (2011) also found that sequences of attentional foci were utilized when golfers prepared, executed, and evaluated their shots. This

finding further reiterated the importance of having repeatable patterns and behaviors in developing a consistent pre-shot routine.

In that same year, Yancey, Czech, Joyner, Zwald, and Genter (2011) expanded the knowledge base of pre-shot routines in golf and conducted an existential phenomenological investigation of the experiences of professional golfers when conducting pre-shot routines. In the study, eight professional golfers were interviewed to assess the “lived experience” of golfers during their pre-shot routines. The three major themes that Yancey et al. (2011) identified were maintaining focus, the physical aspects of the routine, and shot type. Sub themes were also identified for each major theme that included focusing on the specific target at hand, internal imagery, and maintaining consistency. Where golfers stood during the routine, the amount of practice swings, consistency of use, and external visualization were also identified under important physical aspects of a routine along with differing shot types ranging from full swing shots, chipping, and putting (Yancey et al., 2011). The results of this study were important in that they allowed researchers to grasp a better understanding of what was happening inside the minds of golfers as they are progressing through a pre-shot routine process as opposed to just observing their physical behaviors.

In an attempt to “fill the gap” between the psychological skills applied in pre-tournament planning and those applied in the shorter-term pre-shot routines, Davies et al. (2014) then conducted a study that examined the optimal use of the time between shots and holes. In this study, Davies et al. (2014) were able to identify an area of macro (pre-tournament) planning where professional golfers focus on things such as imagery, technical changes, refinements, and tactical plans. The researchers also introduced the concept of a meso-shot cycle that involves planning, response and clearing strategies such as what happens before the pre-shot routine

(known as the pre-pre-shot preparation phase) and post-shot routine. As previously mentioned, studies (such as Thomas, 2010) have identified multiple types of performance routines that golfers may adhere to that are not directly related to hitting the shot at hand such as pre-performance, between performance, and post-performance routines. Although the construct of these themes appears to have general support in relation to the potential performance benefits of pre-shot routines, very little research has been conducted to validate their impact on successful golf performance outcomes.

Zienius, Skarbalius, Zuoza, and Pukenas (2015) recently assessed the total time taken and heart rate changes of youth golfers during pre-shot routines utilized on the golf course. The findings revealed that pre-shot routines for tee shots were significantly longer than those of approach shots. In addition, the findings also revealed that heart rates increased significantly from the start to end of pre-shot routines for tee and fairway shots with the number of practice swings having the strongest relationship. Although the Zienius et al. (2015) is one of the first of its kind in relation to the heart rates experienced by golfers during the pre-shot routine process, one of the most important findings was the time differentiation that was observed across different shots. This further reiterates the proposed importance of golfers having developed pre-shot routines for different shot types to ensure their consistency.

Furthermore, and in relation to the findings related to consistency by Zienius et al. (2015), Van Der Lei, Tenenbaum, and Land (2016) sought to examine changes in routine consistency with respect to optimal and non-optimal arousal states. Studying three highly skilled golfers during competitive rounds of golf, Van Der Lei et al. (2016) found idiosyncratic differences in routine patterns both behaviorally and temporally and that the consistency of routines for each golfer varied under different arousal-related performance zones. These findings

further suggest the potential importance of controlling for salient cues that can cause alterations in a golfer's arousal and result in an activation of a golfer's stimulus-driven attentional system.

Lastly, the Bernier et al. (2011) study on attentional focus was followed up by Diekfuss and Raisbeck (2017) where the researchers studied the attentional focus of collegiate golfers during practice and competition. The results revealed two major themes pertaining to the focus of attention adopted by collegiate golfers. Situational focus was the first theme that referred to the focus used within a specific context. One example that was presented was the differences of internal focus between golfers hitting drives and putts. In addition, reactivity focus was found as a second theme that referred to the focus golfers adopt as a result of a psychological state such as performing poorly. Within this theme, it is suggested that a golfer's internal focus may change based upon their prior performance and reactive feelings toward that performance.

### **Development of Pre-Shot Routines in Golf**

Up until today very little research has been published on the actual development of effective pre-shot routines for golf performance. Crews and Boutcher (1986b) introduced a six step routine that included 1) two continuous practice swings from behind the ball followed by visualizing an imaginary line from the target to the ball 2) standing beside the ball, setting the clubface square, and glancing once at the target, 3) setting the grip, 4) setting the feet, 5) glancing at the target once more, and 6) swinging. The results of the study revealed that there was a significant improvement in golf performance when utilizing a pre-shot routine, but only in more skillful golfers and suggested that pre-shot routines may only positively affect performance when golfers reach a particular skill level. During this time frame, Crews and Boutcher (1986a) also presented a behavioral sequence that included 1) standing behind the ball, 2) moving beside the ball, 3) setting the club behind the ball with one glance at the target, 4) setting the feet, 5) a

combination of three waggles with two glances towards the target, and 6) swing. Although these are some of the first known studies, the information provided primarily spoke to outward observations of the physical behaviors of golfers during their pre-shot routines and less to their inward thoughts that may have been directing these behaviors.

Additional efforts were made by Singer (1988) to further understand what was happening inside a golfer's mind during the pre-shot routine. As a result of these efforts, Singer (1988) presented a five-step approach by that included steps of 1) readying, 2) imaging, 3) focusing attention, 4) executing, and 5) evaluation. This study was later backed by Cotterill (2008) who proposed that the first four steps could be utilized as a global template for routines. It was suggested that this global template would allow the flexibility for the routine to be modified regarding behaviors and timing, but still fulfill the requirements of the individual golfer (Cotterill, 2010). However, beyond its recognition in the work of Cotterill (2010) which we will discuss in further depth within this literature review, there still remains limited publications that have explored the application of this approach.

In an effort to help better understand the effects of a cognitive behavioral intervention on pre-shot routines, Cohn et al. (1990) developed a representative example of one subject's preliminary mental and behavioral routines at the beginning of the study. The mental routine for shots followed a pattern of 1) selecting a club, 2) picking an intermediate target, 3) drawing an imaginary line from the ball to the target, and 4) trying not to think about swing mechanics. The physical routine for shots followed a pattern of 1) getting behind the ball and picking a target, 2) taking a practice swing behind the ball, 3) approaching the ball and putting feet parallel to the target, and 4) waggling the club two times while taking two glances at the target. Separate routines were established for shots and putting. The results revealed a cognitive behavioral



intervention increased adherence to a pre-shot routine and helped researchers to better understand that there is both a cognitive (mental) and behavioral (physical) routine that golfers adhere to within pre-shot routines (Cohn et al., 1990).

During this time frame, Boutcher and Zinsser (1990) also looked at the pattern of pre-performance behaviors and found that elite golfers used their predominant pre-putt pattern on 62% of putts whereas beginners only used them on 35% of putts. The revelations of this study further promoted the idea within our current study that mid- to elite-level golf performers may be more likely to adhere to a consistent pre-shot routine. As previously described, an adherence to a consistent pattern has been proposed to have a positive impact on pre-shot routine performance (Crews and Boucher, 1986a; Van der Lei, 2010).

Further adding to the research, Moore and Stevenson (1994) developed a three-step pre-shot routine framework for improved golf performance. The first step included the phrase “Check it out” to ensure that golfers recognized the situation (lie, distance, obstacles), reviewed their game plan (club choice and flight path), and selected an intermediate target. The second step utilized the phrase “Click it in” that focused on a golfer’s swing rehearsal of gaining the correct feel, relocating the intermediate target, addressing the ball, and getting ready to clear. The third and final step in this approach was to “Let it go” where the golfer clears their breath and initiates the swing. The findings in Moore and Stevenson (1994) also presented the development of a long-term training program that included an education, training, and application phase. This comprehensive approach to golfer performance improvement features the importance of having a pre-shot routine that is easily repeatable and integrates important mental and physical aspects.

Mccann et al. (2001) later adapted the pre-shot routine presented by Crews & Boutcher (1986b) and developed a pre-shot routine to assess golf wedge shot performance in low skill

novice golfers that included 13 self-developed steps. These steps were 1) address an imaginary ball next to the ball to be hit, 2) visualize an imaginary line from the target to the club face, 3) waggle the club, 4) visualize an imaginary line from the target to the club face, 5) take a deep breath, 6) perform the swing recalling the word “smooth” on the backswing and the word “swing” on the downswing, 7) visualize the ball flying from the club face with the correct trajectory and landing at the target, 8) address ball to be hit, 9) visualize an imaginary line from the target to the club face, 10) waggle the club, 11) visualize an imaginary line from the target to the club face, 12) take a deep breath, and 13) perform the swing recalling the word “smooth” on the backswing and the word “swing” on the downswing. It was found that non-golfers in both intervention groups improved performance following an acquisition phase and maintained these levels of performance in the retention test. Although performance improvements were found utilizing this pre-shot routine method, it is our position that the inclusion of 13 steps may be too many to optimize the long-term recall and repeatability of a pre-shot routine.

As we have found up until this point in time, and as a result of such little research being conducted related to the development of pre-shot routines in golf; Cotterill (2010) set out to explore the nature of pre-performance routines in golf and the relevant research that had been conducted up until that point. During that time, it was found that current practices relating to the development of pre-shot routines were underpinned by the implicit assumption that increasing the consistency of the routine would lead to enhanced performance (Jackson, 2003). However, this assumption had not been consistently substantiated and various rationales had been presented with the main function that a pre-shot routine fulfills. Cotterill (2010) included findings on the performer’s ability to deal with distractions (Boutcher & Crews, 1987; Gould & Udry, 1994; Maynard, 1998; Weinberg, 1988), focusing attention (Boutcher, 1992; Harle &

Vickers, 2001), acting as a trigger (Boutcher & Crews, 1987; Lonsdale & Tam, 2007; Moran, 1996), enhancing ability to focus and the recall of physiological and psychological states (Foster, Weigand, & Baines, 2006; Marlow et al., 1998), and reducing the unraveling of automaticity (Beilock & Carr, 2001; Beilock, Carr, MacMahon, & Starks, 2002). Although Shaw (2002) completed a study assessing pre-shot routine development with a professional golfer, the researcher did not focus on the process they utilized to develop the routine nor the golfer's perception of the function and composition.

As a result of the lack of research focusing on the development of pre-shot routines from a subject's perspective, Cotterill et al. (2010a) conducted a study exploring the subjects' views on the nature of the pre-shot routines that golfers have implemented into their game. The results of this study found nine superordinate themes that were categorized as 1) allocation of attention, 2) psychological skills, 3) shot selection, 4) routine mind set, 5) routine composition, 6) compulsive behaviors, 7) routine evolution/application, 8) top players, and 9) moderating factors. During roughly the same time as the Cotterill et al. (2010a) study, Thomas (2010) presented a pre-shot routine utilizing three phases of learning: cognitive skill building, behavioral skill building, and relaxation. As with many other previous studies that both developed and integrated a pre-shot routine in golf, the Thomas (2010) study assessed the effects of a pre-shot routine on youth (novice) golf performance without a widely adopted model to utilize in assessing the effects of pre-shot routine on golf performance.

Based upon the findings and research that has been conducted as part of this literature review, there currently appears to be no widely adopted model or methodology in which to adopt when seeking to improve golf performance via the utilization of a pre-shot routine. In the most recent findings to date, Cotterill, Collins, and Sanders (2014) followed up their previous research

in an attempt to develop a framework for developing effective pre-performance routines for golf. In this study, the researchers found that conclusions drawn, and recommendations suggested by a number of studies in golf (Boutcher & Crews, 1987; Cohn, Rotella, & Lloyd, 1990; Crampton, 1989; Douglas & Fox, 2002) did not apply to the ‘real’ golf situations in which shot type and preparation for different shot types appear to vary. As a result, Cotterill et al. (2014) suggested that the future direction for work exploring and developing pre-shot routines should be to focus on the role they fulfill and the key components and behaviors that need to be executed. Furthermore, the researchers suggested the need to develop of a template at the psychological level that underpins the routines in golf and allows golfers to naturally develop their own pre-shot routines within these psychological constructs. Although researchers such as Strand and Craw (2019) have developed compelling templates, no additional pre-shot routine models or methodologies have been located to date that have been validated in the field to effectively improve golf performance and curtail a golfer’s wandering mind.

In a compilation of the research gathered on pre-shot routines in the sport of golf, and building upon the most recent work of Cotterill, Collins, and Sanders (2014) and Strand and Craw (2019), the researchers of this study have developed a new pre-shot routine methodology called the “STOP S.L.O.W. GO Pre-Shot Routine Model for Golf” that we believe builds upon previous research and potentially provides an effective template that researchers and practitioners can utilize when seeking to improve golf performance via the utilization of pre-shot routines.

### **STOP S.L.O.W. GO: A New Pre-Shot Routine Model for Golf**

The STOP S.L.O.W. GO Pre-Shot Routine Model for Golf featured below in Table 2.1 was developed to serve as a model that future researchers and practitioners can utilize when

seeking to develop and implement a pre-shot routine in golf. The STOP S.L.O.W. GO Pre-Shot Routine Model for Golf was developed utilizing a six-step approach that attends to the various cognitive behavioral aspects that have been found to both exist and demonstrate performance benefits within an effective pre-shot routine. In a further effort to promote the future recall of the six steps within this model, the phrase STOP S.L.O.W. GO was constructed to serve as an acronym-integrated tool to better help golfers both remember and recall the model. Not only does the acronym rhyme (Nemati, 2009), it builds upon another common daily operation that many people follow when driving a motor vehicle or walking across a street where a person must first stop, slowly advance, and then go.

