

THE CHARACTERISTICS THAT DIFFERENTIATE EXPERT, COMPETENT, AND BEGINNER STRENGTH AND CONDITIONING COACHES

by

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(Under the Direction of Paul G. Schempp)

ABSTRACT

The purpose of this study was to identify the skills, knowledge, and experiences differentiating expert, competent, and beginner strength and conditioning (S&C) coaches. The participants were 87 elite-level head S&C coaches with an average of over 18 years of coaching experience. These coaches were employed by teams from the MLB, NBA, NFL, NHL, NCAA Division 1 FBS “Power Five” conferences, United States National Teams, and the Australian Football League. This study used both a qualitative and quantitative research design through the use of the Delphi method, which incorporated three rounds of surveys.

The first-round survey asked the participants to identify at least one important skill, knowledge area, and experience that should be possessed by an expert, competent, or beginner S&C coach respectively. The researcher then associated the 1,181 characteristics provided by the participants with a specific theme which then generated 68 aggregated characteristics that were peer debriefed. These characteristics were placed on a second-round survey. A five-point Likert scale asked the participants to rate how important it is for a coach to possess each characteristic. During this round, participants were also offered open-ended response boxes to provide additional feedback. If a characteristic received a suggestion for rephrasing, and did not reach a

level of consensus, or an entirely new characteristic was suggested, then it was placed on the final-round survey to be rated again. Characteristics that reached a level of consensus were placed on the final list of characteristics.

Following the three rounds of data collection and analysis a total of 57 characteristics reached a level of consensus and were placed on the final list of characteristics. Until this point it has not been fully understood how to define the qualities of expert, competent, and beginner S&C coaches. As a result, those looking to select, evaluate, or develop a S&C coach have lacked a comprehensive and systematic approach to their assessment. The results from this study may assist personnel looking to make these assessments such as S&C coaches, athletic directors, and head team sport coaches.

INDEX WORDS: Strength and conditioning, Coach, Expert, Delphi method, Characteristics, Evaluation, Development, Selection, Skills, Knowledge, and Experience

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DEDICATION

This work is dedicated to all who have supported me through this tremendous process. This list could be endless because there are so many people that I would like to thank, so I would just like to give extra recognition to a few that have helped me over these past three years. I would like to thank my mom, my dad, Adam, Emily, Rudy, Papa, Chris, Melvin, A.J., and Bowers. It is thanks in large part to their love and support during my time at the University of Georgia (UGA) that I have enjoyed my time here so much and accomplished as much as I have. I would like to thank Dr. Schempp, who I cannot thank enough for providing me with the incredible opportunity to be mentored by him. It is due to Dr. Schempp that I am here at UGA, and I have learned so much from him during my time here. In addition, I would like to thank Dr. McCullick for all that he has taught me especially through his courses and his feedback on my teaching. Both Dr. Schempp and Dr. McCullick challenged me to be the best that I could be and they were always willing to sacrifice their time to help me in any way that they could; and I will be forever grateful for that. In addition, I would like to thank Dr. Mason who provided me with the incredible opportunity to teach and work for her. Also, I would like to thank the strength and conditioning coaches and athletes with UGA's Olympic Sports, particularly Kat, who has mentored me and provided me with the incredible opportunity to work in the Olympic Sports weight room over these past three years. These rare opportunities through Dr. Mason and Kat allowed me to directly apply the pedagogical knowledge I gained through my coursework, teaching, and research in a practical setting, which immensely aided in my development as a teacher and a coach, and I am extremely grateful for this.

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CHAPTER 1

INTRODUCTION

Not long ago it was believed that lifting weights caused a person to become slow and muscle-bound (Todd, 2008; Shurley and Todd, 2011). During his time in the Army, Al Roy was the first to realize that weightlifting actually helped a person become more flexible and faster. He came to this realization in 1946 while serving as an assistant for the United States weightlifting team. He observed a weightlifter named John Davis perform backflips with 50-pound dumbbells in his hands and perform a standing broad jump of over 11 feet. In 1954 Roy took his newfound knowledge and looked to apply it to an athletic team and reluctantly the Istrouma High School football team allowed him to put their team through a weightlifting program. From one offseason of training the team went from being beaten easily by their cross-town rival to winning all 13 games along with four players earning all-state honors. The star player of Istrouma High, Billy Cannon, went on to play at Louisiana State University (LSU). Roy followed and convinced the head coach at the time, Paul Dietzel, that his team would benefit from a weightlifting program. Predicted to finish ninth in the conference, LSU remarkably finished the season undefeated. Cannon won the Heisman Trophy and improved his 100-yard dash time from 9.7 seconds to 9.4 seconds while gaining 40 pounds (Todd, 2008). These were the results of the first known high school and collegiate strength and conditioning (S&C) coach.

The field of S&C has grown exponentially since Roy first persuaded Istrouma High to allow him to train their football players. In 1969, the University of Nebraska hired Boyd Epley as the first full-time S&C coach. This hire still took some convincing of the Cornhusker head

football coach, Bob Devaney, who said to Epley, “If anyone gets slower, you’re fired.” Epley went on to help the team improve after just one offseason of training from two consecutive six win and four loss seasons to a nine win and two loss record. This was followed by consecutive national championships in 1970 and 1971 (Shurley and Todd, 2011).

Over 40 years later, every professional and elite-level college athletic program had a S&C coaching staff. S&C coaches became recognized as vital components of collegiate player development as the National Collegiate Athletic Association (NCAA) allowed these coaches to spend many hours in the offseason with athletes even though there are restrictions on the amount of time the head team sport coach could spend with the athlete (Ayers, Pazmino-Cevallos, and Dobose, 2012).

Certifications have been instituted by organizations such as the National Strength and Conditioning Association (NSCA) and Collegiate Strength and Conditioning Coaches Association (CSCCa) (NSCA certification, n.d.; SCCC certification process, n.d.). Job applications have shown that teams and schools have started requiring that a strength coach is a Certified Strength and Conditioning Specialist (CSCS) by the NSCA or is Strength and Conditioning Coach Certified (SCCC) by the CSCCa. To earn a CSCS one must have earned an undergraduate degree and passed a written exam consisting of a scientific foundations and practical/applied section (Certified Strength, n.d.). To earn a SCCC one must currently be working full-time in a S&C program or be a student preparing to work full-time as a S&C coach and pass a written test similar to the CSCS along with perform a practical component (SCCC Certification, n.d.). A coach possessing at least one of these certifications is meant to demonstrate that the coach has a baseline level of knowledge of the components involved with S&C (NSCA certification, n.d.; SCCC certification process, n.d.).

Since 1980, beginning with Boyd Epley, the NSCA began providing an annual College S&C Coach of the Year Award. More recently they began awarding high school and professional S&C coach of the year awards (NSCA awards, n.d.). The winners of these awards have been nominated and chosen by NSCA members. All candidates for these awards have become a CSCS through the NSCA and have been recognized for “improving athletic performance with safe and effective science-based programs” (NSCA awards, n.d.).

When we have studied team sport head coaches, the best of the best have achieved a certain winning percentage, have a certain number of years of coaching experience, coached athletes that achieved notable success, have relevant certifications, and have won coach of the year honors (Bloom and Salmela, 2000; Côté et al., 1995; Sarı & Soyer, 2010; Saury & Durand, 1998; Schempp, Templeton, & Clark, 1998). A specific example, when selecting expert Ladies Professional Golf Association (LPGA) instructors, Schempp, Templeton, and Clark (1998) defined experts as having 20-25 years of golf instruction experience, were LPGA certified, had won formal recognition in the form of national-level awards and honors for their teaching accomplishments (e.g., LPGA Teacher of the Year, Golf Magazine’s Top 100 Instructors in America, Golf for Women Top 50), and had taught students who had achieved notable success in golf. If a list of characteristics were compiled to describe an expert S&C coach what would it look like?

Problem

A formal measure used to select, evaluate, and develop S&C coaches does not currently exist. This points to the need for compiling a list of criteria capable of differentiating expert, competent, and beginner S&C coaches in the field.

Differentiating the characteristics of expert, competent, and beginner S&C coaches will support the selection, evaluation, and development of S&C coaches.

Purpose of the Study

The purpose of this study is to identify the characteristics differentiating expert, competent, and beginner S&C coaches. The findings of this study will support the selection, evaluation, and development of both current and future S&C coaches. Specifically, the data generated through this study could be used to help someone in defining the qualities of a S&C coach they are seeking to hire; in evaluating a current S&C coach's progress to consider a possible promotion; to recognize a coach for the purpose of awarding a "coach of the year" honor; or to help a S&C coach who is looking for ways to develop their skills, knowledge, and experiences in order to ultimately become an expert S&C coach.

Research Question

What are the characteristics that differentiate expert, competent, and beginner S&C coaches?

Overview of Following Chapters

Chapter Two

A review of the related literature that includes characteristics of experts, characteristics differentiating experts and beginners, characteristics of expert coaches, and research on S&C coaches.

Chapter Three

The methods of the investigation are described in chapter three.

Chapter Four

Chapter four provides the first-round findings of the study.

Chapter Five

Round two findings are discussed in chapter five.

Chapter Six

Chapter six provides the third-round and final results of the study.

Chapter Seven

Discussion and recommendations for future research are provided in chapter seven.

CHAPTER 2

REVIEW OF LITERATURE

The purpose of this study is to identify the characteristics differentiating expert, competent, and beginner S&C coaches. To this point there is little research to define the characteristics of expert, competent, and beginner S&C coaches. Due to this lack of research those looking to select, evaluate, or develop a S&C coach lack an adequate amount of researched information that would support their decisions. This information may be especially useful to personnel looking to make these assessments such as athletic directors or head team sports coaches that may have little to no S&C knowledge. Even those with extensive S&C coaching experience and knowledge can find this information extremely valuable to support an evaluation they are making and to help provide themselves with information on how they can set goals to develop as a S&C coach. The purpose of this literature is to summarize contemporary scholarship regarding characteristics of experts, characteristics differentiating experts and beginners, characteristics of expert coaches, and research on S&C coaches.

Contemporary scholarship was assembled, reviewed, and summarized in accordance with the purpose of this study. This review was conducted by searching the SPORTDiscus and Physical Education Index databases. Additionally, *The Journal of Strength & Conditioning Research*, *Strength and Conditioning Journal*, *Journal of Sports Sciences*, *International Journal of Sports Science and Coaching*, and references to scholarly articles found in both the databases and journals were analyzed. Keywords and phrases used throughout this search included: expertise, expert coach, coaching effectiveness, expert S&C coach, and how to determine the

best. Themes for this study were determined by reading through the researched articles, making notes of the characteristics that are possessed by expert coaches and teachers, and then reviewing these characteristics to determine those that are most prevalent.

Characteristics of Experts

Schempp, Tan, and McCullick (2002) attempted to conduct similar studies across a wide range of teachers in order to find a common set of characteristics of expert teachers. These studies included professional baseball and major league hitting instructors in the United States of America (USA), Teachers of the Year from the Ladies Professional Golf Association, Golf Magazine's Top 100 Instructors in America, public school Physical Education Teachers of the Year, an expert dance instructor, a five-time national champion gymnastics coach, and internationally recognized tennis teaching professionals. Schempp, Tan, and McCullick (2002) found that expert teachers have more knowledge in the subject than most teachers in regard to their students, the subjects, or instructing students. These experts will use any available resource to benefit their teaching. Having knowledge allows the expert teacher to find "a variety of ways of communicating the concepts to students, devise remedial activities for students having difficulties, and to quickly assess a student's current skill level and potential ability" (Schempp, Tan, and McCullick, 2002, p. 100). The authors go further to say that expert teachers have knowledge that is prioritized to help them remember important information. They do this by "chunking" new information with information that they had learned previously. According to Schempp, Tan, and McCullick (2002) it takes deliberate practice of teaching skills and an honest appraisal of teaching skills to become an expert teacher. These expert teachers are driven by a desire to use their skill set to teach their students new skills so that they can master these skills. This research begins to demonstrate that expert teachers, no matter if they are dance instructors

or tennis teaching professionals, share a certain level of knowledge and skill that they have acquired through years of experience in their respective profession.

A similar study to determine the characteristics of expert managers was conducted by a three-member group of researchers at Google that consisted of, Jennifer Kurkosi, Brian Welle, and Neal Patel (Gavin, Wagonfield, and Kind, 2013). This group, referred to as the People and Innovation Lab (PiLab), conducted a multiyear research project called Project Oxygen in order to determine the key characteristics of expert managers. This research included reviewing data that had already been collected when employees left Google to see if management issues were cited as one of the reasons for leaving. These sources of information included satisfaction scores, Great Manager Award nominations, a cross-section of high-scoring and low-scoring people managers based on Googelgeist survey comments, and ratings and performance review scores. The researchers coded this information and identified the eight characteristics of the best performing managers. These characteristics included: being a good coach, empowers the team and does not micromanage, being productive and results-oriented, expressing interest/concern for team members' success and personal well-being, being a good communicator – listens and shares information, having a clear vision/strategy for the team, and having key technical skills that help him/her advise the team. From this list of characteristics, a manager's level of performance is rated based on the number of characteristics that they exhibit. These characteristics have since been used to evaluate Google managers and the average overall score for managers at Google rose from 83 percent in 2010 to 88 percent in 2012. This points to the potential benefit of establishing a list of characteristics of experts that can then be used to evaluate, select, and develop those in the respective field.

Characteristics Differentiating Experts and Beginners

Fix, Wiedenbeck, and Scholtz (1993) studied 20 novice and 20 expert programmers. The 20 novice programmers were undergraduate students who had recently completed a first semester Pascal Course while the experts were professional programmers with a median of seven years of experience. The participants studied a computer program for 15 minutes and then answered questions in a question booklet to see if five abstract characteristics of the mental representation of computer programs was formed. These characteristics included: hierarchical structure, explicit mapping of code to goals, foundation on recognition of recurring patterns, connection of knowledge, and grounding in the program text. There was evidence of the existence of all characteristics in the experts while novices possessed poorly developed beginnings of these characteristics. The results of this study show that these experts, along with having more experience, also have a greater amount of knowledge and skills, than the novices.

Perez and Emery (1995) conducted a similar study to identify the differences between expert and novice instructional designers. The researchers first interviewed four experts in the field of training development and then five expert and four novice instructional designers in a think aloud task. The results showed that experts spent more time solving the problem, interpreted the problem, used less learner-control strategies, and considered a large number of factors in combination with one another. Novices on the other hand, identified the problem, considered fewer factors, and then only one factor at a time. This study further shows the differences in expert and novice skill sets and areas of knowledge in another field of study.

Differences between experts, intermediates, and beginners were also noticed by McKeithen, Reitman, Rueter, and Hirtle (1981) when they studied a perception task and a short-term recall task of computer programmers. A total of 53 subjects of three different skill levels

were tested; which included six expert, 23 intermediates, and 24 beginners. These subjects were shown a 31-line ALGOL W computer program in either scrambled or normal version five times for two-minute trials and then they were asked to write as much as they could remember about the program on a blank sheet of paper. By counting the number of lines of code written verbatim, the researchers were able to notice a difference on more than just the first trial. Noticing this difference in more than just the first trial is different than Chase and Simon (1973) observed in the game of chess and Reitman (1976) for the game of Go. Analysis of the data showed that the expert programmers had a superior recall in the normal version of the program. The correlation between expertise and superior recall found in this study has been found in previous studies as well, such as Love (1977).