**Table 2.1**

*The Six Steps in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf*

Step	Name	Details
1	Stop (mental trigger)	Stop everything you're thinking about and focus on your next golf shot.
2	Strategy (game planning)	Plan out the shot you want to hit and select an intended target.
3	Look (visualization)	Visualize the flight that the golf ball will take to reach your intended target.
4	Outline (motor programming)	Outline the golf swing you will use for the ball flight you have visualized.
5	Waggle (alignment)	Approach the ball and waggle your body into proper alignment.
6	Go (execution)	Repeat the golf swing you have outlined to accomplish the ball flight you desire.

## Attentional Control Theory

The six steps included in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf are built to be an Attentional Control Theory (ACT) informed methodology that works upon a golfer's stimulus-driven attentional system and goal-directed attentional system as indicated in Table 2.2. The STOP step works on the stimulus-driven attentional system by providing a salient-cue that shifts a golfer's focus from a state of stimulus-independent thought to a state of focus on the task at hand. Additionally, the steps of Strategy, Look, Outline, and Waggle work upon a golfer's goal-directed attentional system by providing a framework in which a golfer can attend to the goal of executing a successful golf shot. This is followed by the salient-cue of GO which has the golfer initiate the swing they have programmed into both their mind and body. Combined, these steps provide an ACT informed methodology to assist in improving golf performance by focusing a golfer's thoughts to the task at hand and away from task-irrelevant thought (such as mind wandering) that may be detrimental to performance.

**Table 2.2**

*Alignment of the STOP S.L.O.W. GO Steps and the ACT Foundations*

Step	Relevant ACT principle	Attentional system
Stop	Salient cue: Mental trigger	Stimulus-driven
Strategy	Specific goal: Game planning	Goal-directed
Look	Specific goal: Visualization	Goal-directed
Outline	Specific goal: Motor programming	Goal-directed
Waggle	Specific goal: Alignment	Goal-directed
Go	Salient cue: Execution	Stimulus-driven

## **Conclusion**

Research on pre-shot routines has evolved and progressed over the last 40 years with new ideas being tested and performance-oriented results being found. However, to date no singular pre-shot routine model has been developed that has seen universal adoption by researchers and practitioners in the field. The development of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf sets out to answer the call by Cotterill, Collins, and Sanders (2014) to develop a new pre-shot routine model for golf that works at the psychological level and allows golfers to naturally develop their own pre-shot routines within these psychological constructs. Areas for future research should be to further validate the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf and assess its potential usefulness and utility amongst practitioners in the field. It is the hope of the researchers of this study that the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf can be utilized by researchers and practitioners in the future to develop effective pre-shot routines and improve performance outcomes for golfers of all skill levels.

**CHAPTER 3: ATTAINING CONSENSUS AMONG COLLEGIATE-LEVEL GOLF  
COACHES ON THE USEFULNESS AND UTILITY OF THE STOP S.L.O.W. GO PRE-  
SHOT ROUTINE MODEL FOR GOLF—A DELPHI STUDY**

**Introduction**

A significant amount of research has been conducted to date on the potential performance benefits golfers may experience when utilizing pre-shot routines in golf. Over the past 40 years, researchers and practitioners in the field have been researching the pre-shot routine processes of golfers of all ability levels, which has led to a better understanding as to the necessary elements that should be included in a golfer's pre-shot routine (Beilock & Carr, 2001; Beilock, Carr, MacMahon, & Starks, 2002; Cohn et al., 1990; Crews and Boucher, 1986a; Crews & Boutcher, 1986b; Douglas & Fox, 2002; Gayton, Cielinski, Francis-Keniston, & Hearn, 1989; Harle & Vickers, 2001; Mack, 2001; Moore & Stevenson, 1994; Shaw, 2002; Van der Lei, 2010; Yancey, Czech, Joyner, Zwald, & Genter, 2011; Zienius, Skarbalius, Zuoza, & Pukenas, 2015). Recently, Cotterill et al (2014) found that no individual pre-shot routine model had been developed to date that had been universally adhered to and suggested the need to develop a template “working at the psychological level” that underpins the routines in golf and allows golfers to naturally develop their own pre-shot routines within these psychological constructs.

**STOP S.L.O.W. GO Pre-Shot Routine Model for Golf**

Based upon this suggestion for future research and in an attempt to develop a universally accepted pre-shot routine model for golf; the researchers of this study set out to develop a new pre-shot routine model that was informed by the research that had been conducted to date and allowed golfers to naturally develop their own pre-shot routines within the psychological



constructs that have been found to benefit golf performance. This research resulted in the development of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf featured in Table 3.1.

**Table 3.1**

*The Six Steps in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf (Initial Version)*

Step	Name	Details
1	Stop (mental trigger)	Stop everything you're thinking about and focus on your next golf shot.
2	Strategy (game planning)	Plan out the shot you want to hit and select an intended target.
3	Look (visualization)	Visualize the flight that the golf ball will take to reach your intended target.
4	Outline (motor programming)	Outline the golf swing you will use for the ball flight you have visualized.
5	Waggle (alignment)	Approach the ball and waggle your body into proper alignment.
6	Go (execution)	Repeat the golf swing you have outlined to accomplish the ball flight you desire.

Each step of this six-step model features important aspects of pre-shot routines that have been found to demonstrate performance benefits when utilized in a golfers pre-shot routine.

**Step 1: STOP (Mental Trigger)**

Step 1 of this six-step model cues the golfer to stop currently thinking about task-irrelevant information and begin to focus their conscious attention on the task at hand. The utilization of the word stop serves as an important attentional cue (or more often referred to as *mental trigger*) that a golfer can utilize to begin the process of focusing on the task at hand and discontinue the process of mind wandering (Boutcher & Crews, 1987). Mind wandering is defined as a time of stimulus-independent thought that golfers may experience over the course of

a golf round that can be detrimental to performance (Mason et al., 2007). Jackson (2001) suggested that pre-shot routines can help cue well-learned movements and prevent the performer from focusing on task-irrelevant thoughts that can be detrimental to performance and induce anxiety reactive choking.

### **Step 2: STRATEGY (Game Planning)**

The letter S in S.L.O.W. stands for strategy. Upon focusing the conscious mind on the task at hand, the next step in the STOP S.L.O.W. GO methodology suggests that golfers develop a strategy (or goal-directed attention) toward the shot at hand. Davies et al. (2014) suggests that elite golfers not only develop a strategy when they arrive at their next shot, but they often plan out their shots and locations that they'll be hitting to prior to the start of the round. Valiante (2005) suggests that golfers benefit when taking "fearless golf swings at precise targets" and that target selection is paramount in the process of executing successful golf shots and helping to eliminate anxieties that may be caused by task-irrelevant thoughts. After selecting a proper target based on a golfer's scoring objectives, a golfer must then assess the distance and select a golf club to use for the shot based upon the target selection and associated distance. With golfers being allowed to carry up to 14 different golf clubs in their bag, many times a golfer is faced with multiple club selection options to help them achieve a desirable outcome. Matching the club selection in relation to the proper target location is critical in this process.

### **Step 3: LOOK (Visualization)**

The letter L in S.L.O.W. stands for look. After selecting a proper target strategy and club selection for the shot at hand, the next step in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf suggests that golfers visualize the look of their next shot from its existing lie to the target location. Multiple articles have professed the performance benefits of imagery in sport

(Martin et al., 1999) with some research going as far as to suggest that imagery should be treated similarly to practice given its functional equivalence (Hall, 2001) and that autonomic responses during motor imagery parallel the autonomic responses to actual motor activities (Decety, 1996). Imagery benefits have been shown to provide benefits in both full swing and putting performance in golf (Bell et al., 2009). The idea behind the utilization of imagery is to draw an imaginary line of flight that the ball may take toward the target location based upon the club that is selected and force that will be put into the swing.

#### **Step 4: OUTLINE (Motor Programming)**

The letter O in S.L.O.W. stands for outline. Once a shot has been successfully visualized in the mind's eye and correlated with the target and club selection, the next step in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf suggests that golfers outline the preferred motor pathway of the desirable golf shot via deliberate practice swings. Visual imagery coupled with kinesthetic imagery has shown to have significant performance benefits on basic movement patterns (Farahat et al., 2004) along with those in golf (McBride & Rothstein, 1979). This combination of visual imagery with correct kinesthetic awareness is suggested to be highly important in golf, where successful repeated golf swings require a kinesthetic awareness of where the club face is at in space (Knight, 2004; Pelz & Frank, 1999).

Research has also shown that what an individual focuses on and diverts their attention toward can have a major impact on motor performance (Beilock et al., 2002; Gray, 2004; Jackson, Ashford, & Norsworthy, 2006; Wulf, 2007). Furthermore, what an individual focuses on during the execution of a motor task can greatly influence the quality and accuracy of movement (Land et al., 2014). According to Land et al. (2014), it has been demonstrated that an individual's focus of attention (more specifically that of an external focus of attention) can lead

to a greater accuracy in performance (Wulf et al., 1999; Wulf et al., 2001) and better performance outcomes (McNevin et al., 2003). By matching the imagery of the desired shot to the physical actions of the golf swing, it is proposed that a golfer should be able to produce the desired outcome by simply repeating the coordinated motor programming when undergoing the process of hitting the golf shot.

#### **Step 5: WAGGLE (Alignment)**

The acronym for the letter W in S.L.O.W. stands for waggle. Upon a shot being visualized and the motor pattern internalized to perform the desired outcome, it has been suggested for golfers to waggle their body into a comfortable and aligned position over the ball prior to starting the swing. Yancey et al. (2011) discovered that professional golfers tend to have a consistent pattern to their pre-shot routines that include waggles and other tactics to get set up in the proper alignment and positioning. Crews and Boutcher, (1986a) further confirmed through observation that professional golfers commonly will utilize a waggle to get them into the proper alignment position to hit the desirable shot. The physical aspect of waggling multiple times was also revealed in a study conducted by Cohn et al. (1990) amongst high performing golfers and has been deemed as important in getting golfers properly aligned to execute their planned golf shot.

#### **Step 6: GO (Execution)**

After the proper strategy has been put in place and the golfer has the patterned look and feel of the shot in their mind while in proper alignment, it is time to put all of the pieces together and cue their body to go ahead and begin the actual swing. It is suggested that golfers use set cues within their pre-shot routine to assist with the temporal structure and rhythm of the golf shot (MacPherson et al., 2009). Attentional foci are different at each stage of the pre-shot routine;

however, it is highly important to have personalized cues when starting a new sequence of motor patterns (Bernier et al., 2011). For some golfers, this may be as simple as starting their swing with a forward press of the hands, whereas for others it may result in a variety of pre-set routines like regripping the club multiple times until the feel and programming of the swing is just right. During the process of making the swing, some golfers may also attend to pre-set positions in their body to ensure that they will administer the proper swing force needed within their selected motor programming pathway. However, of primary importance during this stage is the simple execution of the imagery and motor programming that has been “dialed in” to produce the desired shot outcome.

### **Attentional Control Theory**

All six-steps of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf were informed and constructed based upon elements of the Attentional Control Theory (ACT) as indicated in Table 3.2 that lend itself to potentially improved attentional control and task performance (Coombes et al., 2009; Eysenck et al, 2007). The six steps included in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf are built to be an ACT informed methodology that works upon a golfer’s stimulus-driven attentional system and goal-directed attentional system. The STOP step works on the stimulus-driven attentional system by providing a salient-cue that shifts a golfer’s focus from a state of stimulus-independent thought to a state of focus on the task at hand. Additionally, the steps of Strategy, Look, Outline, and Waggle work upon a golfer’s goal-directed attentional system by providing a framework in which a golfer can attend to the goal of executing a successful golf shot. This is followed by the salient-cue of GO which has the golfer initiate the swing they have programmed into both their mind and body. Combined, these steps provide an ACT informed methodology to assist in improving golf performance by focusing a

golfer’s thoughts to the task at hand and away from task-irrelevant thought (such as mind wandering) that may be detrimental to performance.

**Table 3.2**

*Alignment of the STOP S.L.O.W. GO Steps and Attentional Control Theory*

Step	Relevant ACT principle	Attentional system
Stop	Salient cue: mental trigger	Stimulus-driven
Strategy	Specific goal: game planning	Goal-directed
Look	Specific goal: visualization	Goal-directed
Outline	Specific goal: motor programming	Goal-directed
Waggle	Specific goal: alignment	Goal-directed
Go	Salient cue: execution	Stimulus-driven

Although the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf provides many of the theoretical underpinnings that have been found to have performance benefits in pre-shot routines in golf, it has yet to be assessed by experts in the field in relation to its potential usefulness and future utility in the field. As a result, this study sets out to answer the following research questions.

**Research Questions**

This study is guided by the following two research questions:

**Research Question 1**

What aspects of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf achieve a level of consensus amongst collegiate-level golf coaches in the United States as to its overall usefulness?

## **Research Question 2**

How likely are collegiate-level golf coaches in the United States to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf in their golf instruction?