A similar study by McKeithen, Reitman, Rueter, and Hirtle (1981) looked to see the differentiating factors between 22 computer programmers; eight experts, six intermediates, and eight beginners in a free-recall, free-learning task using cards. Similarly, experts produced very similar results that were based on how they organized the information according to their programming knowledge. Intermediates displayed a variety of programming and common-language associations while beginners showed a variety of common-language associations only. The authors attribute the experts' superior skill in recalling to their skill of organizing information into meaningful chunks. The difference in ability between experts and novices to process large amounts of information has been seen in other studies as well for the subjects of electronics, bridge, music, and physics (Charness, 1976; Egan & Schwartz, 1979; Engle & Bukstel, 1978; Larkin, McDermott, Simon, & Simon, 1980; Sloboda, 1976).

Characteristics of Expert Coaches

A study by Nash and Sproule (2011) found that when comparing an expert swim coach and a novice swim coach, the expert coach gained more from experiences than the novice coach. The authors make a point here that experience alone does not make a coach an expert, it is what is gained from these experiences that determines their expertise. The authors suggest that in order to help coaches become more receptive to learning experiences, self-determination should be encouraged and developed within coaching education courses.

Vallée and Bloom (2005) found from interviewing expert Canadian female university coaches that there are four key characteristics common among the coaches; a) they possessed a variety of personal attributes that allowed them to display appropriate leadership behaviors based on the situation at hand, b) they had a personal desire to foster their players' individual growth, c) they were able to get the players to buy into their goals, philosophy, and personality in order to achieve success, and finally, d) these coaches had organizational skills that allowed them to plan their season and games.

In a study of expert French sailing coaches preparing for the 1996 Olympic Games in Atlanta, coaching knowledge was studied by Saury and Durand (1998) using the task activity model. The researchers found that cognitive function of the expert coaches was not planned or reasoned. Their decisions were highly adaptive while their planning was flexible and generated from a continuous, step-by-step adjustment based on what was occurring at that time.

By interviewing 16 coaches of basketball, volleyball, field hockey, and ice hockey Bloom (1997) found that expert coaches grew as coaches by gaining knowledge, always learning, maturing, and self-evaluating. These coaches learned through clinics/seminars, mentors, learning from others, and sharing information. While their personal approach to coaching involved hard

work, communicating, empathy, personal style, and being a good teacher. These character traits were gathered through interviews, tagged, and tallied based on occurrence during the interview process.

Research on S&C Coaches

According to Dörgö (2003) expert S&C coaches have at least 10 years of coaching experience in S&C and have held a head S&C coach position at the collegiate or professional level. Dörgö (2003) concluded that S&C coaches should have foundational practical knowledge of: S&C, facility and equipment, exercises and techniques, injuries, athletes, and planning. Knowledge of S&C includes: the purpose of S&C, aspects of S&C, characteristics of S&C, coaching responsibility, coaches' professional readiness, and evaluation of coaches' work. Knowledge of facility and equipment includes: structuring facility, flow of the room, and knowledge of equipment. Knowledge of exercises and techniques includes: variety of exercises, purpose of exercises, application of exercises, categorization of exercises, and teaching correct forms and techniques. Knowledge of injuries include: injury prevention, injury treatment, and overtraining prevention. Knowledge of athletes includes: coach-athlete relationship, attitude of athletes, categorization of athletes, getting to know the athletes, and knowing the athletes. Knowledge of planning includes: planning process – periodization, ongoing planning, testing, and evaluation of program (Dörgö, 2003, p. 80).

Dörgö (2009) went on to point out that an expert S&C coach's practical knowledge was only partially based on disciplinary knowledge attained from formal education. Findings from this study claim that practical knowledge, such as knowledge of athletes and knowledge of plan modification, was obtained through real-life experiences or other professionals. Similarly, more pedagogy-related knowledge such as knowledge of supervision and coaching instructional

strategies, are obtained through real-life experiences as well. The study displays that there is a need for experience and coaching practices along with foundational disciplinary knowledge in order for there to be foundational practical knowledge and applied practical knowledge that can then lead to the preparation of the athletes. These findings relate the importance of experience leading toward a greater knowledge base, which is required of an expert S&C coach.

Sutherland and Wiley (1997) conducted a survey of S&C services for professional athletes in four sports. A total of 118 surveys were mailed to general managers of teams in Canada and the United States, specifically the leagues of: Major League Baseball, the National Football League, Canadian Football League, National Hockey League, and National Basketball Association. The purpose of this study was to evaluate the S&C services offered by professional sports teams. In doing so, the study found that 91 percent of the S&C coaches had at least a bachelor's degree typically in physical education or a science field and 37 percent had a master's degree in a related field. There were 53 percent that held NSCA certification and five percent that held an American College of Sports Medicine (ACSM) certification.

A similar study by Haggerty (2005) involved the collection of demographic characteristics, educational backgrounds, coaching experiences, and duties of S&C coaches at NCAA Division II and III universities and colleges in order to compare to the results of a study by Martinez (2004) of Division I S&C coaches. Haggerty (2005) sent out an electronic survey to 578 S&C coaches where descriptive statistics were collected to find that S&C coaches at the Division II and III levels on average are white, male, aged 35 and 34 respectively, have an average salary between 30,001 and 40,000 dollars, have a CSCS, and a master's degree.

Martinez's (2004) study was a follow-up study of Pullo (1992). Martinez (2004) studied Division IA, Division IAA, and Division IAAA S&C coaches in order to determine the

appropriate educational, competitive, and work experiences that those looking to get into the field of S&C should look to obtain if they want to work on the Division I level. Martinez (2004) received questionnaires from 212 coaches and analyzed them through descriptive statistics. Pullo's (1992) study surveyed Division IA and Division IAA S&C coaches and received 145 completed questionnaires where they were analyzed through descriptive statistics. The comparison of Martinez's (2004) and Pullo's (1992) studies found that Division IA coaches are typically still white males holding master's degrees. The differences included that the average age increased from 33 to 37, the average salary range increased from a range of 30,000-39,000 dollars, to 50,000-59,000 dollars, and coaches now hold a CSCS certification. At the Division IAA level changes were seen in the same categories, however less drastic. The average age increase from 32 to 34, the average salary range increased from a range of 20,000-29,000 dollars to 30,000-39,000 dollars, and coaches now hold a CSCS certification.

Summary

A total of 25 articles were included in this study with dates ranging from 1976 to 2013. Overall, the information found throughout this literature review provides a substantial amount of information regarding the characteristics possessed by experts in fields outside of sport, expert coaches, and expert S&C coaches, which predominantly include: skills, knowledge, and experiences. Although there is little research available specifically related to expert S&C coaches, the research on expert coaches, teachers, and managers provide a solid foundation to begin this study when researching the characteristics that differentiate expert, competent, and beginner S&C coaches. Since the research on expert S&C coaches is lacking, it makes this study even more valuable and enticing.

CHAPTER 3

METHODS AND PROCEDURES

The purpose of this study is to identify the characteristics differentiating expert, competent, and beginner S&C coaches. To this point there is little research to define the qualities of expert, competent, and beginner S&C coaches. Due to this lack of research those looking to select, evaluate, or develop a S&C coach lack an adequate amount of researched information that would support their decisions when looking to fully evaluate a S&C coach's level of expertise. This information may be especially useful to personnel looking to make these assessments such as athletic directors or head team sports coaches that may have little to no S&C knowledge. Even those with extensive S&C coaching experience and knowledge can find this information extremely valuable to support an evaluation they are making and to help provide them with information on how they can set goals to develop as a S&C coach. The research methods selected to conduct this study will be addressed in this chapter in the following order: (a) method overview, (b) participant selection, (c) the Delphi method, (d) data collection, (e) data analysis, and (f) assumptions and limitations.

Method Overview

In order to determine the characteristics that differentiate expert, competent, and beginner S&C coaches the most experienced head S&C coaches on the elite level were asked to provide their input based on their experiences and level of knowledge pertaining to S&C. Coaches chosen to participate in this investigation were selected based on their head coaching title on the elite level of competition. This selection method was chosen in order to gather data from the

most experienced coaches in the industry. The data collection process follows the methodology of the Delphi method, otherwise known as the Delphi technique. This method was first introduced in 1953 by Norman Dalkey of the RAND Corporation and Olaf Helmer of the Institute for the future (Boberg & Morris-Khoo, 1992). The Delphi method involves generating results through a series of interactive probes, or questionnaires, in order to seek consensus (Eason, 1992). It was said by Linestone and Turoff (1975) that the Delphi method is “a method for structuring a group communicating process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem” (p. 3).

The Delphi Method

History and Purpose of the Delphi Method

The Delphi method was created in 1953 by Norman Dalkey of the RAND Corporation and Olaf Helmer of the Institute for the future. It was originally used to gather trustworthy consensus of a collection of military defense experts pertaining to the issue of an attack using an atomic bomb (Boberg & Morris-Khoo, 1992). Following its inception in 1953, the next documented application was in 1964 when it was used as a forecasting method. This project used the conventional Delphi method, otherwise known as the “Standard Delphi format” (Boberg and Morris-Khoo, 1992, p. 27) and involved four rounds of anonymous inquiry where questionnaires were sent through the mail where each employed an increasing specificity and refinement. The Policy Delphi was then developed in 1969 and is much different than the Standard Delphi. In the case of the Policy Delphi it is helpful when looking for alternatives as it asks for both “convergent and divergent responses” (Boberg and Morris-Khoo, 1992, p. 28).

In the words of Boberg and Morris-Khoo (1992), the Delphi method’s purpose is to “elicit perceptions or judgments held by ‘experts’ knowledgeable in a specialized area” (p. 27).

According to Hasson, Keeney, and McKenna (2000) the “Delphi survey is a group facilitation technique, which is an iterative multistage process, designed to transform opinion into group consensus” (p. 1008). Ono and Wedemeyer (1994) state that the Delphi technique is the most used technique for predicting the future. Ono and Wedemeyer (1994) also claim that it avoids many of the “psychological distractions inherent to round-table discussions,” it is an effective and efficient group discussion process that is meant to generate judgments systematically from experts (p. 290). Eason (1992) adds that Delphi method’s purpose is to generate information through interactive probes that result in finding a consensus from a group.

Applications of the Delphi Method

Boberg and Morris-Khoo (1992) state that the following applications are appropriate for the Delphi method: societal, market, and long-term technological forecasts, analyzing the current issues or conditions, normative forecasts, comparing alternative action programs, and management decision-making. Nworie (2011) adds that it can be used in regard to predicting the future, researching critical issues, and providing leadership with information that could be necessary in decision-making, practices in the field, or policy formation. Since its introduction, the Delphi method has been used in several fields including: tourism, healthcare, education, and marketing (Ono and Wedemeyer, 1994). Within these fields several studies have also used the Delphi technique to find characteristics of sports coaches particularly, which will be very useful to reference in conducting this study (Dae-Woo, Min-Haeng, and Young-Kum, 2005; Gorney and Ness, 2000; Moriarity, 2010).

The application for this study is very similar to that of Weidner and Henning (2004) where they utilized the Delphi technique for the purpose of “Development of Standards and Criteria for the Selection, Training, and Evaluation of Athletic Training Approved Clinical

Instructors.” By gathering the opinions of experienced and qualified program directors they were able to generate a list of standards and criteria that could be used to select, train, and evaluate athletic training approved clinical instructors. The Delphi method used by Weidner and Henning (2004) is one that greatly influenced this current study because the results acquired by Weidner and Henning (2004) found criteria to aid in the selection, training, and evaluation of a specified group of personnel, which was a very similar focus of this current study, specifically pertaining to S&C coaches. Due to this, a very similar methodology and means of data analysis were used in this current study.

Procedure

Participants of the Delphi Method

Those that participate in a Delphi study are expert panelists who “are experienced professionals who can provide an informed view or expert opinion on issues in their given field” (Nworie, 2011, p. 25). These panelists are selected based on their level of knowledge of their field or the specific topic that is being studied. It is essential that the participants have a high level of knowledge related to the subject matter area because their opinion is being used to come up with a level of consensus and future directions. Due to this fact, selecting appropriate participants is one of the most important aspects involved in a Delphi study as it will build credibility to the results of the study by maximizing the quality of responses and reduce bias (Nworie, 2011).

Listings from professional organizations is one way to find participants with high levels of knowledge relating to the subject matter area. Selecting participants with a diversity of backgrounds is another factor to be considered when selecting participants as it will add additional perspectives which will result in “depth and breadth” to the results (Nworie, 2011, p.

25). When selecting the sample size, some researchers recommend a larger sample to provide a greater chance of receiving enough responses while other researchers will recommend a smaller sample size for the purpose of limiting the time involvement in the study. Overall, it has been agreed that 10 to 50 participants is a good range, however under the right circumstances as few as four panelists have been used (Nworie, 2011).

Participant Selection

Those that participate in a Delphi study “are experienced professionals who can provide an informed view or expert opinion on issues in their given field” (Nworie, 2011, p. 25). Until the completion of this study, there had been no empirical criteria or set of characteristics that could be used to define an expert coach in the field of S&C. However, there have been several studies that have attempted to define “expert” in other fields, and thus the participants chosen for this study were selected based on criteria used in prior expertise studies (Côté, Salmela, Trudel, Baria, & Russell, 1995; Côté and Sedgwick, 2003; d’Arripe-Longueville, Saury, Fournier, & Durand, 2001). Based on these expertise studies, it was decided to conduct a search for S&C coaches that have at least 10 years of coaching experience, have earned multiple S&C certifications, have experience coaching multiple sports, and have at least a master’s degree. This search began by looking through available online coaching biographies and documenting in a Microsoft Excel document the S&C coaches’ job title, league affiliation, years of coaching experience, certifications held, sports coached, and highest level of education.

Through conducting this search, a common difference was observed between coaches in the “Big Four” professional leagues and outside of the “Big Four.” The “Big Four” consists of Major League Baseball (MLB), the National Basketball Association (NBA), the National Football League (NFL), and the National Hockey League (NHL). These four professional

leagues are the greatest revenue-generating sports leagues in the United States (Kultz, 2016). Overall, compared to leagues outside of the “Big Four,” such as Major League Soccer (MLS), National Women’s Soccer League (NWSL), Women’s National Basketball Association (WNBA), and Major League Lacrosse (MLL) the experiences presented in the coaches’ online biographies of the coaches in the “Big Four” exceeded those in the other leagues.

Another common difference was observed between the experiences of coaches in the NCAA Division I FBS “Power Five” conferences and those outside of the “Power Five” conferences. The “Power Five” conferences include the Atlantic Coast Conference (ACC), the Big Ten Conference, the Big 12 Conference, the Pac-12 Conference, and the Southeastern Conference (SEC). Similar to the “Big Four” professional leagues, the “Power Five” is a group of the greatest revenue-generating conferences in the country (Smith, 2015). Compared to conferences outside the “Power Five” and divisions other than Division I Football Bowl Subdivision (FBS), such as Division I Football Championship Subdivision (FCS), the experiences presented in the coaches’ online biographies in the “Power Five” conferences were greater than those outside the “Power Five.”

It was also noted the difference in experience between coaches of the title above and below the title of “assistant” within the “Big Four” professional leagues and the NCAA Division I FBS “Power Five” conferences. Coaches with the title of assistant possessed far less amounts of experience.

Based on the results of this search, it was determined in order to select participants that would generate as close to an “informed view or expert opinion” as possible, that these participants should be coaches with a title above “assistant” on professional sports organizations within the “Big Four” leagues and NCAA Division I FBS schools within the “Power Five”

conferences. The search of available online biographies found that by selecting head coaches in these leagues and conferences would likely provide this study with the greatest percentage of coaches that have at least 10 years of coaching experience, have multiple S&C certifications, have experience coaching multiple sports, and have a master's degree. The purpose of looking to generate data from the most experienced coaches in the field of S&C was to generate as close to an "informed view or expert opinion" as possible (Nworie, 2011, p. 25).

Shortly after the distribution of the initial recruitment e-mail for the first round, a head S&C coach on the United States Olympic Committee (USOC) heard about this study from a participant and wanted to become involved. From speaking with this head coach, it was determined that specific head coaches for the United States National Teams with at least 10 years of experience would qualify to offer an informed view for this study based on the criteria established to include head coaches in the "Big Four" professional leagues and NCAA Division I FBS "Power Five" conferences. As a result, the e-mail addresses for these United States National Team head coaches were obtained from the head coach of the USOC and were sent a recruitment e-mail to be included in the study.

It was also recommended by the USOC head coach that S&C coaches of the Australian Football League warranted to also be included in this study due to their experiences. After getting in contact with a head S&C coach from the Australian Football League, along learning about the experiences of Australian Football League S&C head coaches, it was determined that head Australian Football League S&C coaches had the experience similar to that of the head coaches already included in this study. As a result, head S&C coaches from the Australian Football League were provided the opportunity to participate in this study. This added additional

experienced coaches to the participant list of this study, along with an international perspective and coaches of another sport.

Demographic information was collected in the first-round survey for the primary purpose of providing evidence that the experiences of the 87 participants resembled the experiences of participants recruited for prior expertise studies (Côté, Salmela, Trudel, Baria, & Russell, 1995; Côté and Sedgwick, 2003; d'Arripe-Longueville, Saury, Fournier, & Durand, 2001).

Specifically, it was the intent of this study to recruit participants that: have at least 10 years of coaching experience, have earned multiple S&C certifications, have experience coaching multiple sports, and have an advanced degree. The participants in this study satisfied these criteria as they averaged over 18 years of coaching experience, held close to three S&C certifications each, coached eight different sports during their career, and have earned a master's degree. These data and additional demographic information, such as championships won and player awards, can be seen in Tables 1-8 below.

Table 1

Participants' S&C Coaching Experience

Coaching Experience	<i>n</i>	<i>M (SD)</i>	<i>Range</i>
Total Years Coaching	87	18.55 (8.17)	4-42
Years as a Head Coach	87	12.09 (9.14)	0-40
Different Sports Coached as a Head Coach	87	8.34 (5.08)	1-20

Table 2

Participants' Gender and Highest Level of Education

Variable	Coaches
Gender	
Female	4
Male	83
Level of Education	
Bachelor's Degree	23
Master's Degree	59
Doctorate Degree	5

Table 3

Participants' Current League or Team Affiliation

League	Coaches
MLB	10
NBA	8
NFL	7
NHL	7
NCAA Division I FBS	51
United States National Team	2
Australian Football League	2

Table 4

Sports Coached by Participants During their Career as a Head S&C Coach

Sport	Coaches	Sport	Coaches
Football	62	Fencing	5
Basketball	59	Rifle	5
Track and Field	56	Beach Volleyball	4
Baseball	55	Australian Football	2
Soccer	52	Archery	1
Volleyball	47	Bobsleigh	1
Golf	45	Bowling	1
Tennis	44	Cheerleading	1
Softball	42	Equestrian	1
Swimming & Diving	38	Figure Skating	1
Cross Country	35	Freestyle Skiing	1
Wrestling	28	Luge	1
Lacrosse	23	Powerlifting	1
Field Hockey	22	Sailing	1
Ice Hockey	22	Skeleton	1
Rowing	21	Strongman	1
Gymnastics	19	Synchronized Skating	1
Water Polo	10		
Rugby	8		
Skiing	8		

Table 5

Strength and Conditioning Awards Won by Participants During their Career

Award	Coaches
NCAA Conference S&C COY	6
NSCA College S&C COY	6
NBA S&C COY	4
NSCA Professional S&C COY	4
NFL S&C COY	3
MLB All-Star Team S&C Coach	3
MLB S&C COY	2
AFCA S&C	1
Emrich-Riecke-Jones	1
FootballScoop National S&C COY	1
NSCA Assist. College S&C COY	1
NSCA Boyd Epley	1
NSCA Certification Committee Bronze	1
NSCA High School S&C COY	1
President's Council Lifetime Achievement	1
Professional Football S&C COY	1
Samson Equipment's S&C COY	1
Strength Performance Coach's Choice	1
Pro Football S&C Coaches Society	1
UKSCA Elite S&C COY	1
USA S&C Coaches Hall of Fame	1

Note. AFCA = American Football Coaches Association; COY = Coach of the Year; NSCA = National Strength and Conditioning Association; UKSCA = United Kingdom Strength and Conditioning Association.

Table 6

Strength and Conditioning Certifications Possessed by Participants

Certification	Coaches	Certification	Coaches
CSCS	76	ASCA Level 2	1
USAW Level 1	42	CAFS	1
FMS Level 1	26	CFSC Level 1	1
SCCC	26	CFSC Level 2	1
MSCC	18	CSAC	1
NASM-PES	14	CrossFit Level 1	1
FMS Level 2	12	ISSA – SCC	1
USAW Level 2	5	IYCA Youth Fitness Specialist	1
UKSCA ASCC	4	Massage Therapist	1
ACSM EP-C	3	NASE	1
NSCA-CPT	2	NATA ATC	1

Certification	Coaches	Certification	Coaches
FRC	2	NCCP Level 1	1
NASM-CES	2	TPI Level 1	1
SFG I	2	USATF Level 1	1
SFG II	2	Westside Barbell	1
ASCA Level 1	1		

Note. ACSM EP-C = American College of Sports Medicine Certified Exercise Physiologist; ASCA = Australian S&C Association; CAFS = Certification in Applied Functional Science; CSAC = Certified Speed and Agility Coach; CFSC = Certified Functional Strength Coach; CSCS = Certified S&C Specialist; FMS = Functional Movement Screen; FRC = Functional Range Conditioning; ISSA – SCC = International Sports Sciences Association S&C Certification; IYCA = International Youth Conditioning Association; MSCC = Master S&C Coach; NASE = National Association of Speed & Explosion; NASM-CPT = National Academy of Sports Medicine Certified Personal Trainer; NASM-PES = National Academy of Sports Medicine Performance Enhancement Specialization; NATA ATC = National Athletic Trainers' Association Athletic Trainer Certified; NCCP = National Coaching Certification Program; SCCC = S&C Coach Certified; SFG = Strong First Gyras; TPI = Titleist Performance Institute; UKSCA ASCC = United Kingdom S&C Association Accredited S&C Coach; USATF = USA Track and Field; USAW = United States Weightlifting.

Table 7

Team Championships Won while Participant was the Team's Head S&C Coach

Championship Won	<i>n</i>	<i>M (SD)</i>	<i>Range</i>
MLB			
World Series	10	0.50 (1.55)	0-2
League	10	0.60 (1.83)	0-2
NBA			
Finals	8	0.38 (1.06)	0-3
Conference	8	0.60 (1.80)	0-5
NFL			
Super Bowl	7	0.29 (0.49)	0-1
Conference	7	0.57 (0.53)	0-1
NHL			
Stanley Cup	7	0.43 (0.79)	0-2
Conference	7	0.86 (0.69)	0-2
NCAA Division I FBS			
National	65	1.88 (4.04)	0-25
Conference	65	2.12 (6.27)	0-28
Bowl Games	33	3.97 (5.61)	0-25
United States National Team			
World Championships	2	1.00 (1.41)	0-2
World Cups	2	1.00 (1.41)	0-2

Table 8

Player Awards Earned during Participants' time as Head S&C Coach

Award	<i>n</i>	<i>M (SD)</i>	<i>Range</i>
MLB			
All-Star Appearances	10	16.40 (5.04)	6-24
Silver Slugger	10	3.70 (3.47)	0-10
MVP	10	0.60 (0.70)	0-2
Cy Young	10	0.50 (0.71)	0-2
Gold Glove	10	0.40 (0.97)	0-3
ROY	10	0.30 (0.67)	0-2
Hank Aaron	10	0.10 (0.32)	0-1
Comeback POY	10	0.10 (0.32)	0-1
Wilson Defensive POY	10	0.10 (0.32)	0-1
Sporting News POY	10	0.10 (0.32)	0-1
NBA			
All-Star Appearances	8	3.75 (3.49)	0-8
MVP	8	0.38 (0.74)	0-2
Defensive POY	8	0.38 (0.74)	0-2
ROY	8	0.13 (0.35)	0-1
NFL			
Pro Bowl Appearances	7	9.14 (12.53)	0-30
Offensive POY	7	0.57 (0.79)	0-2
MVP	7	0.29 (0.49)	0-1
Defensive POY	7	0.14 (0.38)	0-1
Offensive ROY	7	0.14 (0.38)	0-1
Defensive ROY	7	0.14 (0.38)	0-1
Comeback POY	7	0.14 (0.38)	0-1
Walter Payton Man of the Year	7	0.14 (0.38)	0-1
NHL			
All-Star Appearances	7	4.29 (3.20)	1-10
Fewest Goals Allowed	7	0.43 (0.53)	0-1
Most Outstanding Player	7	0.29 (0.76)	0-2
Playoff MVP	7	0.29 (0.76)	0-2
Lady Byng	7	0.29 (0.76)	0-2
Mark Messier Leadership	7	0.29 (0.76)	0-2
Foundation Player	7	0.29 (0.76)	0-2
ROY	7	0.14 (0.38)	0-1
NCAA Division I FBS			
All-American	65	26.15 (71.37)	0-543

Award	<i>n</i>	<i>M (SD)</i>	<i>Range</i>
United States National Team			
Gold Medal	2	1.50 (2.12)	0-3
Silver Medal	2	0.50 (0.71)	0-1
Bronze Medal	2	1.00 (1.41)	0-2

Note. POY = Player of the Year; ROY = Rookie of the Year; MVP = Most Valuable Player.

Contact of the Participants

Nworie (2011) suggests a larger sample size to make sure that enough responses are received, and due to this, all coaches that fit the selection criteria were contacted. All coaches above the level of “assistant” in the professional “Big Four” leagues, NCAA Division I FBS “Power Five” conferences, United States National Teams, and Australian Football League teams, were contacted via e-mail to participate in the study. E-mail addresses were acquired through multiple sources such as through other coaches and online staff directories. A total of 367 coaches fit the specified criteria and were e-mailed requesting their participation in the three rounds of this study. A sample of the recruitment letter sent to these coaches can be found in Appendix E. By clicking on the link in the e-mail the participants agreed to participate in the study.

Instrumentation and Rounds of a Delphi Method

Hasson, Keeney, and McKenna (2000) outlines the recommended process for conducting the Delphi technique. It is first recommended to identify the research problem while keeping in mind that the Delphi method is a group facilitation technique. This makes this current research study’s problem appropriate as the researcher gathered the opinions of a group of experienced head S&C coaches from the elite level of competition, specifically the professional “Big Four” leagues, the NCAA Division I FBS “Power Five” conferences, United States National Teams, and Australian Football League teams.

The next step involves identifying “the resources available and skills of the researcher in analysis, administration and relationship building” (Hasson, Keeney, and McKenna, 2000, p. 1013). In this study, the resources available were online instruments, such as Qualtrics, which was used to generate the survey, and Mail Chimp, which was used for the initial e-mail distribution of the survey. The researcher in this study has years of experience as a researcher, which along with educational and other professional experiences, have provided him with the skills necessary for the analysis, administration, and relationship building needed for this current study.

The third step in the process involves selecting a medium for distributing the surveys; either electronic or written communication (Hasson, Keeney, and McKenna, 2000, p. 1013). For our study, electronic communication was chosen as the most effective as it was likely the fastest method for respondents to receive and respond to the surveys. The ability to conduct this study via electronic communication is an advantage that this study has over some previous studies that have utilized the Delphi method (Boberg and Morris-Khoo, 1992; Spencer, 2000). The ability to communicate electronically likely allowed for more frequent communication with the participants including distribution of surveys, follow-up e-mails, and any other type of help needed or feedback provided by participants. The ability to collect data electronically allowed for faster data analysis.

After deciding the medium, both the structure of the rounds and the number of rounds must be determined. In a Delphi study the structure of the rounds will be either qualitative or quantitative. Our study was conducted in both a qualitative and quantitative fashion where participants respond in the initial round providing open-ended responses describing an expert, competent, and beginner S&C coach’s skills, knowledge, and experiences. While the second and

third rounds asked the participants to rate the characteristics provided in the first round on a five-point Likert scale, they were also provided with the opportunity to provide feedback in an open-ended response format. This study's format is based on Weidner and Henning (2004) who used the Delphi technique to develop standards and criteria for the selection, training, and evaluation of athletic training approved clinical instructors.

The participants responded to several rounds of questionnaires by providing open-ended responses followed by ratings of importance for the characteristics provided, specifically the skills, knowledge, and experiences pertaining to expert, competent, and beginner S&C coaches. The characteristics that reached a level of consensus based on their average rating of importance were placed on the final list of characteristics differentiating expert, competent, and beginner S&C coaches (Hasson, Keeney, and McKenna, 2000).

In a Delphi study the number of rounds needed will depend on how long it takes the participants to come to a moderate level of consensus. Complete consensus is very challenging to achieve, but most of the convergence happens between rounds one and two, and no more than four rounds are needed in order to arrive at a moderate level of consensus (Spencer, 2000). Three rounds were needed in this study to produce the final list of characteristics that reached consensus, and the use of three rounds was found to be successful in a similar study for athletic training approved clinical instructors by Weidner and Henning (2004).

The first round has the intention of initiating creative thought by the participants to begin the deliberation process and is why the participants were asked to provide open-ended responses describing an expert, competent, and beginner S&C coach's skills, knowledge, and experiences. The purpose of the second round of this study is to see which characteristics offered in the first round are deemed important enough to reach a level of consensus and be placed on the final list

of characteristics. The purpose of the third round is to take any new characteristics that were suggested during the second round or any characteristics that did not reach consensus during the second round, and again just as in the second round, ask participants if these characteristics are important enough to be placed on the final list of characteristics.

To keep participants involved from one round to the next Nworie (2011) recommends providing incentives that will not influence the participants' opinions. Incentives were provided to the coaches that chose to complete all three rounds of the study. Incentives included an electronic and hard copy of the results, and 0.5 continuing education units through the NSCA for each coach's recertification of their CSCS for Personal Development in Category D.

To conclude a Delphi study, final results can be reported in "graphical and/or statistical representations with an explanation of how the reader should interpret the results, and how to digest the findings in relation to the emphasis being placed upon them" (Hasson, Keeney, and McKenna, 2000, p. 1014). Issues of anonymity, reliability, ethical responsibility, and validity also must be addressed. The final characteristics were established by those characteristics with a mean rating for importance of at least 4.0 and a standard deviation at or below 1.0 (Ross et al., 2014; Weidner and Henning, 2004). Results from this current study are presented in statistical representation, specifically in table form, which was deemed the easiest format for those reading the report to interpret the results and make practical use of them.