### **Methods**

When seeking to validate a conceptual model based upon the feedback and input from in experts in a given field, it is important to achieve a reasonable level of consensus amongst those experts. The Delphi technique is an effective and commonly used approach for such research problems (Bailey et al., 2019; Hasson et al., 2000; Hsu & Sandford, 2007; Okoli & Pawlowski, 2004; Pilgrim, Kremer, & Robertson, 2018; Robertson et al., 2017). A Delphi study seeking expert consensus typically involves a multi-stage approach in which inquiries are sent to experts in rounds to gather information and attain areas of consensus (Kaynak & Macauley, 1984, p.90). The rounds can continue (theoretically indefinitely) until a level of consensus is achieved (Iqbal & Pison-Young, 2009). However, Petry et al. (2007) found that a two-round Delphi review is most suitable when there is a clear literature base to work from (such as the one that the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf was developed upon) and when the main objective of the study is to take an initial “temperature” of opinion on a topic.

### **Sampling Frame**

In an effort to provide a means of consistency amongst experts in the field, collegiate-level golf coaches who were identified as men’s and/or women’s college golf coaches at the NCAA Division I level across the United States were selected as expert panelists for this study. These experts were identified by their listing in the *Ping College Golf Guide* (www.collegegolf.com) and were selected based upon the level of golf knowledge required to hold these instructional positions at the highest level of competitive collegiate golf. In total,

$N_0 = 514$  collegiate-level golf coaches working at the NCAA Division I level were identified in this sampling frame as potential participants for the study.

## **Procedures**

For this study, the survey instruments for each round were distributed via an online platform (Survey Monkey, [www.surveymonkey.com](http://www.surveymonkey.com)). Online surveys have been found to be an effective mode of quickly distributing questionnaire forms to and gathering information from panels of experts (Iqbal & Pison-Young, 2009). Invitations were distributed to members of the sampling frame via email.

Delphi studies require an initial consensus agreement level to be set. Recent studies with similar Delphi designs used two-thirds (67%) as the consensus criterion (Hasson et al., 2000; Pilgrim et al., 2018; Robertson et al., 2017). Since this is an exploratory pilot study, a slightly more stringent consensus agreement level of 70% was set as the target consensus rate to be used in this study.

Based upon the results of a given round, a subsequent round was deemed necessary if the target consensus agreement level of 70% was not met on any of the substantive evaluative questions (i.e., excluding the likelihood of future usage). In such instances, the survey instrument was updated accordingly based on the information collected from the previous round. All rounds had a duration of 10 days beginning with an initial email notification with two subsequent reminder emails.

Response options for the survey item were either a simple dichotomous yes/no type or a five-point Likert type. To establish a more pragmatic and reasonable definition of consensus regarding the Likert-type questions, each distinct set of response options was partitioned into semantically similar subsets (consensus groupings). So, for example, participants that responded



to an item with either “unlikely” or “very unlikely” would be considered to be in consensus for that particular question. The grouping schema for the three types of Likert response options is given in Table 3.3.

**Table 3.3**

*Partitioning Schema for Consensus Groupings of Response Options*

Attitude dimension	Positive	Neutral	Negative
Agreement	Strongly agree Agree	Neither agree nor disagree	Disagree Strongly disagree
Usefulness	Extremely useful Very useful Somewhat useful	-	Not so useful Not at all useful
Likelihood	Very likely Likely	Neither likely nor unlikely	Unlikely Very unlikely

*Note.* The yes/no response options are not shown here since that set needs no further partitioning.

Data were compiled and examined at the conclusion of each round to assess the level of consensus among the experts, which subsequently determined if an additional round was warranted. An additional round would be deemed necessary if the consensus level fell below the criterion of 70% on any of the main evaluative items.

Authorized consent to conduct the study was provided by the Institutional Review Board (IRB) at North Dakota State University (documentation given in Appendix A).

***Round 1***

The Round 1 survey was distributed to the complete listing of  $N_0 = 514$  collegiate golf coaches with the invitation letter listed in Appendix B. Participant consent was secured via an online consent form (Appendix C). Follow-up emails were sent to non-responders (Appendix D).

The survey instrument for Round 1 is given in Appendix E. The Round 1 survey remained open for 10 days.

**Participants.** A total of  $N_0 = 514$  college golf coaches working at the NCAA Division I level were invited to participate in the first round of the study. Of these, 36 (7%) participated in the first round of the study with 26 (5%) completing all survey questions for a 72.2% survey completion rate. Within this sample of 32 respondents, 15 (46.88%) coached men's golf, 15 (46.88%) coached women's golf, and 2 (6.25%) coached both men's and women's golf.

### ***Round 2***

Adjustments were made to the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf based upon the quantitative and qualitative feedback (Appendix K) gathered from Round 1. These changes can be viewed in Table 3.4. An updated version of the survey instrument based upon the responses collected in the first round was prepared by the researchers for the second round of data collection (Appendix J).

The second round of the Delphi survey was distributed on the same online platform with the invitation given in Appendix F. Participant consent was again secured via a consent page (Appendix G). Follow-up emails were sent to non-responders (Appendices H and I). The modified survey instrument for Round 2 is given in Appendix J. The Round 2 survey remained open for 10 days.

**Table 3.4**

*The Modified Six Steps in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf Based Upon Expert Feedback*

Step	Name	Details
1	Stop (mental trigger)	Stop and focus on your next golf shot.
2	Strategy (game planning)	Plan out the shot you want to hit and select an intended target.
3	Look (visualization)	Visualize your golf shot.
4	Outline (motor programming)	Outline the swing path you will use for the golf shot you have visualized.
5	Waggle (alignment)	Position your body into proper alignment.
6	Go (execution)	Swing along the path you have outlined to hit the golf shot you desire.

*Note.* See Table 3.1 for the initial version of the routine.

**Participants.** The  $n = 26$  participants who fully completed the questionnaire from Round 1 were invited to participate in the second round of the study. Of these, 13 (50%) participated in the second round of the study with 10 (38.46%) completing all survey questions for a 76.92% survey completion rate. Within this usable sample of  $n = 13$  coaches, six (46.15%) coached men's golf teams, six (46.15%) coached women's golf teams, and one (7.69%) coached both men's and women's golf teams.

## Results

### Round 1

A summary of the Round 1 results can be found in Tables 3.5 through 3.13. A consensus level above 70% was achieved for nearly all of the first round survey questions related to the

usefulness of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf with the assessment of the six separate steps of the model achieving an expert consensus rate no lower than 76.93%. Additionally, a 85.71% consensus rate was achieved in relation to the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf being an easy to remember acronym that college golfers can utilize when completing their pre-shot routines with only one (3.57%) of the 28 of panelists in disagreement. Only the question regarding the usefulness of the overall model fell below the cutoff with a 67.86% consensus rate. The researchers attempted to improve the consensus levels by codifying the qualitative feedback received from Round 1 participants and making adjustments to the descriptions in five of the six steps of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.

**Table 3.5**

*Round 1 Responses for Ease of Recall of the STOP S.L.O.W. GO Procedure*

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Strongly agree	3	10.71%	24	85.71%	Positive
Agree	21	75.00%			
Neither agree nor disagree	3	10.71%	3	10.71%	Neutral
Disagree	1	3.57%	1	3.57%	Negative
Strongly disagree	0	0.00%			

*Note.*  $n = 28$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.6***Round 1 Responses for the Overall Usefulness of the STOP S.L.O.W. GO Approach*

Round 1, Question 2: The STOP S.L.O.W. GO Pre-Shot Routine Model presented above provides a useful model that college golfers can utilize when completing their pre-shot routines.

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Strongly agree	1	3.57%	19	67.86%	Positive
Agree	18	64.29%			
Neither agree nor disagree	9	32.14%	9	32.14%	Neutral
Disagree	0	0.00%	0	0.00 %	Negative
Strongly disagree	0	0.00%			

Note.  $n = 28$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.7***Round 1 Responses for the Usefulness of Step 1*

Round 1, Question 3: How useful is Step 1 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	4	15.38%	25	96.15 %	Positive
Very useful	13	50.00%			
Somewhat useful	8	30.77%			
Not so useful	0	0.00%	1	3.85%	Negative
Not at all useful	1	3.85%			

Note.  $n = 26$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.8***Round 1 Responses for the Usefulness of Step 2*


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Round 1, Question 4: How useful is Step 2 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?

---

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	4	15.38%			
Very useful	13	50.00%	26	100.00%	Positive
Somewhat useful	9	34.62%			
Not so useful	0	0.00%	0	0.00%	Negative
Not at all useful	0	0.00%			

---

*Note.*  $n = 26$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.9***Round 1 Responses for the Usefulness of Step 3*


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Round 1, Question 5: How useful is Step 3 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?

---

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	1	3.85%			
Very useful	15	57.69%	26	100.00%	Positive
Somewhat useful	10	38.46%			
Not so useful	0	0.00%	0	0.00%	Negative
Not at all useful	0	0.00%			

---

*Note.*  $n = 26$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.10***Round 1 Responses for the Usefulness of Step 4*


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Round 1, Question 6: How useful is Step 4 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?

---

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	3	11.54%			
Very useful	5	19.23%	23	88.46%	Positive
Somewhat useful	15	57.69%			
Not so useful	2	7.69%			
Not at all useful	1	3.85%	3	11.54%	Negative

---

*Note.*  $n = 26$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.11***Round 1 Responses for the Usefulness of Step 5*


---

Round 1, Question 7: How useful is Step 5 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?

---

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	1	3.85%			
Very useful	8	30.77%	20	76.92%	Positive
Somewhat useful	11	42.31%			
Not so useful	4	15.38%			
Not at all useful	2	7.69%	6	23.08%	Negative

---

*Note.*  $n = 26$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.12***Round 1 Responses for the Usefulness of Step 6*

Round 1, Question 8: How useful is Step 6 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?					
Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	3	11.54%			
Very useful	11	42.31%	23	88.46%	Positive
Somewhat useful	9	34.62%			
Not so useful	1	3.85%			
Not at all useful	2	7.69%	3	11.54%	Negative

*Note.*  $n = 26$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

Although the results of Round 1 came very close in attaining an expert level of consensus in relation to Research Question 1 of the study, it failed to achieve a level of consensus related to Research Question 2 and the potential future utilization of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf amongst the college golf coaches that were surveyed. Of the 26 panelists, only six (23.07%) indicated that they were likely or very likely to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model in their future golf instruction.



**Table 3.13**

*Round 1 Responses to the Likelihood of Usage*

---

Round 1, Question 9: In its current form, how likely would you be to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model in your college golf instruction?

---

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Very likely	0	0.00%	6	23.08%	Positive
Likely	6	23.08%			
Neither likely nor unlikely	13	50.00%	13	50.00%	Neutral
Unlikely	4	15.38%	7	26.92%	Negative
Very unlikely	3	11.54%			

---

*Note.*  $n = 26$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

Based upon the qualitative feedback that was received regarding the likelihood of the model’s utilization, additional survey questions were developed for the Round 2 survey instrument in an attempt to achieve a level of consensus related to Research Question 2.

**Round 2**

A summary of the Round 2 results can be found in Tables 3.14 through 3.22. A consensus level above the target of 70% was achieved for all of the second round evaluation questions related to the usefulness of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf with the overall model receiving an enhanced consensus rate of 72.73% and all six steps within the model achieving an expert consensus rate no lower than 90.00%. Both the models and steps all resulted in marked improvements in consensus rates in relation to Research Question 1 and the confirmed usefulness of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf amongst college golf coaches working at the NCAA Division I level.

**Table 3.14***Round 2 Responses for the Overall Usefulness of the STOP S.L.O.W. GO Approach*

Round 2, Question 1: The STOP S.L.O.W. GO Pre-Shot Routine Model presented above provides a useful model that college golfers can utilize when completing their pre-shot routines.

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Strongly agree	0	0.00%	8	72.73%	Positive
Agree	8	72.73%			
Neither agree nor disagree	3	27.27%	3	27.27%	Neutral
Disagree	0	0.00%	0	0.00%	Negative
Strongly disagree	0	0.00%			

Note.  $n = 11$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.15***Round 2 Responses for the Usefulness of Step 1*

Round 2, Question 2: How useful is Step 1 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	3	27.27%	11	100.00%	Positive
Very useful	5	45.45%			
Somewhat useful	3	27.27%			
Not so useful	0	0.00%	0	0.00%	Negative
Not at all useful	0	0.00%			

Note.  $n = 11$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.16***Round 2 Responses for the Usefulness of Step 2*


---

Round 2, Question 3: How useful is Step 2 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?

---

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	4	40.00%			
Very useful	3	30.00%	10	100.00%	Positive
Somewhat useful	3	30.00%			
Not so useful	0	0.00%			
Not at all useful	0	0.00%	0	0.00%	Negative

---

*Note.*  $n = 10$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.17***Round 2 Responses for the Usefulness of Step 3*


---

Round 2, Question 4: How useful is Step 3 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?

---

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	2	20.00%			
Very useful	2	20.00%	10	100.00%	Positive
Somewhat useful	6	60.00%			
Not so useful	0	0.00%			
Not at all useful	0	0.00%	0	0.00%	Negative

---

*Note.*  $n = 10$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.18***Round 2 Responses for the Usefulness of Step 4*


---

Round 2, Question 5: How useful is Step 4 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?

---

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	1	10.00%			
Very useful	1	10.00%	9	100.00%	Positive
Somewhat useful	7	70.00%			
Not so useful	1	10.00%			
Not at all useful	0	0.00%	1	10.00%	Negative

---

*Note.*  $n = 10$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.19***Round 2 Responses for the Usefulness of Step 5*


---

Round 2, Question 6: How useful is Step 5 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?

---

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	2	20.00%			
Very useful	4	40.00%	10	100.00%	Positive
Somewhat useful	4	40.00%			
Not so useful	0	0.00%			
Not at all useful	0	0.00%	0	0.00%	Negative

---

*Note.*  $n = 10$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.20***Round 2 Responses for the Usefulness of Step 6*

Round 2, Question 7: How useful is Step 6 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?					
Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Extremely useful	1	10.00%			
Very useful	5	50.00%	10	100.00%	Positive
Somewhat useful	4	40.00%			
Not so useful	0	0.00%			
Not at all useful	0	0.00%	0	0.00%	Negative

*Note.*  $n = 10$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

However, although the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf presented in Round 2 was deemed to be more useful, 0/10 (0%) of the survey respondents indicated that they were likely or very likely to utilize the model in its current form in their future golf instruction. This was a 23.07% decrease from the model presented in Round 1. When questioned whether or not they would be more likely to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf in their future golf instruction, only 10% agreed that they would be more likely to utilize it if the designer of the model conducted a face-to-face educational session with them and the members on their college golf team.

**Table 3.21***Round 2 Responses to the Likelihood of Usage*


---

Round 2, Question 8: In its current form, how likely would you be to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model in your college golf instruction?

---

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Very likely	0	0.00%	0	0.00%	Positive
Likely	0	0.00%			
Neither likely nor unlikely	6	60.00%	6	60.00%	Neutral
Unlikely	4	40.00%	4	40.00%	Negative
Very unlikely	0	0.00%			

---

*Note.*  $n = 10$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

**Table 3.22***Round 2 Responses to Likelihood of Usage if There is Face-to-Face Training*


---

Round 2, Question 9: I would be more likely to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model in my future college golf instruction if the designer of the model conducted a face-to-face educational session with me and the college golfers on my team.

---

Response	Raw		Consensus <sup>a</sup>		
	Freq.	Percent	Freq.	Percent	Valence
Strongly agree	0	0.00%	1	10.00%	Positive
Agree	1	10.00%			
Neither agree nor disagree	5	50.00%	5	50.00%	Neutral
Disagree	4	40.00%	4	40.00%	Negative
Strongly disagree	0	0.00%			

---

*Note.*  $n = 10$ .

<sup>a</sup> See Table 3.3 for details on consensus groupings.

## Discussion

In the present study, a two round Delphi was utilized in an attempt to provide added validity to the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf. Discussion items are presented for the results of each research question below.

### Research Question 1

*Does the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf achieve a level of consensus amongst college golf coaches in the United States as to its overall usefulness?*

Based upon the results of the Delphi study, the usefulness of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf featured in Table 3 has been validated amongst college golf coaches working at the NCAA Division I level by having achieved a 72.73% consensus agreement level. When removing participants who “Neither agreed nor Disagreed” as to the usefulness of the model, a 100% consensus agreement rate was achieved. Additionally, all six steps of the model achieved a 100% consensus agreement rate as to their usefulness outside of Step 4, which received a 90% usefulness agreement rate. When analyzing the qualitative feedback, it is plausible to assume that this may have been the result of the survey participants not fully understanding the “Outline” portion of the model and its importance to motor programming.

Based upon these results, it can be determined with a high level of consensus that the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf is a useful tool that college golf coaches in the United States can utilize in their instruction of college golfers. To further enhance the validity as to the usefulness of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf, it is suggested that future research is conducted to both analyze immediate and long-term performance improvements that may be able to be obtained by utilizing the model with fidelity.

It is suggested that these future golf studies utilize quantitative performance feedback from shot trackers or competitive golf scores to determine exactly how useful the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf in improving golf performance and overall scoring rates.

## **Research Question 2**

*How likely are college golf coaches in the United States to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf in their golf instruction?*

Based upon the results of the Delphi study, the researchers were unable to reach adequate levels of expert consensus and it was determined that college golf coaches working at the NCAA Division I level are unlikely to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf in their future golf instruction. Although the survey respondents indicated that the changes to the model in Round 2 made the model more useful, it was also determined with an even lower level of consensus agreement that they'd be likely to adopt it in the future. Additionally, survey respondents also indicated that they'd only be slightly more likely to adopt the STOP S.L.O.W. Pre-Shot Routine Model for Golf if the designer of the model were to conduct a face-to-face educational session with them and the college golfers on their team.

When reviewing the qualitative responses from participants, a number of the survey participants indicated that they "were happy with the current method they teach" and that they "simply utilize a different model" when instructing pre-shot routines to college golfers on their team, which may have resulted in the low consensus rates. Additionally, participants also indicated that they "would just have to try it out to see if it's more helpful than what their players are currently using" and that "it may be something they would introduce to specific players" who could find it beneficial. Based upon these qualitative responses, it's plausible to assume that the adoption rates may indeed be higher if college golf coaches working at the NCAA Division I



level were to fully understand the intricacies of the model itself in allowing golfers to develop their own pre-shot routines within the steps of the model. Given the plausibility of advanced adoption rates of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf that may arise from additional instruction or time spent working and fully understanding the model, it's proposed that future researchers and pre-shot routine experts seek to introduce the model to college golf coaches and provide advanced educational training. Upon the completion of this training, researchers should track the overall adoption rates to determine whether or not adoption rates increase with advanced education on the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf. The results of these findings could better indicate the real utilization rates of the model (as opposed to the perceived utilization rates reported in this study) when fully understood and sampled by college golf coaches and members of a college golf team. Additionally, sampling the model to a demographic outside of college golf coaches may demonstrate better adoption rates given that participants also mentioned that "the framework could be effective for developing players" in the feedback that was received.

### **Conclusion**

This study aimed to examine the usefulness and potential future utility of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf amongst college golf coaches working at the NCAA Division I level. Within a two-round Delphi study, consensus was reached as to the usefulness of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf across the entire model and six-steps within the model. However, consensus was not obtained when examining the future utility of the model amongst college golf coaches in their future golf instruction. The results of the study could be important in determining whether or not the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf is a useful tool that golfers of all ability levels may be able to utilize to

improve their future golf performance. Additional assessment and examination of the model is encouraged to advance our collective understanding of effective pre-shot routines in golf and to build a universally accepted model that can be utilized in future research.

## **CHAPTER 4: DISCUSSION**

### **Introduction**

As students within our educational system and golfers alike continue to struggle with the negative impacts that can be caused by a wandering mind, it's important that researchers continue to study different theories, methods, and systems that can be utilized to help minimize the negative impacts that can be associated from this task-irrelevant thought. Methods derived from Attentional Control Theory (ACT) can potentially provide useful tools in moving both students and golfers from a state of task-irrelevant thought to a concerted focus on the task at hand (Szpunar et al., 2013). By implementing methodologies that incorporate salient stimuli (such as when a teacher calls a student's name in class) and redirect and individual's focus toward a specific goal (like trying to hit a golf shot over water), the benefits of ACT informed methodologies may result in significant performance gains (Coombes et al., 2009).

### **Purpose of the Study**

The purpose of this study was to gain a better understanding of how concepts within our traditional education system can be transferred to golf education. As the study related directly to advancing golf education, the researchers sought to gain a better understanding of the past research that has been conducted to date on pre-shot routines in golf through a chronological review of the literature. From this review, the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf was developed and assessed amongst experts in the field. The research itself set out to answer three very distinct research questions, which are reviewed and examined below.

### **Research Question from Chapter 2**

*What research has been conducted to date on pre-shot routines in golf?*

The study found that a significant amount of research had been conducted to date on pre-shot routines in golf. From a historical analysis of the research, it was found that much of the research that has been conducted to date has been informed by previous research findings in the field. However, it was also found that the pre-shot routines that have been constructed to date are still very different in their framework and that no singular pre-shot routine model had been determined to be useful by experts in the field and received universal adoption by researchers and practitioners alike. As a result of these research findings and following the recommendations of future research by (Cotterill et al., 2014), this study sought to develop the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.

### **Research Questions from Chapter 3**

#### ***Research Question 1***

*Does the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf achieve a level of consensus amongst college golf coaches in the United States as to its overall usefulness?*

In a further examination of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf that had been developed and informed by the research of this study, it was determined by college golf coaches working at the NCAA Division I level that the model presented a useful tool that college golfers can utilize when practicing their pre-shot routines. The usefulness of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf was validated amongst college golf coaches working at the NCAA Division I level by having achieved a 72.73% consensus agreement level. When removing participants who “Neither agreed nor Disagreed” as to the usefulness of the model, a 100% consensus agreement rate was achieved. Additionally, all six steps of the model achieved a 100% consensus agreement rate as to their usefulness outside of Step 4, which received a 90% usefulness agreement rate. When analyzing the qualitative feedback (Appendix K), it is plausible

to assume that this may have been the result of the survey participants not fully understanding the “Outline” portion of the model and its importance to motor programming.

Based upon these results, it can be determined with a high level of consensus that the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf is a useful tool that college golf coaches in the United States can utilize in their instruction of college golfers.

### ***Research Question 2***

*How likely are college golf coaches in the United States to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf in their golf instruction?*

Although the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf achieved a 72.73% expert consensus agreement in relation to its overall usefulness, it failed to reach a level of expert consensus related to its future utility amongst the college golf coaches surveyed. Even though the consensus level on the potential for future utility increased by 10% if the designer of the model was to conduct face-to-face educational sessions with the coaches and college golfers on their team, it still failed to meet the targeted 70% threshold that was determined to attain expert consensus. When reviewing the qualitative responses from participants located in Appendix K, a number of the survey participants indicated that they “were happy with the current method they teach” and that they “simply utilize a different model” when instructing pre-shot routines to college golfers on their team, which may have resulted in the low consensus rates. Additionally, participants also indicated that they “would just have to try it out to see if it’s more helpful than what their players are currently using” and that “it may be something they would introduce to specific players” who could find it beneficial.

Based upon these results, it can be determined that college golf coaches working in the United States are currently unlikely to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf in their future golf instruction.

### **Significance of the Research**

The results of this study are significant in that the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf has been validated by experts in the field as to its overall usefulness with all six-steps being deemed as useful when conducting pre-shot routines in golf. Furthermore, the results of the research answer the call by (Cotterill et al., 2014) to develop a template at the psychological level that underpins the routines in golf and allows golfers to naturally develop their own pre-shot routines within these psychological constructs. To date, this study marks the first pre-shot routine model that has been identified to date that has been validated as to its usefulness amongst college golf coaches working at the NCAA Division I level. Although a level of consensus was not obtained as to the future utility of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf amongst college golf coaches working at the NCAA Division I level, the study itself presents an opportunity for future researchers to further examine if the model can be universally accepted by golf practitioners and researchers in the field.

### **Areas for Future Research**

Based upon the results of the findings, it is suggested that future practitioners and researchers further examine the efficacy and future adoption rates of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf amongst golfers of all ability levels. The model itself has been found to be a useful tool that can be utilized by college golfers to potentially enhance their golf performance. However, the next step in further validating the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf would be to examine any immediate and long-term performance gains

that may be able to be achieved by utilizing the model with fidelity. It is suggested that these studies be based solely on performance outcomes that can be determined to have been caused as a direct result of utilizing the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf in competitive environments. Additionally, it is suggested that these performance outcomes be examined across a wide spectrum of performance-oriented golfers to determine where the model may have the most utility and beneficial impact on golfers.

Another area for future research on the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf would be to examine the adoption and utilization rates of college golf coaches working at the Division I level after conducting a face-to-face educational session. This education session should be conducted by a researcher who has expertise in the area of pre-shot routines in golf and can fully understand and interpret the six-steps of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf. Additionally, it is suggested that any study include the utilization of adherence logs to further examine the adoption rates and performance outcomes of individual golfers utilizing the model. This will help in further determining whether the model produces performance benefits for individual golfers as opposed to an entire group of golfers.

When analyzing the qualitative feedback presented in Appendix K, it is plausible to assume that consensus and real adoption rates of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf may rise if college golf coaches further familiarize themselves with the intricacies of each step of the model and associated research outcomes of their adoption. Some participants indicated that “they will continue to use the same philosophies that are similar to STOP S.L.O.W. GO and that they may adopt STOP S.L.O.W. GO if they can “get a sense that a player will resonate with the words” of the model. Additionally, many of the participants indicated that they would take pieces of the model such as the “STOP” part but would continue

to utilize their own pre-shot routine from there. Additionally, some participants stated that “it’s similar to what they’ve done for years” and that they “would use parts of STOP S.L.O.W. GO” if not all of the steps worked for an individual golfer. The analysis of this qualitative feedback leads the researchers of this study to believe that the real adoption rates may be higher than the perceived adoption rates that were indicated by study participants.

### **Conclusion**

As golf researchers and practitioners continue to advance the body of knowledge in relation to pre-shot routines in golf, it is of utmost importance that future research be centered around the development and adoption of a pre-shot routine model that can be utilized by golfers of all ability levels. Without a template that can be followed that includes the necessary psychological constructs for successful pre-shot routines, our understanding as to the direct performance benefits that result from the utilization of pre-shot routines will be scattered at best. Although it is encouraged that pre-shot routines remain individualized, it is important that certain aspects be followed when attempting to examine the efficacy of one pre-shot routine to another. Without this consistency and accurate adherence and reporting of the pre-shot routine models that are utilized, the area of research will likely continue to garner a wide variety of results with very low levels of agreement as to whether or not aspects of one golfer’s pre-shot routine can be properly categorized and analyzed in comparison to that of another golfer’s pre-shot routine. The STOP S.L.O.W. GO Pre-Shot Routine Model for Golf clearly lays out six distinct steps that can be broken down into psychological constructs and analyzed based upon their efficacy to improved golf performance. The model (and six associated steps within the model) has been validated as to its overall usefulness amongst college golf coaches in the United States. The distinction of these six-steps or the creation and validation of another pre-shot routine model that



can be adhered to in practice and research is vitally important to furthering our understanding of the impact of pre-shot routines in golf.