Data Collection

Approval to conduct the study was granted by the researcher's committee and the Institutional Review Board who oversees research using human subjects at the University of Georgia. Data collection was a continuous process that began to occur officially following the distribution of the first-round survey to the participants, but before that period of time, a pilot

study was conducted to help finalize the design of the first-round survey. A pilot study with a convenience sample of six S&C coaches was conducted prior to the distribution of the first-round survey to gather information about the clarity and format of the first-round survey. These six S&C coaches were chosen specifically so that their qualifications and experience most closely resembled that of the participants that would participate in this study. The reason for this was so that we could gather the most accurate representation of the responses we would receive during the official study, the time it would take to complete the first-round survey, and any type of feedback related to the study; this information may have been different if collected from coaches with less qualifications and experiences. There were two different types of surveys distributed, one type of survey was sent to half of the participants in the pilot study while a different variation of the survey was sent to the other half. Two variations were distributed to see if the formatting of one survey produced more detailed responses pertaining to what the question was asking. Based on the responses received from the participants, one version provided superior results. The feedback from the participants was critical as well because the survey was initially asking for each participant to “identify the skills..., identify the knowledge...etc.” and one pilot study participant responded saying it would take him hours to complete the survey. This feedback was critical in altering the wording to only ask for one skill, area of knowledge, and experience for each level of expertise, while telling the participant if they would like to identify more than one skill, area of knowledge, or experience then that would be allowed. The participants in this pilot study were not included in the official study.

Surveys for all rounds were generated through Qualtrics, which is an online survey engine, and these surveys can be found in the appendices. E-mail addresses were acquired through multiple sources such as through other coaches and online staff directories.

The initial recruitment e-mail was distributed through a mailing site called Mail Chimp where every coach's full name and e-mail address were listed and distributed at 3:00 p.m. Eastern Standard Time on October 31, 2016. Mail Chimp provided the rate at which the e-mail was opened and the rate at which the link to the survey was clicked on. There was an open rate of approximately 55 percent while about 16 percent of participants clicked on the survey link in a six-day time frame following the initial distribution. The decision was made to send a follow-up e-mail through the researcher's personal e-mail account to all participants that did not yet begin the survey, and for those that had started their survey but not yet completed it, these participants were sent a follow-up e-mail with a link to their incomplete survey. The decision to use the researcher's personal e-mail account instead of Mail Chimp was to avoid the possibility of the recruitment e-mails going to the participant's spam folder. One week following the first follow-up e-mail a second follow-up e-mail was distributed to the coaches that has not yet completed a survey stating that the first-round survey would close at the end of the week. Again, if a coach had begun a survey, but not yet completed it, then their incomplete survey was sent to them to complete. Ross et al. (2014) took four weeks in between rounds with an e-mail after two weeks for a follow-up if no response was received, and Ross et al. (2014) received an 85 percent response rate. The success of Ross et al.'s (2014) study influenced the decision to use a four-week interval between rounds for this study as well. However, follow-up e-mails were sent after every week to participants that had yet to complete the survey after the initial distribution. This decision was made in hope of generating an even greater response rate than a two-week follow-up e-mail would generate.

In the first-round survey, each coach was asked to provide one important skill, area of knowledge, and experience that is a minimum requirement for a beginner S&C coach,

differentiates a competent S&C coach from a beginner S&C coach, and differentiates an expert S&C coach from a competent S&C coach. Coaches were also told that they could identify more than one skill, area of knowledge, and experience for each level of expertise if they would like. A sample of the first-round survey can be seen in Appendix F. This first-round survey took most coaches less than 20 minutes to complete.

Participants were asked to submit their first-round survey when they received the initial recruitment e-mail. After three weeks, the data from the first-round survey was collected, and all demographic information and open-ended responses were downloaded through Qualtrics into a Microsoft Excel document. Demographic information included: sex, highest level of education, coaching experience, current league affiliation, sports coached, championships won, player accolades, certifications held, and S&C awards won. The demographic information was organized and descriptive statistics were calculated. A total of 1,181 characteristics were provided by coaches through their open-ended responses.

In order for these characteristics to be evaluated in a practical and time-efficient manner by the participants these 1,181 characteristics were organized in a Microsoft Excel document into nine tabs labeled, “Beginner Skills,” “Competent Skills,” “Expert Skills,” “Beginner Knowledge,” “Competent Knowledge,” “Expert Knowledge,” “Beginner Experience,” “Competent Experience,” and “Expert Experience.” Within these tabs several theme categories were generated based on the characteristics provided by the participants. For example, the characteristic provided by a participant, “Ability to communicate effectively with both players and staff,” generated the theme of “Communicate” and was then grouped into this theme category. If another characteristic conveyed the same theme as “Communicate” it would be placed into this theme category. This grouping process continued until all 1,181 characteristics

were placed into a theme category that was generated within their respective tab. There were 19 themes generated for Beginner Skills, 29 themes for Competent Skills, 31 themes for Expert Skills, 21 themes for Beginner Knowledge, 30 themes for Competent Knowledge, 30 themes for Expert Knowledge, 27 themes for Beginner Experience, 27 themes for Competent Experience, and 34 themes for Expert Experience. By generating these themes, it aided in the process of organizing the characteristics which helped in generating a distinct list of aggregated characteristics for each tab.

By generating these themes it aided in the process of organizing the characteristics, which helped in generating a distinct list of aggregated characteristics for each tab. Aggregated characteristics were generated for each expertise level of skill, knowledge, and experience. This was conducted by taking similar themes and including them together to generate one aggregated characteristic. For example, an aggregated characteristic generated to describe a skill of a competent S&C coach was, “A competent strength and conditioning coach develops a positive relationship and communicates effectively and regularly with sport coaches and training staff to gather their input and report the progress being made by athletes during S&C training sessions,” which was generated based on the characteristics provided by participants that were grouped under the themes of “Relationship,” “Listen,” and “Communicate.”

A peer debriefing was then conducted to assure that all 1,181 characteristics provided by the participants were included in the 80 aggregated characteristics. The peer debriefing consisted of meeting with a graduate-level pedagogical analysis course where 12 students were provided with the anonymous 1,181 characteristics printed on forms along with forms that contained the aggregated characteristics for each tab, which can be viewed in Appendices G-X. Each student was asked to review the original characteristics and the associated aggregated characteristics for

either skills, knowledge, or experiences for all three levels of expertise (expert, competent, and beginner). During this review process, students were asked to state if each original characteristic provided by the participants could be associated with one of the aggregated characteristics. Each aggregated characteristic was assigned a numeric value, which was displayed in the column labeled “Number,” on the forms of aggregated characteristics found in Appendices P-X. The peer debriefing group was asked to associate the aggregated characteristic with the original characteristic that it represented, if any, by placing the assigned number of the aggregated characteristic in the column labeled “Appropriate Characteristic,” next to the associated original characteristic; this column can be viewed on the forms of original characteristics in Appendices G-O. If the student did not see an appropriate aggregated characteristic to associate with an original characteristic then the student would place the number “0” in the column “Appropriate Characteristic” for that original characteristic. The column labeled “Raw Data Response” on the forms of original characteristics contains all of the original characteristics provided by the participants in their first-round surveys. The students took the entire 75-minute class period in order to complete their debriefing.

The data from this peer debriefing was analyzed by the researcher by searching for the original characteristics that received multiple “0” ratings, meaning that multiple students believed that there was not an aggregated characteristic that could be associated with the original characteristic. The few original characteristics that received multiple “0” ratings were then further analyzed by the researcher to see if an additional aggregated characteristic needed to be generated or if a current aggregated characteristic could be modified to account for the original characteristic. The primary purpose of this peer debriefing process was to ensure that every

single one of the 1,181 original characteristics provided by the participants was accounted for in the aggregated characteristics and thus included in the second round of this study.

By studying the results of the peer debriefing, and reviewing the aggregated characteristics, it became clear that several aggregated characteristics were either repetitive or similar to another aggregated characteristic. As a result, several aggregated characteristics were combined with another aggregated characteristic, which resulted in a total of 68 aggregated characteristics. Being able to provide fewer aggregated characteristics that still accounted for all 1,181 original characteristics would be beneficial as it should likely make the second-round survey less time consuming, and thus more practical, for the participants to complete.

Following this peer debriefing, the list of 68 aggregated characteristics were then placed on the second-round survey and associated with a five-point Likert scale. The five-point Likert scale selection choices were based on level of importance, specifically, “Not at all important,” “Slightly important,” “Moderately important,” “Very important,” and “Extremely important.” To continue to offer each participant as many opportunities as possible to offer their feedback open-ended response boxes were provided in each section of skills, knowledge, and experience for each level of expertise. A sample of the second-round survey can be found in Appendix Z. The participants were asked to rate each characteristic on its level of importance to be possessed by a beginner, competent, or expert S&C coach respectively. They were also provided the option to provide any additional feedback regarding their rating of a characteristic, such as why they rated it the way they did, suggestions to improve the phrasing of the characteristic, or the addition of an entirely new characteristic. The coaches were provided open-ended response boxes for each level of expertise to provide feedback. This second-round survey took most coaches less than 20 minutes to complete.

As was done by Weidner and Henning (2004) and Ross et al. (2014), all responses with a mean score of 4.0, or “Very important,” and a standard deviation of equal to or less than 1.0, demonstrated consensus and were placed on the final list of characteristics. Any characteristic with an average rating below this was revised based on the coaches’ feedback in the open-ended response boxes and placed on the third/final-round survey to be evaluated. If a characteristic did not reach consensus and did not receive any suggestion for rephrasing, then it was not placed on the final-round survey since this would have resulted in asking the participants to rate the same characteristic as they did in the second round.

Personalized links of these second-round surveys were generated through Qualtrics for each participant and then e-mailed on December 8, 2016 to each of the 87 participants that completed the first-round survey. A weekly follow-up e-mail was sent to each participant that had not yet completed their second-round survey. Follow-up e-mails were distributed until January 16, 2017 when the data from the second-round survey was collected. Participants that had not yet completed their survey were made aware of a closing deadline for the survey and at the end of the second round 82 out of the 87 original participants completed their second-round survey.

The second round resulted in 51 out of the 68 characteristics reaching consensus. Ten new characteristics were also suggested by the participants in the open-ended response boxes of the second-round survey. These 10 new characteristics were either brand new or a suggestion to rephrase a characteristic that did not receive an average rating of at least “Very important.” These characteristics were then placed on the third-round survey through Qualtrics in the same format as they were in the second-round survey. Participants were asked to rate on a five-point Likert scale each characteristic’s level of importance to be possessed by an expert, competent, or

beginner S&C coach respectively. As in the second round, participants were made aware that only characteristics that receive an average rating of at least “Very important” by the participants would be placed on the final list of characteristics. An open-ended response box was provided again in this round which provided participants with the opportunity to provide any additional feedback regarding their rating of a characteristic, such as why they rated it the way they did. The third-round survey can be seen in Appendix CC.

Personalized links of these third-round surveys were generated through Qualtrics for each of the 82 participants that completed the second-round survey and then distributed on January 19, 2017 via e-mail, and this e-mail can be seen in Appendix BB. Just as in the previous rounds, weekly follow-up e-mails were sent to participants that had not yet completed their survey. Follow-up e-mails were distributed until February 24, 2017, which is when the data from the third-round survey was collected. Participants that had not yet completed their survey were made aware of a closing deadline for the survey, and at the end of the third round, 80 out of the 82 second-round participants completed their third-round survey. This final-round survey took most coaches less than four minutes to complete.

Following the collection of data from the final round, six out of the 10 characteristics listed on the final-round survey reached consensus. This resulted in a total of 57 characteristics being placed on the final list of characteristics to differentiate expert, competent, and beginner S&C coaches.

Data Analysis

Data analysis was conducted after every round of data collection where 87 surveys were collected after the first round, 82 after the second round, and 80 after the third round. After the first-round survey data was collected, it was then downloaded into a Microsoft Excel document

where formulas were used to compute means, standard deviations, ranges, and totals for the demographic information provided. It was through Microsoft Excel as well that the total number of characteristics provided were tallied and sorted through the use of different tabs. Following the peer debriefing process, Microsoft Excel was used to sort the characteristics that received multiple responses of “0,” indicating that the original characteristic did not match any of the aggregated characteristics.

Following the collection of the second and third-round surveys, the data was again downloaded through Qualtrics to a Microsoft Excel document where the mean, standard deviation, frequency, and interquartile range for each characteristic was calculated.

Assumptions and Limitations.

Six primary assumptions will be made in relation to the methods of this study. One assumption is that the participants in the study are knowledgeable in the area of S&C coaching. Second, it is assumed that the responses by the participants are accurate and honest. Third, that the freedom of expression and individuality of each participant is prevalent due to their anonymous responses. The fourth assumption is that a deeper exploration of ideas will occur as a result of the several rounds of questionnaires (Boberg and Morris-Khoo, 1992). The fifth is that consensus of the responses of the participants will be appropriate in answering the research question of the study. The sixth is that “consensus reached by group reflected reasoned opinions” (Spencer, 2000, p. 53).

According to Boberg and Morris-Khoo (1992) and referenced in Spencer (2000) there are five primary limitations to a Delphi study. The first is the lack of reporting of statistical significance. The second is the chance of the researcher to generate manipulated consensus from the original development of the instrument. The third is that large amount of work required for

record keeping, mailings, tabulations of voluminous amounts of data, and the length of time required to wait for the return of completed questionnaires. The fourth includes questionable validity and test reliability. The fifth is amount of time that is required of the participants to stay engaged in the study.

Summary

The purpose of this study was to identify the characteristics that differentiate expert, competent, and beginner S&C coaches. Eighty-seven head S&C coaches from the MLB, NBA, NFL, NHL, NCAA Division I FBS “Power Five” conferences, United States National Teams, and Australian Football league were the participants for this study. These individuals were specifically selected for the purpose of collecting data from the most experienced S&C coaches in the field of S&C. Eighty-seven participants began the study and 80 completed the three rounds of surveys following the methods of the Delphi technique. The primary methodology of the Delphi technique is qualitative and produces data through a group debate that includes the opinions of different experts on a particular problem or issue (Murry and Hammons, 1995).

The initial procedure involved contacting participants via e-mail with a recruitment letter and a link to complete the first-round survey of the study through Qualtrics, an online survey engine. After the researcher received the completed first-round surveys, the data gathering began. The beginning of this process involved a first-round survey which asked the participants to provide open-ended responses of at least one important skill, area of knowledge, and experience that should be possessed by a beginner, competent, or expert S&C coach respectively. This information was collected through Qualtrics and returned to the researcher. The researcher then associated every single one of the 1,181 characteristics provided by the participants with a

specific theme which then generated 68 aggregated characteristics that were peer debriefed and confirmed to accurately represent every single characteristic provided by the participants.

These 68 aggregated characteristics were placed on a second-round survey and associated with a five-point Likert scale asking the participants to rate how important it is for a beginner, competent, or expert coach to possess the specific characteristic. Participants were also offered open-ended response boxes to provide any additional feedback regarding their rating, such as why they rated the characteristic the way they did, suggestions to improve the phrasing of the characteristic, or the addition of an entirely new characteristic. This survey was e-mailed to all 87 participants that completed the first-round survey.