## REFERENCES

- Bailey, R., Warner, R. Branton, J., Carr, S., Wright, J., & Cope, E. (2019). Engaging young people in golf. A Delphi expert consensus study. *International journal of Golf Science*, 7(2).
- Beauchamp, P. H., Halliwell, W. R., Fournier, J. F., & Koestner, R. (1996). Effects of cognitive-behavioral psychological skills training on the motivation, preparation, and putting performance of novice golfers. *Sport Psychologist*, 10, 157-170.
- Beilock, S. L., & Carr, T. H. (2001). On the fragility of skilled performance: What governs choking under pressure? *Journal of Experimental Psychology: General*, 130, 701–725.
- Beilock, S. L., Carr, T. H., MacMahon, C., & Starkes, J. L. (2002). When paying attention becomes counterproductive: impact of divided versus skill-focused attention on novice and experienced performance of sensorimotor skills. *Journal of Experimental Psychology: Applied*, 8, 6-16.
- Bell, R., Skinner, C., & Fisher, L. (2009). Decreasing putting yips in accomplished golfers via solution-focused guided imagery: A single-subject research design. *Journal of Applied Sport Psychology*, 21(1), 1-14.
- Bernier, M., Codron, R., Thienot, E., & Fournier, J. (2011). The attentional focus of expert golfers in training and competition: A naturalistic investigation. *Journal of Applied Sport Psychology*, 23(3), 326-341.
- Boutcher, S. H. (1990) The role of performance routines in sport. In J. G. Jones & Hardy (Eds.), *Stress and performance in sport* (pp. 221-245). New York: Wiley.

- Boutcher, S. H. (1992). Attentional and athletic performance: An integrated approach. In T. S. Horn (Ed.), *Advances in sport psychology* (pp. 251–266). Champaign, IL: Human Kinetics.
- Boutcher, S. H., & Crews, D. J. (1987). The effect of a preshot attentional routine on a well-learned skill. *International Journal of Sport Psychology, 18*(1), 30-39.
- Boutcher, S. H., & Rotella, R. J. (1987). A psychological skills educational program for closed-skill performance enhancement. *Sport Psychologist, 1*, 127-137.
- Boutcher, S. H., & Zinsser, N. W. (1990). Cardiac deceleration of elite and beginning golfers during putting. *Journal of Sport and Exercise Psychology, 12*, 37-47.
- Bunce, D., Flens, E., & Neiles, K. (2010). How Long Can Students Pay Attention in Class? A Study of Student Attention Decline Using Clickers. *Journal of Chemical Education, 87*(12), 1438–1443. <https://doi.org/10.1021/ed100409p>
- Cohn, P. J. (1991). An Exploratory Study on Peak Performance in Golf. *Sport Psychologist, 5*, 1-14.
- Cohn, P. J., Rotella, R. J., & Lloyd, J. W. (1990). Effects of a cognitive-behavioral intervention on the pre-shot routine and performance in golf. *Sport Psychologist, 4*, 33-47.
- Connor, S. (2010, July 19) Psychology of sport: how a red dot swung it for open champion. *Independent*. Retrieved from <http://www.independent.co.uk/sport/general/others/psychology-of-sport-how-a-red-dot-swung-it-for-open-champion-2030349.html>
- Coombes, S., Higgins, T., Gamble, K., Cauraugh, J., & Janelle, C. (2009). Attentional control theory: Anxiety, emotion, and motor planning. *Journal of Anxiety Disorders, 23*(8), 1072–1079. <https://doi.org/10.1016/j.janxdis.2009.07.009>

- Corbetta, M., Shulman, G., & Corbetta, M. (2002). Control of goal-directed and stimulus-driven attention in the brain. *Nature reviews. Neuroscience*. <https://doi.org/10.1038/nrn755>
- Cotterill, S. (2008). Developing effective pre-performance routines in golf. *Sport & Exercise Psychology Review*, 4(2), 10-16.
- Cotterill, S. (2010). Pre-performance routines in sport: Current understanding and future directions. *International Review of Sport and Exercise Psychology*, 3, 132-153.  
10.1080/1750984X.2010.488269.
- Cotterill, S., Sanders, R., & Collins, D. (2010a). Developing effective pre-performance routines in golf: Why don't we ask the golfer? *Journal of Applied Sport Psychology*, 22(1), 51-64.
- Cotterill, S., Collins, D., & Sanders, R. (2014). Developing effective pre-performance routines for golf: Implications for the coach. *Athletic Insight*, 6, 53-64.
- Crampton, J. (1989). Establishing pre-shot routines for tournament golfers: An example of the use of micro-computers in performance planning. *Sports Coach*, 12, 9-12.
- Crews, D. J., & Boutcher, S. H. (1986a). An exploratory observational behavior analysis of professional golfers during competition. *Journal of Sport Behavior*, 9, 51-58.
- Crews, D. J., & Boutcher, S. H. (1986b). Effects of structured preshot behaviors on beginning golf performance. *Perceptual and Motor Skills*, 62(1), 291-294.
- Crews, D. J., & Landers, D. M. (1993). Electroencephalographic measures of attentional patterns prior to the golf putt. *Medicine in Sport and Exercise*, 25, 116-126.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: 184 Harper & Row.

- Davies, T., Collins, D., & Cruickshank, A. (2014). So what do we do with the rest of the day? Going beyond the pre-shot routine in elite golf support. *International Journal of Golf Science*, 2, 163-175.
- Decety, J. (1996). Do imagined and executed actions share the same neural substrate? *Cognitive Brain Research*, 3(2), 87-93.
- Diekfuss, J., & Raisbeck, L. (2017). Attentional focus in NCAA Division I golfers. *Journal of Motor Learning and Development*, 5, 240-251. 10.1123/jmld.2016-0025.
- Douglas, K., & Fox, K. R. (2002). Performance and practise of elite women european tour golfers during pressure and non-pressure putting simulation. In E. Thain (Ed.), *Science and Golf IV* (pp. 246-256). London: Routledge.
- Eysenck, M., Derakshan, N., Santos, R., & Calvo, M. (2007). Anxiety and cognitive performance: attentional control theory. *Emotion (Washington, D.C.)*, 7(2), 336–353.
- Farahat, E., Ille, A., & Thon, B. (2004). Effect of visual and kinesthetic imagery on the learning of a patterned movement. *International Journal of Sport Psychology*, 25, 119-132.
- Foster, D. J., Weigand, D. A., & Baines, D. (2006). The effect of removing superstitious behavior and introducing a pre-performance routine on basketball free throw performance. *Journal of Applied Sport Psychology*, 18, 167–171.
- Gayton, W. F., Cielinski, K. L., Francis-Keniston, W. J., & Heanes, J. F. (1989). Effects of preshot routine on free-throw shooting. *Perceptual and Motor Skills*, 68, 317-318.
- Gould, D., & Udry, E. (1994). Psychological skills for enhancing performance: arousal regulation strategies. *Medicine and Science in Sport and Exercise*, 26, 478–485.

- Gray, R. (2004). Attending to the execution of a complex sensorimotor skill: expertise differences, choking and slumps. *Journal of Experimental Psychology: Applied*, 10, 42-54.
- Hackfort, D., Duda, J., & Lidor, R. (2005). Handbook of research in applied sport and exercise psychology: International perspective. Morgantown, WV: Sheridan Books.
- Hall, C. (2001). Imagery in sport and exercise. In *Handbook of Sport Psychology* (edited by R. Singer, H. Hausenblas and C. Janelle), pp. 529-549. New York: Wiley.
- Hardy, L., Mullen, R., & Jones, G. (1996). Knowledge and conscious control of motor actions under stress. *British Journal of Psychology*, 87, 621–636.
- Hasson, F., Keeney, S., Mckenna, H., & Hasson, F. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing*, 32(4), 1008-1015.
- Holder, T. (2003). Concentration Training for Closed Skills. Pre-performance routine. In I. Greenlees, and A. Moran (Eds.), *Concentration skills training in sport* (pp.67-75). Leicester: The British Psychological Society.
- Hsu, C., & Sandford, B. (2007). The Delphi technique: Making sense of consensus. *Practical Assessment, Research & Evaluation*, 12(10), 1-8.
- Iqbal, S., & Pison-Young, L. (2009). The Delphi method. *Psychologist*, 22(7), 598.
- Jackson, R. C. (2001). The preshot routine: A prerequisite for successful performance? In P. R. Thomas (Ed.), *Optimising performance in golf* (pp. 279-288). Brisbane, Australia: Australian Academic Press.
- Jackson, R. C. (2003). Pre-performance routine consistency: temporal analysis of goal kicking in the Rugby Union World Cup. *Journal of Sports Sciences*, 21, 803–814.

- Jackson, R. C., Ashford, K. J., & Norsworthy, G. (2006). Attentional focus, dispositional reinvestment, and skilled motor performance under pressure. *Journal of Sport & Exercise Psychology*, 28, 49-68.
- Kaynak, E., & Macaulay, J. (1984). The Delphi technique in the measurement of tourism market potential. *Tourism Management*, 5(2), 87-101.
- Killingsworth, M., & Gilbert, D. (2010). A wandering mind is an unhappy mind. *Science (New York, N.Y.)*, 330(6006), 932.
- Kingston, K., & Hardy, L. (1994). Factors affecting the salience of outcome, performance, and process goals in golf. In A. J. Cochran & M. R. Farrally (Eds.), *Science and golf II: Proceedings of the 1994 World Scientific Congress of Golf* (pp. 144-149). London: E & FN Spon.
- Kingston, K. M., & Hardy, L. (2001). Pre-performance routine training using holistic process goals. In P. R. Thomas (Ed.) *Optimizing performance in golf* (pp.264-278). Brisbane: Australian Academy Press.
- Kirschenbaum, D.S., & Bale, R.M. (1980). Cognitive-behavioral skills in golf: Brain power golf. In R.M. Suinn (Ed.), *Psychology in sports: Methods and applications* (pp. 334-343). Minneapolis, MN: Burgess.
- Knight, C. (2004). Neuromotor issues in the learning and control of golf skill. *Research Quarterly for Exercise and Sport*, 75(1), 9-15.
- Land, W., Frank, C., & Schack, T. (2014). The influence of attentional focus on the development of skill representation in a complex action. *Psychology of Sport & Exercise*, 15(1), 30–38.

- Last, J. (2014). *Tracking Research*. Presentation at the 2014 Pace of Play Symposium, Far Hills, NJ.  
<https://www.usga.org/content/dam/usga/images/pace%20of%20play/trackingresearch.pdf>
- MacPherson, A., Collins, D., & Obhi, S. (2009). The importance of temporal structure and rhythm for the optimum performance of motor skills: A new focus for practitioners of sport psychology. *Journal of Applied Sport Psychology, 21*, 48-61.
- Marlow, C., Bull, S., Heath, B., & Shambrook, C. (1998). The use of a single case design to investigate the effect of a pre-performance routine on the water polo penalty shot. *Journal of Science and Medicine in Sport, 1*, 143–155.
- Martin, K., Moritz, S., & Hall, C. (1999). Imagery use in sport: A literature review and applied model. *The Sport Psychologist, 13*, 245–268.
- Mason, M., Norton, M., Van Horn, J., Wegner, D., Grafton, S., & Macrae, C. (2007). Wandering minds: The default network and stimulus-independent thought. *Science (New York, N.Y.), 315*(5810), 393-5.
- Maynard, I. W. (1998). Improving concentration. Leeds, UK: National Coaching Foundation.
- McBride, E.R., & Rothstein, A.L. (1979). Mental and physical practice and the learning and retention of open and closed skills. *Perception and Motor Skills, 49*, 359-365.
- McCann, P., Lavalley, D., & Lavalley, R. M. (2001). The effect of pre-shot routines on golf wedge shot performance. *European Journal of Sport Science, 1*, 231-240.
- McNevin, N. H., Shea, C. H., & Wulf, G. (2003). Increasing the distance of an external focus of attention enhances learning. *Psychological Research, 67*, 22-29.
- Moore, W. E., & Stevenson, J. R. (1994). Training a pre-shot routine for golf. *Applied research in coaching and athletics annual, 161-167*.



- Moran, A. P. (1996). *The psychology of concentration in sports performers: A cognitive analysis*. Hove, UK: Psychology Press.
- Moran, A. (2004). *Sport and Exercise Psychology: A Critical Introduction*. Hove: Routledge.
- Murphy, S. (1994). Mental preparation for golf: achieving optimal performance. In A. J. Cochrane and M. R. Farrally (Eds.) *Science and Golf II: Proceedings of the world scientific congress of golf*. London: E and FN SPON.
- Nemati, A. (2009). Memory vocabulary learning strategies and long-term retention. *International Journal of Vocational and Technical Education*, 1(2), 014-0.
- Okoli, C., & Pawlowski, S.D. (2004) The Delphi method as a research tool: An example, design considerations and applications. *Information & Management*, 42(1), 15-19.
- Pelz, D., & Frank, J. (1999). *Dave Pelz's short game bible: Master the finesse swing and lower your score*. New York: Broadway Books.
- Petry, K., Maes, B. & Vlaskamp, C. (2007). Operationalizing quality of life for people with profound multiple disabilities: A Delphi study. *Journal of Intellectual Disability Research*, 51(1), 334-349.
- Pilgrim, J, Kremer, P., & Robertson, S. (2018). The development of a tournament preparation framework for competitive golf: A Delphi study. *European Journal of Sport Science*, 18(7), 930-939.
- Price, J., Gill, D., Etnier, J., & Kornatz, K. (2009). Free-throw shooting during dual-task performance. *Research Quarterly for Exercise and Sport*, 80(4), 718-726.
- Rotella, R. & Bunker, L. (1981). *Mind mastery for winning golf*. Englewood Cliffs, NJ: Pentice-Hall.

- Robertson, S., Kremer, P., Aisbett, B., Trans, J., & Cerin, E. (2017). Consensus on measurement properties and feasibility of performance tests for the exercise and sport sciences: a Delphi study. *Sports Medicine – Open*, 3(1), 1-10.
- Schmidt, R.A (1982). *Motor control and learning*. Champaign, IL. Human Kinetics.
- Singer, R. N. (1988). Strategies and meta-strategies in learning and performing self-paced athletic skills. *Sport Psychologist*, 2, 49-68.
- Singer, R. N. (2002). Pre-performance state, routines, and automaticity: What does it take to realize expertise in self-paced events? *Journal of Sport and Exercise Psychology*, 24, 359-375.
- Southard, D., & Amos, B. (1996). Rhythmicity and preperformance ritual: Stabilizing a flexible system. *Research Quarterly for Exercise and Sport*, 67, 288-296.
- Spielberger, C. D. (1983). *Manual for the State-Trait Anxiety Inventory STAI (Form Y)*. Palo Alto, CA: Consulting Psychologists Press.
- Strand, B., & Craw, M. (2019). PEER Golf: A Four-Part Model for Teaching and Improving Course Management. *Strategies*, 32(6), 18–26.
- Szpunar, K. K., Moulton, S. T., & Schacter, D. L. (2013). Mind wandering and education: From the classroom to online learning. *Frontiers in Psychology*, 4, 495.  
doi:<http://dx.doi.org/10.3389/fpsyg.2013.00495>
- Taylor, J., & Wilson, G. (2005). *Applying sport psychology: Four perspectives*. Champaign, IL. Human Kinetics.
- Tenenbaum, G. (2003). Expert Athletes: An integrated approach to decision making. In J. L. Starkes & K. A. Ericsson (Eds.), *Expert performance in sports*. Champaign, IL: Human Kinetics.

- Thomas, J. A. (2010). *Considering intervention efficacy: The effect of a pre-shot routine on competitive youth golf performance*. (Doctoral dissertation: University of North Carolina at Greensboro).
- Valiante, G. (2005). *Fearless golf: Conquering the mental game*. Doubleday.
- Van der Lei, H. (2010). *Applied Golf Research: Affective States During Golf Performance*. (Doctoral dissertation, Florida State University).
- Van Der Lei, H., Tenenbaum, G., & Land, W. (2016). Individual arousal-related performance zones effect on temporal and behavioral patterns in golf routines. *Psychology of Sport & Exercise*, 26, 52–60.
- Weinberg, R. S. (1988). *The mental advantage*. Champagne, IL: Leisure Press.
- Whelan, J., Myers, A., Berman, J., Bryant, V., & Mellon, M. (1988, October). *Meta-analysis of cognitive-behavioral interventions for performance enhancement in sports*. Paper presented at the 4th annual conference of the Association for the Advancement of Applied Sport Psychology, Nashua, NH.
- Wilson, Mark. (2008). From processing efficiency to attentional control: A mechanistic account of the anxiety–performance relationship. *International Review of Sport and Exercise Psychology*, 1, 184-201.
- Wulf, G. (2007). *Attention and motor skill learning*. Champaign, Illinois: Human Kinetics.
- Wulf, G., Lauterbach, B., & Toole, T. (1999). The learning advantages of an external focus of attention in golf. *Research Quarterly for Exercise and Sport*, 71, 229-239.
- Wulf, G., Mcnevin, N., & Shea, C. (2001). The automaticity of complex motor skill learning as a function of attentional focus. *The Quarterly Journal of Experimental Psychology Section A*, 54(4), 1143–1154.

- Wulf, G., & Su, J. (2007). An external focus of attention enhances golf shot accuracy in beginners and experts. *Research Quarterly for Exercise and Sport*, 78, 384-389.
- Yancey, R. (1977, November). Develop a preshot routine and play better. *Golf Digest*, 115-117.
- Yancey, A., Czech, D., Joyner, B., Zwald, D., and Genter, N. (2011). The experience of preshot routines among professional golfers: An existential phenomenological investigation. *Journal of Excellence*, 14, 48-68.
- Zienius, M., Skarbalius, A., Zuoza, A., & Pukenas, K. (2015). Total time taken and heart rate changes of youth golfers during pre-shot routines in on-course conditions. *International Journal of Performance Analysis in Sport*, 15(2), 560-571.

## APPENDIX A: NORTH DAKOTA STATE UNIVERSITY IRB APPROVAL FORM



June 19, 2020

Dr. Brent Hill  
School of Education

Re: IRB Determination of Exempt Human Subjects Research:  
Protocol #HE20284, "Attaining consensus amongst college golf coaches on the usefulness & utility of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf: A Delphi study."

NDSU Co-investigator(s) and research team: Paul Christianson  
Date of Exempt Determination: 6/19/2020 Expiration Date: 6/18/2023  
Study site(s): Online Funding Agency: n/a

The above referenced human subjects research project has been determined exempt (category 2(ii)) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, Protection of Human Subjects). This determination is based on the revised protocol materials received 6/17/2020 with updated recruitment documents received 6/19/2020.

Please also note the following:

- If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.
- The study must be conducted as described in the approved protocol. Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
- Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
- Report any significant new findings that may affect the risks and benefits to the participants and the IRB.

Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.  
Sincerely,

A handwritten signature in purple ink that reads "Kristy Shirley".

Kristy Shirley, CIP, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult [https://www.ndsu.edu/research/for\\_researchers/research\\_integrity\\_and\\_compliance/institutional\\_review\\_board\\_irb/](https://www.ndsu.edu/research/for_researchers/research_integrity_and_compliance/institutional_review_board_irb/). This Institution has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

#### INSTITUTIONAL REVIEW BOARD

NDSU Dept 4000 | PO Box 6050 | Fargo ND 58108-6050 | 701.231.8995 | Fax 701.231.8098 | [ndsu.edu/irb](https://www.ndsu.edu/irb)

Shipping address: Research 1, 1735 NDSU Research Park Drive, Fargo ND 58102

NDSU is an EQ/AA university.

## APPENDIX B: ROUND 1 SURVEY EMAIL

Dear [FirstName]:

My name is Paul Christianson. I'm a doctoral candidate at North Dakota State University. Based upon your current position as a College Golf Coach in the United States, I would like to invite you to participate in a short survey assessing the utility of the new **STOP S.L.O.W. GO Pre-Shot Routine Model for Golf** that I have developed as part of my doctoral dissertation study.

The survey is voluntary and should not take longer than 10-15 minutes to complete. The feedback that is received by you and fellow College Golf Coaches should help to determine whether or not the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf is a useful tool that College Golf Coaches can utilize in their future golf instruction.

Below is a link to the survey:

<https://www.surveymonkey.com/r/stop-slow-go>

I would appreciate your willingness to complete this short survey to help advance our collective knowledge of effective pre-shot routines in golf.

Please let me know if you have any questions.

All the best,

Paul Christianson, M.S.  
Doctoral Candidate – North Dakota State University  
[paul.christianson@ndsu.edu](mailto:paul.christianson@ndsu.edu)  
(701) 200-9572

## APPENDIX C: CONSENT FORM (ROUND 1)

### STOP S.L.O.W. GO | Pre-Shot Routine Model for Golf (Round 1)

You are being asked to participate in this study based upon your position as a College Golf Coach teaching at the Division I, Division II, Division III, NAIA, NCCAA or USCAA level in the United States.

**Purpose of the Study:** The purpose of this study is to gather feedback to improve the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf and assess its potential utility amongst College Golf Coaches in the future.

**Procedures:** You will be asked to complete a series of questions regarding your thoughts on aspects of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf as it relates to your position as a College Golf Coach. This survey serves as Round 1 of the research study and you may receive future inquiries to complete subsequent rounds based upon the survey results.

**Time Commitment:** It's anticipated that Round 1 of this research study will take you 10-15 minutes to complete.

**Voluntary Choice:** Participation in this study is voluntary and you may choose not to participate or quit at any time without penalty.

**Confidentiality:** All of your answers will remain confidential and only be able to be viewed by the researchers of this study. Upon consenting to participate in this study, you will be asked to provide your name, email address, and the division level of college golf in which you serve as a coach. Your personally identifiable information will be kept private and only be accessible by researchers of this study. All research records will be stored electronically in a password protected Survey Monkey account and never be shared with any third parties.

**Contact Information:** The researcher conducting this study is Paul Christianson. If you have questions regarding this study, please contact him at (701) 200-9572 or paul.christianson@ndsu.edu. The faculty advisor for this study is Dr. Brent Hill, Associate Professor of Education at North Dakota State University. Dr. Hill can be contacted at (701) 231-8664 or brent.hill@ndsu.edu.

**Research Subject Rights:** For any questions regarding research subjects' rights or to file a complaint regarding this research study, contact the North Dakota State University Human Research Protection Office (855) 800-6717 or (701) 231-8995 or ndsu.irb@ndsu.edu. If you have any questions regarding your rights as a research subject, please contact the Office of Compliance at (575) 646-7177.

#### **Informed Consent**

I agree to be a participant in this study.

## APPENDIX D: ROUND 1 SURVEY NON-RESPONSE EMAIL

Dear [FirstName]:

My name is Paul Christianson. I'm a doctoral candidate at North Dakota State University.

Based upon your current position as a College Golf Coach in the United States, I would like to invite you to participate in a short survey assessing the utility of the new **STOP S.L.O.W. GO Pre-Shot Routine Model for Golf** that I have developed as part of my doctoral dissertation study.

The survey is voluntary and should not take longer than 10-15 minutes to complete. The feedback that is received by you and fellow College Golf Coaches should help to determine whether or not the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf is a useful tool that College Golf Coaches can utilize in their future golf instruction.

Below is a link to the survey:

<https://www.surveymonkey.com/r/stop-slow-go>

I would appreciate your willingness to complete this short survey to help advance our collective knowledge of effective pre-shot routines in golf.

Please let me know if you have any questions.

All the best,

Paul Christianson, M.S.  
Doctoral Candidate – North Dakota State University  
[paul.christianson@ndsu.edu](mailto:paul.christianson@ndsu.edu)  
(701) 200-9572



## APPENDIX E: ROUND 1 SURVEY INSTRUMENT

### STOP S.L.O.W. GO | Pre-Shot Routine Model for Golf (Round 1)

You are being asked to participate in this study based upon your position as a College Golf Coach teaching at the Division I, Division II, Division III, NAIA, NCCAA or USCAA level in the United States.

**Purpose of the Study:** The purpose of this study is to gather feedback to improve the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf and assess its potential utility amongst College Golf Coaches in the future.

**Procedures:** You will be asked to complete a series of questions regarding your thoughts on aspects of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf as it relates to your position as a College Golf Coach. This survey serves as Round 1 of the research study and you may receive future inquiries to complete subsequent rounds based upon the survey results.

**Time Commitment:** It's anticipated that Round 1 of this research study will take you 10-15 minutes to complete.

**Voluntary Choice:** Participation in this study is voluntary and you may choose not to participate or quit at any time without penalty.

**Confidentiality:** All of your answers will remain confidential and only be able to be viewed by the researchers of this study. Upon consenting to participate in this study, you will be asked to provide your name, email address, and the division level of college golf in which you serve as a coach. Your personally identifiable information will be kept private and only be accessible by researchers of this study. All research records will be stored electronically in a password protected Survey Monkey account and never be shared with any third parties.

**Contact Information:** The researcher conducting this study is Paul Christianson. If you have questions regarding this study, please contact him at (701) 200-9572 or [paul.christianson@ndsu.edu](mailto:paul.christianson@ndsu.edu). The faculty advisor for this study is Dr. Brent Hill, Associate Professor of Education at North Dakota State University. Dr. Hill can be contacted at (701) 231-8664 or [brent.hill@ndsu.edu](mailto:brent.hill@ndsu.edu).

**Research Subject Rights:** For any questions regarding research subjects' rights or to file a complaint regarding this research study, contact the North Dakota State University Human Research Protection Office (855) 800-6717 or (701) 231-8995 or [ndsu.irb@ndsu.edu](mailto:ndsu.irb@ndsu.edu). If you have any questions regarding your rights as a research subject, please contact the Office of Compliance at (575) 646-7177.

#### Informed Consent

I agree to be a participant in this study.

#### Coach Information

##### Full Name

##### Email Address

##### What level of college golf do you coach?

<input type="checkbox"/> Division I	<input type="checkbox"/> Division II	<input type="checkbox"/> Division III	<input type="checkbox"/> NAIA	<input type="checkbox"/> NCCAA	<input type="checkbox"/> USCAA
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**Do you coach a Men's or Women's college golf team?**

( ) Men's	( ) Women's	( ) Both
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**STOP S.L.O.W. GO | Pre-Shot Routine Model for Golf**

Below is the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf. The model was developed based upon an extensive review of the research that has been conducted to date on pre-shot routines in golf and presents a step-by-step model that golfers can utilize when conducting their pre-shot routines.