After each participant completed their second-round survey their data was collected through Qualtrics and analyzed by the researcher. The second round resulted in 51 out of the 68 characteristics reaching consensus. Consensus was reached by achieving an average rating of at least 4.0 with a standard deviation equal or less than 1.0. Ten new characteristics were also suggested by the participants in the open-ended response boxes of the second-round survey. These 10 new characteristics were either brand new or a suggestion to rephrase a characteristic that did not reach a level of consensus.

Characteristics that reached a level of consensus were placed on the final list of characteristics, while characteristics that did not reach a level of consensus were adjusted based on participant feedback and placed on the final-round survey to be rated again by the participants. E-mails with links to the third-round survey were distributed to the 82 coaches that completed the second-round survey. Characteristics were rated on the same five-point Likert scale format as they were in the second round and an open-ended response box was provided for coaches to provide any additional feedback regarding their rating of a characteristic.

After each participant completed their third-round survey their data was collected through Qualtrics and analyzed by the researcher. The third round resulted in six out of the 10 characteristics reaching consensus, for a total of 57 characteristics reaching consensus. This third and final-round survey concluded the data gathering procedure and provide the final results of the study.

CHAPTER 4

FIRST-ROUND SURVEY RESULTS

The purpose of this study was to identify the characteristics that differentiate expert, competent, and beginner S&C coaches. The researcher selected the Delphi technique to study these characteristics. The Delphi method involves generating results through a series of interactive probes, or questionnaires, in order to seek consensus from a group (Eason, 1992). Those that participate in a Delphi study are experienced professionals that can offer an informed opinion on issues in their specific field (Nworie, 2011).

The researcher began with a potential pool of 367 participants. These potential participants were head S&C coaches from the MLB, NBA, NFL, NHL, NCAA Division I FBS “Power Five” conferences, United States National Teams, and Australian Football league. After e-mailing all potential participants a recruitment letter, along with a weekly follow-up e-mail over the course of a month, 87 coaches chose to participate in this study. Coaches that chose not to participate either did not respond to the recruitment e-mails or stated that they would not have enough time to participate. The 87 coaches that chose to participate clicked on the survey link provided to them in their recruitment e-mail and completed their first-round survey.

The results of the first-round survey were based on open-ended responses provided by the participants. The first round had the intention of initiating creative thought by the participants to begin the deliberation process and is why the participants were asked to provide open-ended responses describing an expert, competent, and beginner S&C coach’s skills, knowledge, and experiences.

First-Round Findings

Eighty-seven completed first-round surveys were received. The first-round survey consisted of questions requesting demographic information along with nine open-ended response boxes where participants were asked to provide one important skill, area of knowledge, and experience that is a minimum requirement for a beginner S&C coach, differentiates a competent S&C coach from a beginner S&C coach, and further differentiates an expert S&C coach from a competent S&C coach. Coaches were also told that they could identify more than one skill, area of knowledge, and experience for each level of expertise. The 87 participants provided all requested demographic information and a total of 1,181 characteristics were received through the participants' open-ended responses.

All demographic information was collected through Qualtrics, which is a survey engine, and downloaded into a Microsoft Excel document. Descriptive statistics were calculated using formulas within Microsoft Excel in order to reflect the overall demographic information of the participants. This demographic information is provided in the methods section.

In order for these characteristics to be evaluated in a practical and time-efficient manner by the participants these 1,181 characteristics were organized in a Microsoft Excel document into nine tabs labeled, "Beginner Skills," "Competent Skills," "Expert Skills," "Beginner Knowledge," "Competent Knowledge," "Expert Knowledge," "Beginner Experience," "Competent Experience," and "Expert Experience." Within these tabs several theme categories were generated based on the characteristics provided by the participants. For example, the characteristic, "Ability to communicate effectively with both players and staff," generated the theme of "Communicate" and was then grouped into this theme category. If another characteristic conveyed the same theme as "Communicate" it would be placed into this theme

category. This grouping process continued until all 1,181 characteristics were placed into a theme category that was generated within their respective tab. There were 19 themes generated for Beginner Skills, 29 themes for Competent Skills, 31 themes for Expert Skills, 21 themes for Beginner Knowledge, 30 themes for Competent Knowledge, 30 themes for Expert Knowledge, 27 themes for Beginner Experience, 27 themes for Competent Experience, and 34 themes for Expert Experience.

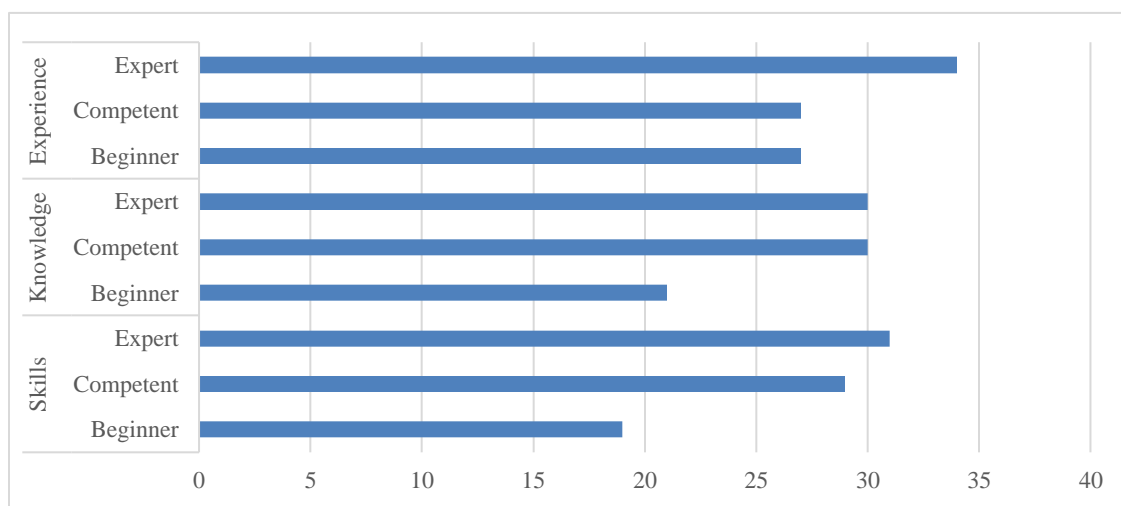


Figure 1. Number of themes generated based on original characteristics provided by the participants.

Generating these themes aided in the process of organizing the characteristics which helped in identifying a distinct list of aggregated characteristics for each tab. In other words, aggregated characteristics were generated for each expertise level of skill, knowledge, and experience. This was completed by combining similar themes and including them together to generate one aggregated characteristic. For example, an aggregated characteristic generated to describe a skill of a competent S&C coach was, “A competent strength and conditioning coach develops a positive relationship and communicates effectively and regularly with sport coaches and training staff to gather their input and report the progress being made by athletes during S&C

training sessions,” which was generated based on the characteristics provided by participants that were grouped under the themes of “Relationship,” “Listen,” and “Communicate.” This process produced 80 aggregated characteristics, specifically, 10 Beginner Skills, 11 Competent Skills, 11 Expert Skills, four Beginner Knowledge, seven Competent Knowledge, seven Expert Knowledge, eight Beginner Experience, 10 Competent Experience, and 12 Expert Experience.

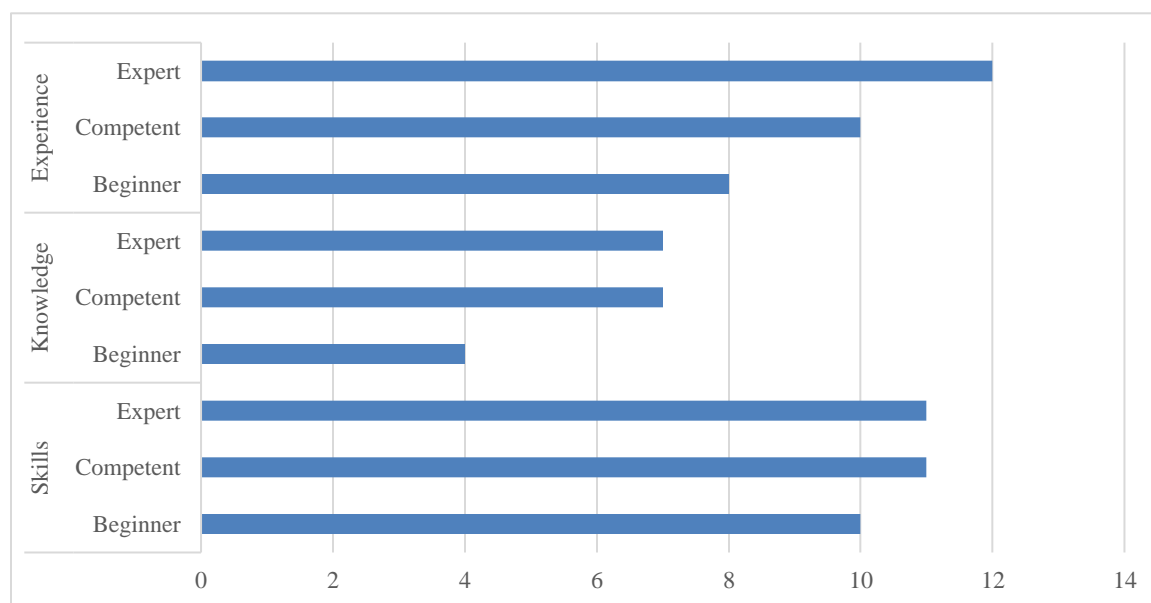


Figure 2. Number of aggregated characteristics produced based on the themes of the original characteristics provided by the participants.

A peer debriefing was then conducted to assure that all 1,181 characteristics provided by the participants were included in the 80 aggregated characteristics. From the researcher studying the results of the peer debriefing it became clear that several aggregated characteristics were either repetitive or similar to another aggregated characteristic. Due to this, the researcher combined several aggregated characteristics together so that there would be fewer characteristics for the participants to rate in the second-round survey. Being able to provide fewer characteristics that still accounted for all 1,181 original characteristics was likely beneficial as it

should have made the second-round survey less time consuming, and thus more practical, for the participants to complete. This entire peer debriefing resulted in 68 aggregated characteristics; 10 Beginner Skills, 11 Competent Skills, 11 Expert Skills, four Beginner Knowledge, seven Competent Knowledge, seven Expert Knowledge, six Beginner Experience, five Competent Experience, and seven Expert Experience.

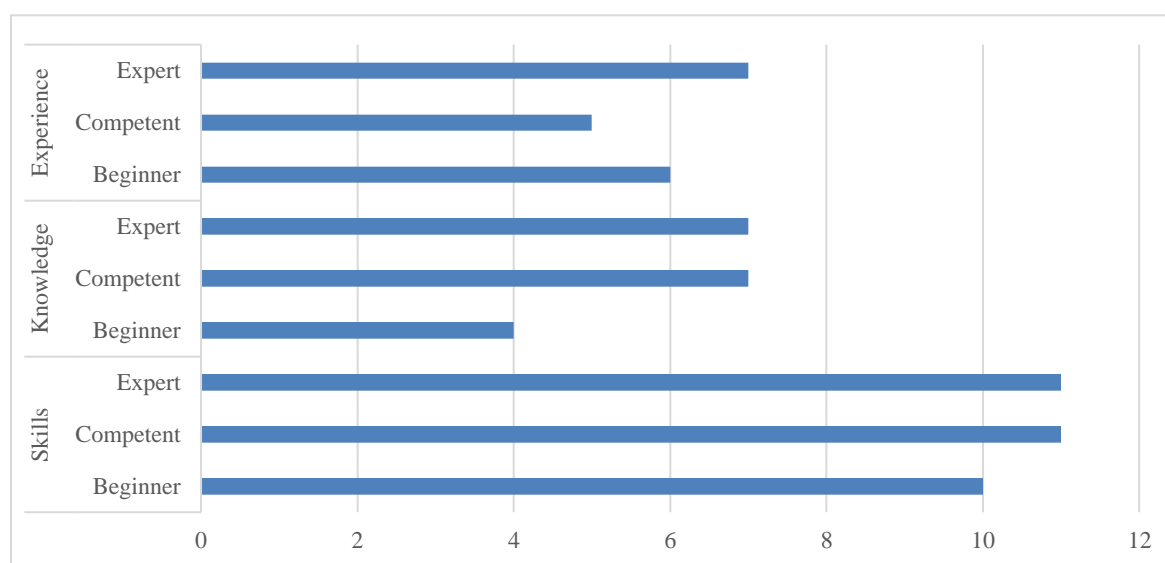


Figure 3. Number of aggregated characteristics following the peer debriefing.

These 68 characteristics are provided on the following pages in Tables 9-11. Characteristics describing expert, competent, and beginner S&C coaches are in Tables 9-11 respectively. Characteristics in these tables are not listed in any specific order, the purpose of these tables is to present the characteristics provided by the participants in the first round of this study that differentiate expert, competent, and beginner S&C coaches. These characteristics were rated on their level of importance in the following rounds of this study in order to determine if they reached a level of consensus to be placed on the final list of characteristics to differentiate expert, competent, and beginner S&C coaches.

Table 9

Aggregated Skills of Expert, Competent, and Beginner S&C Coaches Generated Based on the First-Round Survey Responses

	Skill
Expert	
ES1)	An expert S&C coach communicates complex training prescription and long-term athlete development processes clearly and simply to a diverse population of athletes, sport coaches, and training staff members.
ES2)	An expert S&C coach effectively coaches and communicates to a large group of athletes at one time while maintaining a strong control of the room and still be able to coach athletes on an individual basis.
ES3)	An expert S&C coach intuitively identifies what is most important. Specifically, technical errors in movement, and then prescribes feedback including modifications to fix these errors in a manner that is simple for the athlete to understand.
ES4)	An expert S&C coach effectively manages and develops the S&C coaches on their staff.
ES5)	An expert S&C coach trains athletes with the primary goal of helping each athlete excel in their specific sport.
ES6)	An expert S&C coach properly oversees budget or departmental finances.
ES7)	An expert S&C coach develops a professional and personal relationship with the athletes, S&C coaches, sport coaches, nutritionists, training staff, front office, and administration which generates effective communication and understanding between all involved in the development of the athlete. The expert S&C coach then takes the knowledge gained from these relationships in better developing the athletes that they coach to help each athlete reach both their personal and athletic goals.
ES8)	An expert S&C coach implements a long-term science-based individualized plan for an athlete that the expert S&C coach can adapt and adjust overtime based on the needs of the athlete.
ES9)	An expert S&C coach effectively motivates athletes and creates a culture based on a strongly grounded belief system where teammates motivate each other and trust the process.
ES10)	An expert S&C coach remains humble because they know there is always more to learn.
ES11)	An expert S&C coach remains calm and confident when faced with adversity. They are able to intuitively make adjustments and fill any role needed to get the job at hand accomplished.
Competent	
CS1)	A competent S&C coach develops a positive relationship and communicates effectively and regularly with sport coaches and training staff to gather their input and report the progress being made by athletes during S&C training sessions.

	Skill
CS2)	A competent S&C coach effectively manages a training environment involving a large group and runs the daily activities of a S&C program including managing a variety of circumstances that may arise.
CS3)	A competent S&C coach confidently communicates proper exercise technique to athletes using simple verbal coaching cues and through physical demonstration.
CS4)	A competent S&C coach designs an effective periodized program based on the athlete's needs and their sport, making adjustments in the program when needed. Adjustments could be based on factors such as recent testing, injury, or input from the sport coach.
CS5)	A competent S&C coach clearly explains to an athlete or a sport coach the purpose and reason an exercise is included in the training program.
CS6)	A competent S&C coach uses technology, but may not use it to its full potential.
CS7)	A competent S&C coach provides specific corrective feedback to athletes immediately when needed in order to improve performance.
CS8)	A competent S&C coach develops a professional and personal relationship with the athletes and all personnel involved in the development of each athlete which generates more effective communication and understanding between everyone involved. The competent S&C coach then takes the knowledge gained from these relationships in better developing the athlete's athletic performance.
CS9)	A competent S&C coach possesses the willingness to go where the job takes them.
CS10)	A competent S&C coach has a firm identity of who they are as a coach, their coaching style, and their coaching philosophy, which they clearly communicate.
CS11)	A competent S&C coach evaluates training techniques and proficiency to assess if regression or progression in training should be implemented.
Beginner	
BS1)	A beginner S&C coach displays and communicates a strong passion for the field of S&C, a willingness to be open-minded, learn, work hard, and pay attention to detail.
BS2)	A beginner S&C coach displays great listening skills by modifying their own behavior based on feedback from the head S&C coach and following instructions. Instructions could include: setting up/cleaning the weight room, spotting athletes during exercises, and being prepared and reliable when needed for assistance.
BS3)	A beginner S&C coach confidently communicates and teaches basic movements such as a squat, hinge, lunge, push, and pull, both verbally and through demonstration, along with explaining the goal of the exercise.
BS4)	A beginner S&C coach accurately observes, identifies, and demonstrates proper movement quality and technique.
BS5)	A beginner S&C coach develops a professional and personal relationship with the athletes, S&C coaches, sport coaches, and training staff which generates more effective communication.

	Skill
BS6)	A beginner S&C coach implements the coaching philosophy of the organization in which they are working.
BS7)	A beginner S&C coach can design a several month long training program that takes into account several variables such as the needs of the athlete.
BS8)	A beginner S&C coach uses technology, but relies on it too heavily and thus may not be able to function as well as a coach without it.
BS9)	A beginner S&C coach possesses an awareness of their own skills and abilities to properly implement the head S&C coach's program and will ask for guidance on areas of uncertainty.
BS10)	A beginner S&C coach displays strong time management, scheduling, and organizational skills personally and for athlete and team training programs.

Table 10

Aggregated Knowledge Areas of Expert, Competent, and Beginner S&C Coaches Generated Based on the First-Round Survey Responses

	Knowledge Area
Expert	
EK1)	An expert S&C coach understands how to develop a multi-year effective goal-based training program that accounts for the demands of the given sport, sport coach, practice sessions, competition and travel schedule, possible academic schedule, recovery routines, nutritional programs, sleep patterns, possible injury rehabilitation plan, and has the knowledge to adjust this plan when needed.
EK2)	An expert S&C coach understands that there is always more to learn and thus strives to learn from other coaches, read current research, attend and present at conferences, participate in continuing education programs, learn from their experiences, and look to publish their own research.
EK3)	An expert S&C coach has a strong knowledge and understanding of their athletes developed through positive interpersonal relationships which helps the coach know how to motivate their athletes and coach them on an individual level based on each athlete's needs.
EK4)	An expert S&C coach has a strong knowledge and understanding of their staff members, including S&C coaches, sport coaches, training staff, front office, and administration, developed through positive interpersonal relationships. This allows the expert S&C coach to be a more effective leader, particularly of S&C coaches on their staff, and have open lines of communication between all staff members.
EK5)	An expert S&C coach understands that the number one priority is to help the athlete accomplish the goals for their specific sport and the expert S&C coach knows more than one way to help the athlete accomplish these goals.
EK6)	An expert S&C coach understands how to apply advanced exercise science related knowledge to the training of their athletes so that each athlete improves their specific sport performance.

	Knowledge Area
EK7)	An expert S&C coach has a strong knowledge of training and technique of movements which enables the coach to apply simple and effective coaching cues to their athletes.
Competent	
CK1)	A competent S&C coach understands their training program thoroughly enough so that they can explain the purpose and reasoning behind every aspect of the program, such as periodization and exercise selection, and how it reflects their philosophy.
CK2)	A competent S&C coach has a strong level of understanding of exercise technique and thus knows when an athlete's movement pattern needs to be modified.
CK3)	A competent S&C coach has a strong level of knowledge of exercise science, possibly obtained through a master's degree and current research, and understands how to apply this knowledge in training an athlete for their specific sport.
CK4)	A competent S&C coach understands how to design an individualized training program and implement the program based on an athlete's needs. This program can be designed by the coach based on their knowledge of energy systems, nutrition, stress management, injury rehabilitation, performance testing, sports psychology, and a variety of training methods.
CK5)	A competent S&C coach understands how to manage a large group of athletes and enforce rules, regulations, and associated disciplinary actions.
CK6)	A competent S&C coach has gained knowledge from coaches under whom they have worked and other coaches in the field which has aided in their own development as a S&C coach.
CK7)	A competent S&C coach enhances knowledge and fosters a continual improvement model through continuing education and active participation in S&C development courses, events, and programs such as: FMS, SFMA, PRI, FST, and FRC.
Beginner	
BK1)	A beginner S&C coach understands basic exercise science such as physiology, anatomy, and biomechanics, possibly obtained from an undergraduate degree in an exercise science related field of study.
BK2)	A beginner S&C coach has enough S&C related knowledge regarding exercise technique, program design, nutrition, how to progress, injury rehabilitation, and safety procedures to become a certified S&C coach such as a Certified Strength and Conditioning Specialist (CSCS) through the National Strength and Conditioning Association (NSCA).
BK3)	A beginner S&C coach understands the coaching cues that can be utilized to coach basic movement patterns, such as a squat, hinge, lunge, push, and pull, and understands how these movement patterns translate to the athlete's specific sport.
BK4)	A beginner S&C coach understands the importance of enhancing an athlete's specific sport performance along with the additional goals and main points of emphasis of the training program that are determined by the head S&C coach.

Table 11

Aggregated Experiences of Expert, Competent, and Beginner S&C Coaches Generated Based on the First-Round Survey Responses

Experience	
Expert	
EE1)	An expert S&C coach has earned an advanced degree, such as a master's or doctorate, in a kinesiology related discipline and obtained multiple S&C related certifications, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.
EE2)	An expert S&C coach has been a coach for multiple championship-winning athletes and/or teams.
EE3)	An expert S&C coach has been a coach for multiple athletes who have won prestigious personal honors such as most valuable player, all-American, or all-star awards.
EE4)	An expert S&C coach has at least 10 years of head S&C coaching experience. During their career the expert S&C coach has been a part of a mentor-protégé relationship as both a mentor and protégé, had constant reflection of their own experiences, and learned from their experiences in order to develop their coaching abilities.
EE5)	An expert S&C coach has experience working in a wide variety of environments with many different sports and sport coaches. During this time the expert S&C coach has faced challenging situations while still designing and implementing effective and comprehensive programs that have aided a wide variety of athletes with different needs such as those for the athlete's specific sport, injury rehabilitation, or nutrition-based needs.
EE6)	An expert S&C coach has experience leading, mentoring, and developing S&C coaches to aid in their development as S&C coaches.
EE7)	An expert S&C coach has experience in developing a strong network of professionals, such as S&C coaches, nutritionists, sport coaches, sport psychologists, sport medicine specialists, general managers, athletic directors, and administrators that can be consulted for a wide variety of topics ranging from program design to coaching of an individual athlete along with aiding in the professional development of the expert S&C coach.
Competent	
CE1)	A competent S&C coach has earned at least an undergraduate degree in a kinesiology related discipline and obtained at least one S&C related certification, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.
CE2)	A competent S&C coach has five to nine years of S&C coaching experience where they were responsible for leading the training sessions of both individual athletes and large teams. During this time they have worked with a variety of sports, organizations, sport coaches, and athletes with different needs.

Experience	
CE3)	A competent S&C coach has had experience training multiple sports and working with the sport coaches in developing an offseason and in-season evidence-based training program that encompasses the ideas of the sport coach, demands of the sport, and needs of each athlete, such as injury rehabilitation if applicable.
CE4)	A competent S&C coach has had experience as a protégé in a mentor-protégé relationship where they experienced challenging situations and overcame them with the help of their mentor, who is an experienced and qualified S&C coach.
CE5)	A competent S&C coach has experience attending and presenting at conferences, participating in continuing education programs, and conducting professional visits to other S&C programs where they interacted with, observed, and learned from other S&C coaches in order to develop their own coaching abilities.
Beginner	
BE1)	A beginner S&C coach has up to four years of S&C coaching experience through an internship or volunteer position. During this time they have taken on multiple coaching responsibilities such as designing a program and implementing a head S&C coach's program and philosophy when coaching individual or small groups of athletes for multiple sports.
BE2)	A beginner S&C coach has athletic playing experience at the collegiate or professional level which helps the beginner S&C coach relate to the special needs and circumstances faced daily by their athletes.
BE3)	A beginner S&C coach has experience taking part in resistance, speed, and plyometric training programs in order to deepen their understanding of techniques and coaching cues to more effectively coach their athletes.
BE4)	A beginner S&C coach has earned or is working toward earning an undergraduate degree in a kinesiology related discipline and has obtained or is working toward obtaining a S&C related certification, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.
BE5)	A beginner S&C coach has experience observing and interviewing experienced and qualified S&C coaches, attending conferences, and reading relevant literature in order to aid in their development as a S&C coach.
BE6)	A beginner S&C coach has experience overcoming challenging situations such as limited availability of training resources, under-motivated athletes, injured athletes, and differences between S&C coaches on staff.

Summary

The first-round survey was designed to create a starting point for which the participants could provide an expert opinion to begin the debating process (Nworie, 2011). This was successfully accomplished as 1,181 characteristics were provided by 87 experienced elite-level

head S&C coaches with an average of 18 years of coaching experience. These characteristics were aggregated and peer debriefed to result in 68 characteristics, which were placed on the second-round survey. It was of the utmost importance to the researcher that all input of the participants was included in this study to be evaluated and thus great efforts were made through the peer debriefing process to confirm that all original characteristics provided by the participants were accounted for in the aggregated characteristics.

Overall, the first-round survey fulfilled its purpose by collecting input from some of the most experienced professionals in the field of S&C, which generated a vast amount of data that allowed the participants to begin to debate the characteristics that differentiate expert, competent, and beginner S&C coaches. The second round of this study allowed these participants to rate the importance of the characteristics provided in the first round along with offering open-ended feedback. This second round was designed to direct the participants one step closer to generating a list of characteristics that differentiate expert, competent, and beginner S&C coaches.

CHAPTER 5

SECOND-ROUND SURVEY RESULTS

The purpose of this study is to identify the characteristics that differentiate expert, competent, and beginner S&C coaches. The researcher selected the Delphi technique to conduct this study. The Delphi method uses information gained from the previous round to stimulate a more in-depth exploration by the participants of their experience and knowledge to answer the research question. This further exploration was aided by providing all 87 elite-level head S&C coaches that participated in this study with a list of the 68 aggregated characteristics produced by the responses in the first-round survey. These characteristics were placed on the second-round survey and associated with a five-point Likert scale. The five-point Likert scale selection choices were based on level of importance, specifically: “Not at all important,” “Slightly important,” “Moderately important,” “Very important,” and “Extremely important.” To continue to offer each participant as many opportunities as possible to provide feedback, open-ended response boxes were provided in each section of skills, knowledge, and experience for each level of expertise. A sample of the second-round survey can be found in Appendix Z.

The participants were asked to rate each characteristic on its level of importance to be possessed by a beginner, competent, or expert S&C coach respectively. The participants were also provided the option to supply additional feedback regarding their rating of a characteristic, such as why they rated it the way they did, suggestions to improve the phrasing of the characteristic, or the addition of an entirely new characteristic. The participants were given open-

ended response boxes for each level of expertise to provide them with opportunities to include their feedback. This second-round survey took most coaches less than 20 minutes to complete.

As was done by Weidner and Henning (2004) and Ross et al. (2014), all responses with a mean score of at least 4.0, or “Very important,” and a standard deviation equal or less than 1.0, demonstrated consensus and were placed on the final list of characteristics. Any characteristic that did not reach consensus was revised based on the coaches’ feedback in the open-ended response boxes and placed on the third/final-round survey to be evaluated. If a characteristic did not reach consensus and did not receive any suggestion for rephrasing then it was not placed on the final-round survey since this would have been redundant by asking the participants to rate the same characteristic as they did in the second round. The purpose of this data collection method was to begin moving participants closer toward agreement of the characteristics that differentiate expert, competent, and beginner S&C coaches.

Personalized links of these second-round surveys were generated through Qualtrics, which is an online survey engine, for each participant and then e-mailed on December 8, 2016 to each of the 87 participants that completed the first-round survey. A weekly follow-up e-mail was sent to each participant that had not yet completed their second-round survey. Follow-up e-mails were distributed until January 16, 2017 when the data from the second-round survey was collected. Participants that had not yet completed their survey were made aware of a closing deadline for the survey and at the end of the second round 82 out of the 87 original participants completed their second-round survey.

The second round resulted in 51 of the 68 characteristics reaching consensus. Characteristics that did not reach a level of consensus during the second round can be seen in Tables 20-22 located in Appendix AA. Ten new characteristics were suggested by the

participants in the open-ended response boxes of the second-round survey. These 10 new characteristics were either brand new or a suggestion to rephrase a characteristic that did not reach a level of consensus. These characteristics were then placed on the third-round survey through Qualtrics in the same format as they were in the second-round survey.

The following is an analysis of the second-round findings where the characteristics are divided into three categories of skills, knowledge, and experience. These categories are presented in Tables 12-14 where Table 12 presents the skills, Table 13 presents the knowledge areas, and Table 14 presents the experiences of expert, competent, and beginner S&C coaches. Within these tables the characteristics are ranked by their average rating of importance as expressed by the participants.

Second-Round Findings

Skills

The data presented in Tables 12-14 directly answers the research question in this study and identifies the characteristics that differentiate expert, competent, and beginner S&C coaches. Twenty-seven skills reached a level of consensus: 11 expert skills, nine competent skills, and seven beginner skills. The mean ratings of expert skills that reached consensus ranged from 4.13 to 4.79 with a standard deviation of less than 1.0. This translates to stating that on average, the 82 experienced elite-level head coaches that participated in the second round of this study believe that these skills are at least very important, if not extremely important, for an expert S&C coach to possess.

The mean ratings of competent skills that reach consensus ranged from 4.10 to 4.68 with a standard deviation of less than 1.0. Again, this tells us that the participants in this study found

these characteristics to be between very important and extremely important for a competent S&C coach to possess.

Similarly, the mean ratings of beginner skills that reached consensus ranged from 4.05 to 4.85 with a standard deviation of less than 1.0. This tells us as well that coaches in this study found these skills to be at least very important, if not extremely important, for a beginner S&C coach to possess.