The phrase STOP S.L.O.W. GO has been developed to serve as an easily memorable acronym for golfers to remember the six steps of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.

**STOP**

Strategy

Look

Outline

Waggle

**GO**

Step 1: STOP (Mental Trigger)

Stop everything you're thinking about and focus on your next golf shot.

Step 2: STRATEGY (Game Planning)

Plan out the shot you want to hit and select an intended target.

Step 3: LOOK (Visualization)

Visualize the flight that the golf ball will take to reach your intended target.

Step 4: OUTLINE (Motor Programming)

Outline the golf swing you will use for the ball flight you have visualized.

Step 5: WAGGLE (Alignment)

Approach the ball and waggle your body into proper alignment.

Step 6: GO (Execution)

Repeat the golf swing you have outlined to accomplish the ball flight you desire.

In the next section, we will ask you to answer a series of questions regarding the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.

**STOP S.L.O.W. GO (Acronym)**

*STOP*

*Strategy*

*Look*

*Outline*

*Waggle*

*GO*

**STOP S.L.O.W. GO is an easy to remember acronym that college golfers can utilize when completing their pre-shot routines.**

( ) Strongly agree	( ) Agree	( ) Neither agree nor disagree	( ) Disagree	( ) Strongly disagree
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**Can you think of a better acronym than STOP S.L.O.W. GO that college golfers can utilize when conducting pre-shot routines in golf?**

( ) Yes	( ) No
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**[If “yes” to previous question] Please describe the acronym you think works better than STOP S.L.O.W. GO for pre-shot routines in golf.**

### **STOP S.L.O.W. GO Pre-Shot Routine Model**

*Step 1: STOP (Mental Trigger)*

*Stop everything you’re thinking about and focus on your next golf shot.*

*Step 2: STRATEGY (Game Planning)*

*Plan out the shot you want to hit and select an intended target.*

*Step 3: LOOK (Visualization)*

*Visualize the flight that the golf ball will take to reach your intended target.*

*Step 4: OUTLINE (Motor Programming)*

*Outline the golf swing you will use for the ball flight you have visualized.*

*Step 5: WAGGLE (Alignment)*

*Approach the ball and waggle your body into proper alignment.*

*Step 6: GO (Execution)*

*Repeat the golf swing you have outlined to accomplish the ball flight you desire.*

**The STOP S.L.O.W. GO Pre-Shot Routine Model presented above provides a useful model that college golfers can utilize when completing their pre-shot routines.**

( ) Strongly agree	( ) Agree	( ) Neither agree nor disagree	( ) Disagree	( ) Strongly disagree
-----------------------	--------------	-----------------------------------	-----------------	--------------------------

**Can you think of a better pre-shot routine model than STOP S.L.O.W. GO that college golfers can utilize when conducting pre-shot routines in golf?**

( ) Yes	( ) No
------------	-----------

**Please describe a pre-shot routine model you think works better than STOP S.L.O.W. GO for pre-shot routines in golf.**

### Step 1: STOP (Mental Trigger)

*Stop everything you're thinking about and focus on your next golf shot.*

**How useful is Step 1 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.**

( ) Extremely useful	( ) Very useful	( ) Somewhat useful	( ) Not so useful	( ) Not at all useful
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**Do you have any suggestions on how Step 1 could be improved?**

( ) Yes	( ) No
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**Please provide your suggestions on how Step 1 could be improved.**

### Step 2: STRATEGY (Game Planning)

*Plan out the shot you want to hit and select an intended target.*

**How useful is Step 2 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.**

( ) Extremely useful	( ) Very useful	( ) Somewhat useful	( ) Not so useful	( ) Not at all useful
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**Do you have any suggestions on how Step 2 could be improved?**

( ) Yes	( ) No
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**Please provide your suggestions on how Step 2 could be improved.**

### Step 3: LOOK (Visualization)

*Visualize the flight that the golf ball will take to reach your intended target.*

**How useful is Step 3 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.**

( ) Extremely useful	( ) Very useful	( ) Somewhat useful	( ) Not so useful	( ) Not at all useful
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**Do you have any suggestions on how Step 3 could be improved?**

<input type="checkbox"/>	<input type="checkbox"/>
Yes	No

**Please provide your suggestions on how Step 3 could be improved.**

--

**Step 4: OUTLINE (Motor Programming)**

*Outline the golf swing you will use for the ball flight you have visualized.*

**How useful is Step 4 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extremely useful	Very useful	Somewhat useful	Not so useful	Not at all useful

**Do you have any suggestions on how Step 4 could be improved?**

<input type="checkbox"/>	<input type="checkbox"/>
Yes	No

**Please provide your suggestions on how Step 4 could be improved.**

--

**Step 5: WAGGLE (Alignment)**

*Approach the ball and waggle your body into proper alignment.*

**How useful is Step 5 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extremely useful	Very useful	Somewhat useful	Not so useful	Not at all useful

**Do you have any suggestions on how Step 5 could be improved?**

<input type="checkbox"/>	<input type="checkbox"/>
Yes	No

**Please provide your suggestions on how Step 5 could be improved.**

--

### Step 6: GO (Execution)

Repeat the golf swing you have outlined to accomplish the ball flight you desire.

How useful is Step 6 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.

( ) Extremely useful	( ) Very useful	( ) Somewhat useful	( ) Not so useful	( ) Not at all useful
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Do you have any suggestions on how Step 6 could be improved?

( ) Yes	( ) No
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Please provide your suggestions on how Step 6 could be improved.

### College Golf Instruction

Do you currently teach pre-shot routines to golfers on your college golf team?

( ) Yes	( ) No
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Please describe the current pre-shot routines you teach to college golfers on your team.

Why do you not teach pre-shot routines to college golfers on your team?

In its current form, how likely would you be to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model in your college golf instruction?

( ) Very likely	( ) Likely	( ) Neither likely nor unlikely	( ) Unlikely	( ) Very unlikely
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### Final Question

Why would you be very likely to utilize the STOP S.L.O.W. GO pre-shot routine model in your college golf instruction?

**Why would you be likely to utilize the STOP S.L.O.W. GO pre-shot routine model in your college golf instruction?**

**Why are you neither likely nor unlikely to utilize the STOP S.L.O.W. GO pre-shot routine model in your college golf instruction?**

**Are there any changes that could be made to the STOP S.L.O.W. GO pre-shot routine model that would make you very likely to utilize it in your golf instruction?**

**Why are you unlikely to utilize the STOP S.L.O.W. GO pre-shot routine model in your college golf instruction?**

**Are there any changes that could be made to the STOP S.L.O.W. GO pre-shot routine model that would make you very likely to utilize it in your golf instruction?**

**Why are you very unlikely to utilize the STOP S.L.O.W. GO pre-shot routine model in your college golf instruction?**

**Are there any changes that could be made to the STOP S.L.O.W. GO pre-shot routine model that would make you very likely to utilize it in your golf instruction?**

## APPENDIX F: ROUND 2 SURVEY EMAIL

Hi [FirstName],

Thanks so much for taking time to complete Round 1 of our survey on the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.

We have compiled the feedback we received from you and fellow College Golf Coaches and would greatly appreciate if you'd be willing to take 5 minutes to complete the follow up Round 2 survey via the link below.

<https://www.surveymonkey.com/r/stop-slow-go-2>

Please let me know if you have any questions and thanks again for your willingness to participant in this study.

Paul Christianson, MS  
Doctoral Candidate - North Dakota State University  
[paul.christianson@ndsu.edu](mailto:paul.christianson@ndsu.edu)  
(701) 200-9572



## APPENDIX G: CONSENT FORM (ROUND 2)

### STOP S.L.O.W. GO | Pre-Shot Routine Model for Golf (Round 2)

You are being asked to participate in this Round 2 survey based upon your previous participation in our Round I survey.

[CLICK HERE](#) to review the results from the Round I survey.

**Purpose of the Study:** The purpose of this Round 2 survey is to gather additional feedback to improve the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf and assess its potential utility amongst College Golf Coaches in the future.

**Procedures:** You will be asked to complete a series of follow up questions regarding your thoughts on aspects of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf as it relates to your position as a College Golf Coach. This survey serves as Round 2 of the research study and you may receive future inquiries to complete subsequent rounds based upon the survey results.

**Time Commitment:** It's anticipated that Round 2 of this research study will take you 5 minutes to complete.

**Voluntary Choice:** Participation in this study is voluntary and you may choose not to participate or quit at any time without penalty.

**Confidentiality:** All of your answers will remain confidential and only be able to be viewed by the researchers of this study. Upon consenting to participate in this study, you will be asked to provide your name, email address, and the division level of college golf in which you serve as a coach. Your personally identifiable information will be kept private and only be accessible by researchers of this study. All research records will be stored electronically in a password protected Survey Monkey account and never be shared with any third parties.

**Contact Information:** The researcher conducting this study is Paul Christianson. If you have questions regarding this study, please contact him at (701) 200-9572 or [paul.christianson@nds.edu](mailto:paul.christianson@nds.edu). The faculty advisor for this study is Dr. Brent Hill, Associate Professor of Education at North Dakota State University. Dr. Hill can be contacted at (701) 231-8664 or [brent.hill@nds.edu](mailto:brent.hill@nds.edu).

**Research Subject Rights:** For any questions regarding research subjects' rights or to file a complaint regarding this research study, contact the North Dakota State University Human Research Protection Office (855) 800-6717 or (701) 231-8995 or [nds.edu.irb@nds.edu](mailto:nds.edu.irb@nds.edu). If you have any questions regarding your rights as a research subject, please contact the Office of Compliance at (575) 646-7177.

#### Informed Consent

[X] I agree to be a participant in this study.

**APPENDIX H: ROUND 2 SURVEY NON-RESPONSE EMAIL (FIRST ATTEMPT)**

Hi [FirstName],

If you have an extra 5 minutes, we would greatly appreciate it if you could take the Round 2 survey for the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf via the link below.

Your response is vital in determining whether or not the suggested improvements received in Round 1 help to improve the usefulness and future utility of the model amongst College Golf Coaches.

<https://www.surveymonkey.com/r/stop-slow-go-2>

Thanks for your support and willingness to provide feedback. We greatly appreciate your time.

Paul Christianson, MS  
Doctoral Candidate - North Dakota State University  
[paul.christianson@ndsu.edu](mailto:paul.christianson@ndsu.edu)  
(701) 200-9572

**APPENDIX I: ROUND 2 SURVEY NON-RESPONSE EMAIL (SECOND ATTEMPT)**

Hi [FirstName],

I'm writing to see if you'd be willing to take 5 minutes out of your day to complete the Round 2 survey for the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf?

<https://www.surveymonkey.com/r/stop-slow-go-2>

Since you participated in the first round, your participation in Round 2 is vital to ensure that we can collect the highest quality feedback for the study.

We greatly appreciate your willingness to participate in this study and look forward to sharing the final results with you in the future.

All the best,  
Paul Christianson, A.B.D.  
[paul.christianson@ndsu.edu](mailto:paul.christianson@ndsu.edu)

## APPENDIX J: ROUND 2 SURVEY INSTRUMENT

### STOP S.L.O.W. GO | Pre-Shot Routine Model for Golf (Round 2)

You are being asked to participate in this Round 2 survey based upon your previous participation in our Round 1 survey.

[CLICK HERE](#) to review the results from the Round 1 survey.

**Purpose of the Study:** The purpose of this Round 2 survey is to gather additional feedback to improve the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf and assess its potential utility amongst College Golf Coaches in the future.

**Procedures:** You will be asked to complete a series of follow up questions regarding your thoughts on aspects of the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf as it relates to your position as a College Golf Coach. This survey serves as Round 2 of the research study and you may receive future inquiries to complete subsequent rounds based upon the survey results.

**Time Commitment:** It's anticipated that Round 2 of this research study will take you 5 minutes to complete.

**Voluntary Choice:** Participation in this study is voluntary and you may choose not to participate or quit at any time without penalty.

**Confidentiality:** All of your answers will remain confidential and only be able to be viewed by the researchers of this study. Upon consenting to participate in this study, you will be asked to provide your name, email address, and the division level of college golf in which you serve as a coach. Your personally identifiable information will be kept private and only be accessible by researchers of this study. All research records will be stored electronically in a password protected Survey Monkey account and never be shared with any third parties.

**Contact Information:** The researcher conducting this study is Paul Christianson. If you have questions regarding this study, please contact him at (701) 200-9572 or [paul.christianson@ndsu.edu](mailto:paul.christianson@ndsu.edu). The faculty advisor for this study is Dr. Brent Hill, Associate Professor of Education at North Dakota State University. Dr. Hill can be contacted at (701) 231-8664 or [brent.hill@ndsu.edu](mailto:brent.hill@ndsu.edu).

**Research Subject Rights:** For any questions regarding research subjects' rights or to file a complaint regarding this research study, contact the North Dakota State University Human Research Protection Office (855) 800-6717 or (701) 231-8995 or [ndsu.irb@ndsu.edu](mailto:ndsu.irb@ndsu.edu). If you have any questions regarding your rights as a research subject, please contact the Office of Compliance at (575) 646-7177.

#### Informed Consent

I agree to be a participant in this study.