Of the 27 skills that reached a level of consensus it is interesting to note that six skills had an interquartile range of zero while only one skill was greater than one. This tells us, along with the standard deviations being less than 1.0, that there was a small degree of variability from the participants' responses. The frequencies also confirm this small degree of variability as for all skills that reached a level of consensus only nine percent of the total ratings for these skills were below, "Very important," meaning that 91 percent of all ratings for these skills were at least "Very important." Consequently, it was overwhelmingly agreed upon by the participants of this study that these characteristics were at least very important for an expert, competent, or beginner S&C coach to possess respectively.

Key themes that emerged from the skills of an expert coach include that they: a) remain humble, b) communicate complex information in simple terms, c) effectively coach large groups of athletes, d) identify what is important, e) develop professional and personal relationships, f) handle adversity, g) motivate athletes, h) effectively manage and develop other coaches, i) implement individualized science-based training programs, j) train the athlete for the athlete's specific sport, and k) oversee departmental finances. Key themes that emerged from the skills of competent coaches include that they: a) confidently communicate verbally and through demonstration, b) explain the purpose, c) provide specific feedback, d) develop a positive

relationship with personnel involved in the athlete's development, e) design effective periodized programs based on an athlete's needs, f) effectively manage training environments and large groups, and g) evaluate training technique. Key themes that emerged from the skills of beginner coaches include that they: a) display a strong passion, b) have great listening skills, c) implement the coaching philosophy of their superior, d) have an awareness of their own skills, e) demonstrate sound time management, f) communicate and teach basic movements, and g) develop professional and personal relationships with personnel.

It is important to note that some of the themes that emerged for the skills of all three levels of expertise overlapped. For example, the theme of communication was present for all three levels of expertise. This could point to the importance that the participants of this study placed on communication being a vital skill for all S&C coaches, no matter their level of expertise. It is also important to note that even though the general theme of "communication" was present in all three levels of expertise, there were varying levels of communication noted as requirements for the different levels of expertise. Skills that would fit underneath the theme of "communication" include that, "An expert S&C coach communicates complex training prescription and long-term athlete development processes clearly and simply to a diverse population of athletes, sport coaches, and training staff members;" while "A competent S&C coach clearly explains to an athlete or a sport coach the purpose and reason an exercise is included in the training program;" and then "A beginner S&C coach confidently communicates and teaches basic movements such as a squat, hinge, lunge, push, and pull, both verbally and through demonstration, along with explaining the goal of the exercise." As can be seen in these skills, even though it is important for coaches at all levels to be able to communicate, it is expected of an expert coach to communicate complex long-term training programs in a simple

way so that a wide variety of personnel with many different specialties can understand, whereas a competent coach is just expected to communicate to an athlete or a sport coach why an exercise is included in the training program, and then the beginner coach is only expected to explain to the athlete how to perform and the goal of performing one of the basic movement patterns. The ability for a theme to be differentiated amongst the three levels of expertise is an immense strength of these results.

The open-ended feedback provided by the participants regarding the skills for all three levels of expertise covered a wide range of topics including recommendations for rephrasing a question, recommendations for a new skill to be included on the third-round survey, and additional comments supporting their rating or an overall outlook on this portion of the study. These comments were vital as they were used as the basis for generating the characteristics provided in the third-round survey.

Table 12 below displays the 27 skills that reached a level of consensus during the second round and are organized by skills to be possessed by an expert, competent, or beginner S&C coach respectively. They are ranked in order of their average rating, and the standard deviation, interquartile range, and frequencies are provided in order to show the distribution of how each skill was rated by the participants.

For example, when looking at expert skill, “E1,” “An expert S&C coach remains humble because they know there is always more to learn” we can see that this skill received the highest average rating, of 4.79, of all skills in the second-round survey. This says that on average, the participants rated this skill as being at least very important for an expert S&C coach to possess. With the standard deviation being 0.44 and the interquartile range being zero this shows that there was very little variability in the data. The standard deviation of 0.44 specifically tells us

that the majority of the ratings were close to the mean. The interquartile range of zero tells us that when we subtract the 75th percentile, or third quartile, data point from the 25th percentile, or first quartile, data point then the end result is zero. This indicates that the third and first quartile are the same value, confirming that the ratings were very similar amongst all participants. The frequency is provided in order to further display the degree of variability of the data, and more specifically, display the exact number of ratings for each value on the five-point Likert scale in the second-round survey. For expert skill E1, having all but one rating be either a four or a five further supports the 4.79 mean score along with the low measures of variability displayed by both the standard deviation and interquartile range. Overall, we can gather from these data for skill E1 that it was the highest rated skill for an expert S&C coach to possess as it was rated either “Very important” or “Extremely important” by 81 of the 82 participants, displaying a very low level of variability and a strong level of agreement of the importance of this skill to be possessed by an expert S&C coach.

It is important to note that even though skill E1 was the highest rated skill of an expert S&C coach, all skills listed in Table 12 reached a level of consensus and were thus deemed at least “Very important” to be possessed by an expert, competent, or beginner S&C coach. For example, skill E11 was the lowest rated skill of an expert to reach a level of consensus, however, its average rating of 4.13 still indicates that the skill was deemed to be more than very important for an expert to possess. A standard deviation of 0.91 with an interquartile range of one indicates a slightly larger degree of variability when compared to skill E1, however it is still a small degree of variability, which is reflected in the frequency values where 64 of the 82 participants rated this skill to be either “Very important” or “Extremely important” to be possessed by an expert S&C coach. Even though skill E1 received 21 percent more ratings of

“Very important” or “Extremely important” than skill E11, for skill E11 to have 78 percent of its ratings reach consensus this still indicates very minimal variability and thus strongly supports that the majority of the participants in this study find this characteristic to be at least very important for an expert S&C coach to possess.

Table 12

Skills of Expert, Competent, and Beginner S&C Coaches that Reached Consensus During the Second Round

Skill						M (SD)	IQR
Expert							
ES1)	An expert S&C coach remains humble because they know there is always more to learn.					4.79 (0.44)	0
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	0	1	15	66	
ES2)	An expert S&C coach communicates complex training prescription and long-term athlete development processes clearly and simply to a diverse population of athletes, sport coaches, and training staff members.					4.78 (0.50)	0
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	0	3	12	67	
ES3)	An expert S&C coach effectively coaches and communicates to a large group of athletes at one time while maintaining a strong control of the room and still be able to coach athletes on an individual basis.					4.77 (0.50)	0
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	0	3	13	66	
ES4)	An expert S&C coach intuitively identifies what is most important. Specifically, technical errors in movement, and then prescribes feedback including modifications to fix these errors in a manner that is simple for the athlete to understand.					4.76 (0.53)	0
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	1	1	15	65	

Skill						M (SD)	IQR
ES5) An expert S&C coach develops a professional and personal relationship with the athletes, S&C coaches, sport coaches, nutritionists, training staff, front office, and administration which generates effective communication and understanding between all involved in the development of the athlete. The expert S&C coach then takes the knowledge gained from these relationships in better developing the athletes that they coach to help each athlete reach both their personal and athletic goals.						4.70 (0.51)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	2	21	59		
ES6) An expert S&C coach remains calm and confident when faced with adversity. They are able to intuitively make adjustments and fill any role needed to get the job at hand accomplished.						4.70 (0.51)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	2	21	59		
ES7) An expert S&C coach effectively motivates athletes and creates a culture based on a strongly grounded belief system where teammates motivate each other and trust the process.						4.66 (0.69)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	1	0	4	16	61		
ES8) An expert S&C coach effectively manages and develops the S&C coaches on their staff.						4.63 (0.56)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	3	24	55		
ES9) An expert S&C coach implements a long-term science-based individualized plan for an athlete that the expert S&C coach can adapt and adjust overtime based on the needs of the athlete.						4.55 (0.67)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	2	2	27	51		
ES10) An expert S&C coach trains athletes with the primary goal of helping each athlete excel in their specific sport.						4.53 (0.74)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	1	1	3	25	52		
ES11) An expert S&C coach properly oversees budget or departmental finances.						4.13 (0.91)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	1	3	14	30	34		

Skill						M (SD)	IQR
Competent							
CS1) A competent S&C coach confidently communicates proper exercise technique to athletes using simple verbal coaching cues and through physical demonstration.						4.68 (0.47)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	0	26	56		
CS2) A competent S&C coach develops a positive relationship and communicates effectively and regularly with sport coaches and training staff to gather their input and report the progress being made by athletes during S&C training sessions.						4.63 (0.53)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	2	26	54		
CS3) A competent S&C coach designs an effective periodized program based on the athlete's needs and their sport, making adjustments in the program when needed. Adjustments could be based on factors such as recent testing, injury, or input from the sport coach.						4.60 (0.56)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	3	27	52		
CS4) A competent S&C coach effectively manages a training environment involving a large group and runs the daily activities of a S&C program including managing a variety of circumstances that may arise.						4.56 (0.57)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	3	30	49		
CS5) A competent S&C coach clearly explains to an athlete or a sport coach the purpose and reason an exercise is included in the training program.						4.49 (0.65)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	1	4	31	46		
CS6) A competent S&C coach develops a professional and personal relationship with the athletes and all personnel involved in the development of each athlete which generates more effective communication and understanding between everyone involved. The competent S&C coach then takes the knowledge gained from these relationships in better developing the athlete's athletic performance.						4.43 (0.72)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	2	5	31	44		

Skill						M (SD)	IQR
CS7) A competent S&C coach provides specific corrective feedback to athletes immediately when needed in order to improve performance.						4.35 (0.71)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	2	5	37	38		
CS8) A competent S&C coach evaluates training techniques and proficiency to assess if regression or progression in training should be implemented.						4.34 (0.57)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	4	46	32		
CS9) A competent S&C coach has a firm identity of who they are as a coach, their coaching style, and their coaching philosophy, which they clearly communicate.						4.10 (0.75)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	1	16	39	26		
Beginner							
BS1) A beginner S&C coach displays and communicates a strong passion for the field of S&C, a willingness to be open-minded, learn, work hard, and pay attention to detail.						4.85 (0.39)	0
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	1	10	71		
BS2) A beginner S&C coach displays great listening skills by modifying their own behavior based on feedback from the head S&C coach and following instructions. Instructions could include: setting up/cleaning the weight room, spotting athletes during exercises, and being prepared and reliable when needed for assistance.						4.73 (0.50)	0
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	2	18	62		
BS3) A beginner S&C coach implements the coaching philosophy of the organization in which they are working.						4.50 (0.86)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	1	3	5	18	55		
BS4) A beginner S&C coach possesses an awareness of their own skills and abilities to properly implement the head S&C coach's program and will ask for guidance on areas of uncertainty.						4.39 (0.72)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	1	8	31	42		

Skill						M (SD)	IQR
BS5) A beginner S&C coach displays strong time management, scheduling, and organizational skills personally and for athlete and team training programs.						4.12 (0.85)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	1	3	10	39	29		
BS6) A beginner S&C coach confidently communicates and teaches basic movements such as a squat, hinge, lunge, push, and pull, both verbally and through demonstration, along with explaining the goal of the exercise.						4.10 (0.86)	2
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	2	20	28	32		
BS7) A beginner S&C coach develops a professional and personal relationship with the athletes, S&C coaches, sport coaches, and training staff which generates more effective communication.						4.05 (0.83)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	3	17	35	27		

Knowledge

Fourteen knowledge areas reached a level of consensus: seven expert knowledge areas, seven competent knowledge areas, and zero beginner knowledge areas. The mean ratings of expert knowledge areas that reached consensus ranged from 4.63 to 4.83 with a standard deviation of less than 1.0. This translates to stating that on average, the 82 experienced elite-level head coaches that participated in the second round of this study believe that these knowledge areas are at least very important, if not extremely important, for an expert S&C coach to possess.

The mean ratings of competent knowledge areas that reached consensus ranged from 4.04 to 4.48 with a standard deviation of less than 1.0. Again, this tells us that the participants in this study found that these characteristics are between very important and extremely important for a competent S&C coach to possess.

With zero beginner knowledge areas reaching consensus, this tells us that, on average, the participants did not find any of the beginner knowledge areas listed in the second-round survey

to be very important for a beginner S&C coach to possess. The average rating of the three knowledge areas that did not reach consensus ranged from 3.79 to 3.99 with a standard deviation less than 1.0, and these characteristics can be viewed in Table 21 in Appendix AA.

Of these 14 knowledge areas, it is interesting to note, similar to the skills listed in Table 12, that only one knowledge area had an interquartile range greater than one. This tells us, along with the standard deviations being less than 1.0, that there was a small degree of variability from the participants' responses. The frequencies also confirm this small degree of variability as for all knowledge areas that reached a level of consensus only six percent of the total ratings for these knowledge areas were below, "Very important," meaning that 94 percent of all ratings for these skills were at least "Very important." This tells us that it was overwhelmingly agreed upon by the participants of this study that these characteristics were at least very important for an expert, competent, or beginner S&C coach to possess respectively.

Key themes that emerged from the knowledge areas of an expert coach include that they have knowledge of a) training and technique, b) each individual athlete, c) personnel involved in athlete's development, d) designing a multi-year program, e) the importance of an athlete's sport performance, f) applying advanced exercise science, and g) that there is more to learn. Key themes that emerged from the knowledge areas of competent coaches include that they have knowledge of a) exercise technique, b) how to manage a large group, c) learning from other coaches, d) the purpose and reasoning behind their training programs, e) how to design individualized training programs, f) exercise science, and g) continued education course content along with development course content.

Similar to that of skills, it is important to note that some of the themes that emerged for the knowledge areas of expert and competent coaches overlapped. For example, the theme of

exercise science was present for both levels of expertise. Also, similar to the skill themes that overlapped, the individual characteristics that described these themes identify various levels of knowledge needed for the different levels of expertise. Specifically, the characteristic, “An expert S&C coach understands how to apply advanced exercise science related knowledge to the training of their athletes so that each athlete improves their specific sport performance,” compared to, “A competent S&C coach has a strong level of knowledge of exercise science, possibly obtained through a master’s degree and current research, and understands how to apply this knowledge in training an athlete for their specific sport,” identifies that both levels of expertise have an understanding of exercise science while the expert coach has an advanced level compared to the competent coach. A strength of these characteristics is that they are differentiated between the different levels of coaching expertise, specifically, an expert requires an advanced level of knowledge of exercise science whereas the competent coach just requires general exercise science knowledge. A limitation of this differentiation is that the term “advanced” may be interpreted different ways by different evaluators. Overall, when looking to identify an expert versus a competent coach, these characteristics tell us that an expert S&C coach has a greater level of knowledge of exercise science than a competent S&C coach.

Similar to the area of skills, the open-ended feedback provided by the participants for the knowledge areas of different levels of expertise covered a wide range of topics including recommendations for rephrasing a question, recommendations for a new knowledge area to be included on the third-round survey, and additional comments supporting their rating or an overall outlook on this portion of the study. These comments were vital as they formed the basis for generating the characteristics provided in the third-round survey.

Based on the feedback from the participants, the reason for zero beginner knowledge areas reaching consensus could have been due to the idea that beginner coaches were true beginner coaches that had not yet acquired much S&C coaching knowledge to this point. Many coaches looked at a beginner coach as a coach that had just entered the profession and was not expected to have any level of certification or S&C related education to this point. Participants stated that a beginner coach's primary role in regard to knowledge acquisition was to acquire knowledge from the S&C coaches under whom they work. One NCAA Division I FBS "Power Five" conference coach stated, "I feel that many of the areas listed here are quite important, but may not have been attained at the 'Beginner' level yet."