## Coach Information

**Full Name**

**Email Address**

**What level of college golf do you coach?**

<input type="checkbox"/> Division I	<input type="checkbox"/> Division II	<input type="checkbox"/> Division III	<input type="checkbox"/> NAIA	<input type="checkbox"/> NCCAA	<input type="checkbox"/> USCAA
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**Do you coach a Men's or Women's college golf team?**

<input type="checkbox"/> Men's	<input type="checkbox"/> Women's	<input type="checkbox"/> Both
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### STOP S.L.O.W. GO Pre-Shot Routine Model

The STOP S.L.O.W. GO Pre-Shot Routine Model has been revised based on the feedback received in the Round 1 survey. Please review the revised model and answer the question below.

Step 1: STOP (Mental Trigger)

Stop and focus on your next golf shot.

Step 2: STRATEGY (Game Planning)

Plan out the shot you want to hit and select an intended target.

Step 3: LOOK (Visualization) Visualize your golf shot.

Step 4: OUTLINE (Motor Programming)

Outline the swing path you will use for the golf shot you have visualized.

Step 5: WAGGLE (Alignment)

Position your body into proper alignment.

Step 6: GO (Execution)

Swing along the path you have outlined to hit the golf shot you desire.

**The STOP S.L.O.W. GO Pre-Shot Routine Model presented above provides a useful model that college golfers can utilize when completing their pre-shot routines.**

<input type="checkbox"/> Strongly agree	<input type="checkbox"/> Agree	<input type="checkbox"/> Neither agree nor disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Strongly disagree
--	-----------------------------------	--	--------------------------------------	---

**Step 1: STOP (Mental Trigger)**

*Stop and focus on your next golf shot.*

**How useful is Step 1 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.**

( ) Extremely useful	( ) Very useful	( ) Somewhat useful	( ) Not so useful	( ) Not at all useful
----------------------------	-----------------------	---------------------------	-------------------------	-----------------------------

**Step 2: STRATEGY (Game Planning)**

*Plan out the shot you want to hit and select an intended target.*

**How useful is Step 2 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.**

( ) Extremely useful	( ) Very useful	( ) Somewhat useful	( ) Not so useful	( ) Not at all useful
----------------------------	-----------------------	---------------------------	-------------------------	-----------------------------

**Step 3: LOOK (Visualization)**

*Visualize your golf shot.*

**How useful is Step 3 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.**

( ) Extremely useful	( ) Very useful	( ) Somewhat useful	( ) Not so useful	( ) Not at all useful
----------------------------	-----------------------	---------------------------	-------------------------	-----------------------------

**Step 4: OUTLINE (Motor Programming)**

*Outline the swing path you will use for the golf shot you have visualized.*

**How useful is Step 4 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.**

( ) Extremely useful	( ) Very useful	( ) Somewhat useful	( ) Not so useful	( ) Not at all useful
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**Step 5: WAGGLE (Alignment)**

*Position your body into proper alignment.*

**How useful is Step 5 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.**

( ) Extremely useful	( ) Very useful	( ) Somewhat useful	( ) Not so useful	( ) Not at all useful
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**Step 6: GO (Execution)**

*Swing along the path you have outlined to hit the golf shot you desire.*

**How useful is Step 6 in the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf.**

( ) Extremely useful	( ) Very useful	( ) Somewhat useful	( ) Not so useful	( ) Not at all useful
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**College Golf Instruction**

**In its current form, how likely would you be to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model in your college golf instruction?**

( ) Very likely	( ) Likely	( ) Neither likely nor unlikely	( ) Unlikely	( ) Very unlikely
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**Final Question**

**Please answer the statement below.**

**I would be more likely to utilize the STOP S.L.O.W. GO Pre-Shot Routine Model in my future college golf instruction if the designer of the model conducted a face-to-face educational session with me and the college golfers on my team.**

( ) Strongly agree	( ) Agree	( ) Neither agree nor disagree	( ) Disagree	( ) Strongly disagree
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## APPENDIX K: QUALITATIVE DATA ANALYSIS

**Blue Highlight = Qualitative feedback that was categorized during codification and utilized for improvements to the STOP S.L.O.W. GO Pre-Shot Routine Model for Golf for Round 2.**

**Can you think of a better acronym than STOP S.L.O.W. GO that college golfers can utilize when conducting pre-shot routines in golf? Please describe the acronym you think works better than STOP S.L.O.W. GO for pre-shot routines in golf.**

Observe. Analyze. Commit. React. (O.A.C.R.)

**Can you think of a better pre-shot routine model than STOP S.L.O.W. GO that college golfers can utilize when conducting pre-shot routines in golf?**

We utilize "quiet eye" research to help transition from left brain to right brain immediately before hitting the shot

Vision 54

The word model is what gets in the way. Pre-shots are individually decided upon and while your suggested steps sound great, I'm not sure they are for everyone. Also, one question, exactly how do you stop thoughts?

It would vary from player to player, depending on skill level. While I agree with the premise, some might need more time in certain areas or do things a bit differently. As a broad approach, this covers everything, but what gets lost is the individual approach.

Not sure I agree with the "outline swing" phrase. The other aspects are good.

**Please provide your suggestions on how Step 1 could be improved.**

Stop has a slight negative inference. Focus or sharpen might be more positive?

**Please provide your suggestions on how Step 2 could be improved.**

There is more to getting set up than waggle. Waggle is good, and it relaxes and frees up. The player may need to pay more attention to getting set up properly

*Panelist later referred to this in Step 5 response.*



**Please provide your suggestions on how Step 3 could be improved.**

Some prefer to visualize the flight, some prefer to simply visualize where the ball is coming down on the green.

From experience some players don't visualize the flight but still visualize "something" May be restrictive as you've defined it for some players

Visualize your shot - less is better

If you don't see the shot, you might be a player who feels the shot or a player who simply reacts to an athletic idea of a target, such as a basketball player turning and shooting or a shortstop fielding and throwing to a target.

**Please provide your suggestions on how Step 4 could be improved.**

Would recommend a different word. "Outline" doesn't seem to capture what's actually happening. Swing feel or feel would be more appropriate. Realize this doesn't help with the acronym.

Not sure what is meant by outline intended swing. I would like to think that would happen more naturally. This is definitely something that would vary from person to person. Like the ability to visualize. Not saying its bad. But i dont think one size fits all

Vision 54 (Play Box)

How Ould this be accomplished?

**Please provide your suggestions on how Step 5 could be improved.**

Needs to be more defined to occupy their thoughts during the alignment phase

Should already be in proper alignment. Ideally waggle is a trigger. Maybe you mean, waggle while staying in proper alignment. Many times too much waggle causes alignment issues.

See earlier comment *There is more to getting set up than waggle. Waggle is good, and it relaxes and frees up. The player may need to pay more attention to getting set up properly*

Not every player waggles. I understand that this fits within the acronym, but it's more about go triggers and players would need to understand that the waggle is based on their triggers and doesn't necessarily mean a true waggle.

waggle the club to reduce grip pressure also will help lessen tension build up in arms, shoulders and back.

I'm not a big fan of the term waggle but if that's the term you prefer I'd say go with it.

**Please provide your suggestions on how Step 6 could be improved.**

I like the use of "go". I don't like the repeat suggestion. Players create swings. Too much talk about what should be innate overall.

You should not have to think that much

This could cause them to play with a "swing thought" instead of letting their body repeat the swing they just programmed into their brain

**Please describe the current pre-shot routines you teach to college golfers on your team.**

Pre-shot routines are fairly unique from player to player. I help refine what each player has developed rather than look for the same routine in each player. There is an element of basic structure necessary, which your acronym does help with for a player who is struggling to execute shots consistently.

Don't have one specific one for everyone, but try to help them individually come up with a consistent routine that works for them and is repeatable.

1. Pick a target 2. Number of looks at target and ball 3. Hit the shot

Lots of focus on the "planning of the shot". Use the vision 54 framework of think box play box memory box as a loose guide.

I teach a method that Lanny Bassham teaches. The routine starts with decision-making and practice/rehearsal swings. Then we have a point of initiation that starts the mental part of our routine. After that the golfer aligns herself and takes 1-3 looks at the target. As her eyes refocus on the golf ball, we utilize a point of focus which is typically a phrase we say as our eyes are focused on the golf ball to allow transition from left brain to right brain and then we swing.

get yardage and be confident of club based on wind and yardage before approaching shot routine. Full practice swing and vision ball flying to target. Set up to hit ball. Bring club back and basically repeat a saying like Red Light AS YOU BRING CLUB BACK. GREEN LIGHT WHEN YOU ARE READY TO SWING. ONLY THOUGHT IS TO FINISH SWING WITH BALANCE AND BELLY BUTTON TO TARGET AND POSE.

Vision 54 Think Box Play Box Memory Box

Varies by player, depending on personality. The ones who can process more data can go through more steps prior to execution, but we have to get the ball in the air much quicker for the ones you can't do so. We build everything off of a Decide-Commit-Execute model with varying steps under each heading, depending on the player.

select a line, visualize the shot, commit to the shot, analyze the results

As long as it is consistent and they do it each time they can be a bit different. start behind the ball, Check wind, club selection, visualize, commit and pull the trigger

No one specific routine, we find what works for the individual player.

Creating a sensory cue to connect them to their "muscle memory" Each players is different and tailored to how they prefer to approach the shot.

Build a strategy Commit/visualize run a mindset program to get aligned and not allow thoughts in execute the shot evaluate the shot outcome and build a solution if they have the same situation in the future

they all have their own which I support as long as it builds confidence and is consistent

Gather information, make a decision, then act with conviction.

O.A.C.R Observe (gather data) Analyze (decide) Commit (enter non cognitive state) React (let it fly)

We talk about calming breaths relaxation, visualization and execution.

It varies but it relies more on a think box/play box approach

There is no set philosophy for each players. We take where they are and go from there. It is important to have one for sure. But it is not "one size fits all"

Varies by player but has much of the same general philosophy as you have outlined One size fits all is hard to apply in golf. It is very personal. For instance, some will see the shot or feel the swing much easier than others. They will see more of the shot with clarity. Some will struggle and only be able to see the last little bit or may just need to focus on target

### **Why do you not teach pre-shot routines to college golfers on your team?**

Its on a case by case basis.

everyone player has a different pre shot routine.

It's not about me and what I'm teaching. It's about what the player uses to get ready to hit shots. They should teach me what they do, not visa versa.

Most all my guys have very good preshot routines

**Why would you be very likely to utilize the STOP S.L.O.W. GO pre-shot routine model in your college golf instruction?**

No responses.

**Why would you likely to utilize the STOP S.L.O.W. GO pre-shot routine model in your college golf instruction?**

It's very simple and to the point.

I'm willing to try anything that has potential to help a player.

I would use it if it works for an individual player. If it works for them, great. If not, we will find something else or use parts of STOP S.L.O.W. Go.

It's similar to what I've done for years

It is a very specific method that could be used for both feel players and technical players

**Why are you neither likely nor unlikely to utilize the STOP S.L.O.W. GO pre-shot routine model in your college golf instruction?**

It may be something I would introduce to a player who clearly has a disconnect between their practice performance and playing performance. To help articulate what the pre-shot routine is trying to accomplish. Most of our players already have a solid routine in place before they enter college.

It all depends on the player.

Maybe

I think it's a great idea, I would just have to try it out to see if it's more helpful than what our players are currently using. I just need to sample it.

Some of our players already have a set pre-shot routine, others have difficulty clearing their mind and making timely decisions

I like the STOP part to get them to drop their other thoughts. But I would use our pre-shot routine from there

because all my players have their own individual routines, if they are struggling with their routine I may suggest elements of yours to try

Pre shot is important, and again I agree with the premise. But it would be up to what a player would need and it's not a one size fits all.

I'm worried about the slow play connotations. I think it is better to divide the routine into thinking segments and playing segments

It could be great for some. Not so great for others.

I will continue to use the same philosophies which are similar to Stop slow go. I may use stop slow go if I get a sense that a player will resonate with the words Will contribute to encourage focus at the outset (stop); consider all variables (s), pick one shot (l), feel the action (o), set up well and loose (w) and cut it loose (go)

**Are there any changes that could be made to the STOP S.L.O.W. GO pre-shot routine model that would make you very likely to utilize it in your golf instruction?**

I think each player is unique and have found that one process does not work for all. For example, there are studies which suggest that selecting a minute target in the distance can help some players but can be detrimental for others. However there is a basic framework here that could be effective for many developing players.

maybe more focus on the actual decision making and visualization parts to make sure they are factoring in what they should to make their decisions

The more simple the better.

No

No

Really would come down to if our players find it helpful and consistent with what they do.

I would have to think about that for a while

No

I would also add a post shot routine. How does a player reflect on the shot (process) and how can they use that information moving on through the round.

**Why are you unlikely to utilize the STOP S.L.O.W. GO pre-shot routine model in your college golf instruction?**

I can coach someone through this without remembering an acronym.

Acronym seems confusing. Words don't match the actions very well.

to much to think about

I use a different model

**Are there any changes that could be made to the STOP S.L.O.W. GO pre-shot routine model that would make you very likely to utilize it in your golf instruction?**

I dont know.

Changing the words and acronym possibly.

Simplify

No, similar just different than mine

**Why are you very unlikely to utilize the STOP S.L.O.W. GO pre-shot routine model in your college golf instruction?**

Very happy with the current method I teach

Giving yourself verbal instruction to do a motor skill is not very effect. "Outline swing"

The clues are in my previous comments.

**Are there any changes that could be made to the STOP S.L.O.W. GO pre-shot routine model that would make you very likely to utilize it in your golf instruction?**

Define the "Outline swing" piece in more detail.