Table 13 below displays the 14 knowledge areas that reached a level of consensus during the second round and are organized by skills to be possessed by expert and competent coaches. Just as displayed in Table 12, these characteristics are ranked in order of their average rating, and the standard deviation, interquartile range, and frequencies are provided in order to show the distribution of how each knowledge area was rated by the participants.

Table 13

Knowledge Areas of Expert, Competent, and Beginner S&C Coaches that Reached Consensus During the Second Round

Knowledge Area		M (SD)	IQR
Expert			
EK1)	An expert S&C coach has a strong knowledge of training and technique of movements which enables the coach to apply simple and effective coaching cues to their athletes.	4.83 (0.38)	0
<u>Rating</u>	1 2 3 4 5		
<u>Frequency</u>	0 0 0 14 68		

Knowledge Area						M (SD)	IQR
EK2)	An expert S&C coach has a strong knowledge and understanding of their athletes developed through positive interpersonal relationships which helps the coach know how to motivate their athletes and coach them on an individual level based on each athlete's needs.					4.79 (0.44)	0
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	0	1	15	66	
EK3)	An expert S&C coach has a strong knowledge and understanding of their staff members, including S&C coaches, sport coaches, training staff, front office, and administration, developed through positive interpersonal relationships. This allows the expert S&C coach to be a more effective leader, particularly of S&C coaches on their staff, and have open lines of communication between all staff members.					4.78 (0.45)	0
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	0	1	16	65	
EK4)	An expert S&C coach understands how to develop a multi-year effective goal-based training program that accounts for the demands of the given sport, sport coach, practice sessions, competition and travel schedule, possible academic schedule, recovery routines, nutritional programs, sleep patterns, possible injury rehabilitation plan, and has the knowledge to adjust this plan when needed.					4.77 (0.53)	0
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	1	1	14	66	
EK5)	An expert S&C coach understands that the number one priority is to help the athlete accomplish the goals for their specific sport and the expert S&C coach knows more than one way to help the athlete accomplish these goals.					4.73 (0.55)	0
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	1	1	17	63	
EK6)	An expert S&C coach understands how to apply advanced exercise science related knowledge to the training of their athletes so that each athlete improves their specific sport performance.					4.66 (0.57)	1
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	0	4	20	58	

Knowledge Area	M (SD)					IQR
EK7) An expert S&C coach understands that there is always more to learn and thus strives to learn from other coaches, read current research, attend and present at conferences, participate in continuing education programs, learn from their experiences, and look to publish their own research.	4.63 (0.64)					1
<u>Rating</u>	1	2	3	4	5	
<u>Frequency</u>	0	2	1	22	57	

Competent

CK1) A competent S&C coach has a strong level of understanding of exercise technique and thus knows when an athlete's movement pattern needs to be modified.	4.48 (0.59)					1
<u>Rating</u>	1	2	3	4	5	
<u>Frequency</u>	0	1	1	38	42	
CK2) A competent S&C coach understands how to manage a large group of athletes and enforce rules, regulations, and associated disciplinary actions.	4.43 (0.61)					1
<u>Rating</u>	1	2	3	4	5	
<u>Frequency</u>	0	0	5	37	40	
CK3) A competent S&C coach has gained knowledge from coaches under whom they have worked and other coaches in the field which has aided in their own development as a S&C coach.	4.41 (0.65)					1
<u>Rating</u>	1	2	3	4	5	
<u>Frequency</u>	0	1	4	37	40	
CK4) A competent S&C coach understands their training program thoroughly enough so that they can explain the purpose and reasoning behind every aspect of the program, such as periodization and exercise selection, and how it reflects their philosophy.	4.35 (0.65)					1
<u>Rating</u>	1	2	3	4	5	
<u>Frequency</u>	0	2	2	43	35	
CK5) A competent S&C coach understands how to design an individualized training program and implement the program based on an athlete's needs. This program can be designed by the coach based on their knowledge of energy systems, nutrition, stress management, injury rehabilitation, performance testing, sports psychology, and a variety of training methods.	4.32 (0.63)					1
<u>Rating</u>	1	2	3	4	5	
<u>Frequency</u>	0	1	4	45	32	

Knowledge Area	M (SD)					IQR
CK6) A competent S&C coach has a strong level of knowledge of exercise science, possibly obtained through a master's degree and current research, and understands how to apply this knowledge in training an athlete for their specific sport.	4.20 (0.71)					1
<u>Rating</u>	1	2	3	4	5	
<u>Frequency</u>	0	2	8	44	28	
CK7) A competent S&C coach enhances knowledge and fosters a continual improvement model through continuing education and active participation in S&C development courses, events, and programs such as: FMS, SFMA, PRI, FST, and FRC.	4.04 (0.91)					1.75
<u>Rating</u>	1	2	3	4	5	
<u>Frequency</u>	1	3	17	32	29	

Beginner

No knowledge areas for beginners reached a level of consensus during the second round.

Experiences

Ten experiences, specifically four expert experiences, four competent experiences, and two beginner experiences reached a level of consensus. The mean ratings of expert experiences that reached consensus ranged from 4.11 to 4.50 with a standard deviation of less than 1.0. Thus, on average, the 82 experienced elite-level head coaches that participated in the second round of this study believe that these experiences are at least very important, if not extremely important, for an expert S&C coach to possess.

The mean ratings of competent experiences that achieved consensus ranged from 4.01 to 4.34 with a standard deviation of less than 1.0. Again, this tells us that the participants in this study find that these characteristics are between very important and extremely important for a competent S&C coach to possess.

Similarly, the mean ratings of beginner experiences that reached consensus ranged from 4.05 to 4.13 with a standard deviation of less than 1.0. This tells us as well that coaches in this

study found these experiences to be at least very important, if not extremely important, for a beginner S&C coach to possess.

Of these 10 experiences that reached consensus only two characteristics had an interquartile range slightly above one, yet again telling us that along with the standard deviations being less than 1.0, that there was a small degree of variability from the participants' responses. The frequencies also confirm this small degree of variability as for all experiences that reached a level of consensus, 84 percent of the total ratings for these experiences were at least, "Very important." As was the same for the skills and knowledge areas that reached consensus, these data tell us that it was strongly agreed upon by the participants of this study that these experiences that reached consensus are, at minimum, very important for an expert, competent, or beginner S&C coach to possess respectively.

Key themes that emerged from the experiences of an expert coach include that they have a) worked in a wide variety of environments with different sports, b) mentored S&C coaches, c) developed a strong network of professionals, and d) coached for at least 10 years. Key themes that emerged from the experiences of competent coaches include that they have a) earned an undergraduate degree and S&C certification, b) coached multiple sports, c) coached for five to nine years, and d) had been a protégé that has overcome challenging situations. Key themes that emerged from the experiences of beginner coaches include that they have a) earned or are working toward an undergraduate degree and a S&C certification, and b) taken part in training programs.

Similar to that of skills and knowledge areas, there was some overlap in the themes of different levels of expertise. For example, the theme of training/coaching was present for all three levels of expertise. Experiences that would fit within the theme of "training/coaching"

include that, “An expert S&C coach has experience working in a wide variety of environments with many different sports and sport coaches. During this time the expert S&C coach has faced challenging situations while still designing and implementing effective and comprehensive programs that have aided a wide variety of athletes with different needs such as those for the athlete's specific sport, injury rehabilitation, or nutrition-based needs;” while, “A competent S&C coach has had experience training multiple sports and working with the sport coaches in developing an offseason and in-season evidence-based training program that encompasses the ideas of the sport coach, demands of the sport, and needs of each athlete, such as injury rehabilitation if applicable;” and then, “A beginner S&C coach has experience taking part in resistance, speed, and plyometric training programs in order to deepen their understanding of techniques and coaching cues to more effectively coach their athletes.” While expert coaches are expected to have experience working in a wide variety of environments with many different sports, competent coaches are expected to have experience coaching multiple sports. Beginners are just expected to have participating in a training program themselves, not necessarily have experience coaching athletes through these training programs. Again, having these consistent themes span across all three levels of expertise with differentiating factors within each individual characteristic points to the importance the participants placed on these themes while also identifying that different levels of expertise will have experienced different degrees of this type of experience. This aspect is vital when looking to identify a coach’s level of expertise.

The open-ended feedback provided by the participants regarding the experiences for all three levels of expertise covered a wide range of topics including recommendations for rephrasing a question, recommendations for a new experience to be included on the third-round survey, and additional comments supporting their rating or an overall outlook on this portion of

the study. These comments were vital as they were used as the basis for generating the characteristics provided in the third-round survey.

Table 14 below displays the 10 experiences that reached a level of consensus during the second round and are organized by experiences possessed by an expert, competent, and beginner S&C coach. Just as displayed in Tables 12 and 13, these characteristics are ranked in order of their average rating, while the standard deviation, interquartile range, and frequencies are provided in order to display the distribution of how each experience was rated by the participants.

Table 14

Experiences of Expert, Competent, and Beginner S&C Coaches that Reached Consensus During the Second Round

Experience		M (SD)	IQR
Expert			
EE1)	An expert S&C coach has experience working in a wide variety of environments with many different sports and sport coaches. During this time the expert S&C coach has faced challenging situations while still designing and implementing effective and comprehensive programs that have aided a wide variety of athletes with different needs such as those for the athlete's specific sport, injury rehabilitation, or nutrition-based needs.	4.50 (0.72)	1
<u>Rating</u>	1 2 3 4 5		
<u>Frequency</u>	0 2 5 25 50		

Experience						M (SD)	IQR
EE2)	An expert S&C coach has experience leading, mentoring, and developing S&C coaches to aid in their development as S&C coaches.					4.41 (0.75)	1
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	2	7	28	45	
EE3)	An expert S&C coach has experience in developing a strong network of professionals, such as S&C coaches, nutritionists, sport coaches, sport psychologists, sport medicine specialists, general managers, athletic directors, and administrators that can be consulted for a wide variety of topics ranging from program design to coaching of an individual athlete along with aiding in the professional development of the expert S&C coach.					4.39 (0.73)	1
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	1	9	29	43	
EE4)	An expert S&C coach has at least 10 years of head S&C coaching experience. During their career the expert S&C coach has been a part of a mentor-protégé relationship as both a mentor and protégé, had constant reflection of their own experiences, and learned from their experiences in order to develop their coaching abilities.					4.11 (0.92)	1.75
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	1	2	18	27	34	
Competent							
CE1)	A competent S&C coach has earned at least an undergraduate degree in a kinesiology related discipline and obtained at least one S&C related certification, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.					4.34 (0.76)	1
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	0	3	5	35	39	
CE2)	A competent S&C coach has had experience training multiple sports and working with the sport coaches in developing an offseason and in-season evidence-based training program that encompasses the ideas of the sport coach, demands of the sport, and needs of each athlete, such as injury rehabilitation if applicable.					4.21 (0.75)	1
	<u>Rating</u>	1	2	3	4	5	
	<u>Frequency</u>	1	1	7	44	29	

Experience						M (SD)	IQR
CE3) A competent S&C coach has five to nine years of S&C coaching experience where they were responsible for leading the training sessions of both individual athletes and large teams. During this time they have worked with a variety of sports, organizations, sport coaches, and athletes with different needs.						4.08 (0.74)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	1	16	40	25		
CE4) A competent S&C coach has had experience as a protégé in a mentor-protégé relationship where they experienced challenging situations and overcame them with the help of their mentor, who is an experienced and qualified S&C coach.						4.01 (0.81)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	3	17	38	24		
Beginner							
BE1) A beginner S&C coach has earned or is working toward earning an undergraduate degree in a kinesiology related discipline and has obtained or is working toward obtaining a S&C related certification, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.						4.13 (0.77)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	3	10	42	27		
BE2) A beginner S&C coach has experience taking part in resistance, speed, and plyometric training programs in order to deepen their understanding of techniques and coaching cues to more effectively coach their athletes.						4.05 (0.82)	1.75
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	2	19	34	27		

Summary

The second-round survey provided the participants with the opportunity to rate the level of importance of the characteristics provided during the first round of this study in order to identify the characteristics that could be used to differentiate expert, competent, and beginner S&C coaches. As a result of this second round, 51 of the 68 aggregated characteristics from the first round reached a level of consensus to earn the right to be placed on the final list of characteristics that differentiate expert, competent, and beginner S&C coaches.

During this second round, 82 of the 87 first-round participants completed their second-round survey. These participants suggested 10 new characteristics in the open-ended response boxes. These characteristics were either brand new or a suggestion to rephrase a characteristic that did not reach a level of consensus. These 10 new characteristics were used to create the third/final-round survey.

In all, the second-round findings made significant progress toward answering the research question of this study by identifying 51 characteristics that differentiate expert, competent, and beginner S&C coaches. These 51 characteristics were placed on the final list of characteristics, which was completed following the third/final round of this study. This final list of characteristics will be able to serve a vital role in the field of S&C by aiding in the selection, evaluation, and development of both current and future S&C coaches.

CHAPTER 6

THIRD-ROUND SURVEY RESULTS

The purpose of this study was to identify the characteristics that differentiate expert, competent, and beginner S&C coaches. The third and final round of the Delphi method provides the participants with their final opportunity to evaluate and respond to the data provided by them over the course of this study. This chapter reports the findings of the third round.

The third-round survey was generated based on the 10 new characteristics that were suggested by the participants in the open-ended response boxes of the second-round survey. These 10 new characteristics were either brand new or a suggestion to rephrase a characteristic that did not reach a level of consensus during the second round. These characteristics were then placed on the third-round survey through Qualtrics, which is an online survey engine, in the same format as they were in the second-round survey. Specifically, participants were asked to rate on a five-point Likert scale each characteristic's level of importance to be possessed by an expert, competent, or beginner S&C coach respectively. The five-point Likert scale selection choices were based on level of importance: "Not at all important," "Slightly important," "Moderately important," "Very important," and "Extremely important." As was done in the second round, along with Weidner and Henning (2004) and Ross et al. (2014), characteristics that received an average rating of at least 4.0, or "Very important," with a standard deviation equal or less than 1.0, were placed on the final list of characteristics. An open-ended response box was provided again in this round which provided participants with the opportunity to provide

any additional feedback regarding their rating of a characteristic, such as why they rated it the way they did. The third-round survey can be seen in Appendix CC.

Personalized links of these third-round surveys were generated through Qualtrics for each of the 82 participants that completed the second-round survey and then distributed on January 19, 2017 via e-mail, and this e-mail can be seen in Appendix BB. Just as in the previous rounds, weekly follow-up e-mails were sent to participants that had not yet completed their survey. Follow-up e-mails were distributed until February 24, 2017, which is when the data from the third-round survey was collected. Participants that had not yet completed their survey were made aware of a closing deadline for the survey, and at the end of the third round, 80 of the 82 second-round participants had completed their third-round survey. This final-round survey took most participants less than four minutes to complete.

Following the collection of data from the final round, six of the 10 characteristics listed on the final-round survey reached consensus. Characteristics that did not reach a level of consensus during the final round can be seen in the Tables 23-25 located in Appendix DD. Following this final round of data collection, a total of 57 characteristics reached a level of consensus and became the final list of characteristics that can be used to differentiate expert, competent, and beginner S&C coaches.

The following is an analysis of the third-round findings where the characteristics are divided into three categories of skills, knowledge, and experience. These categories are presented in Tables 15-16 where Table 15 presents the skills and Table 16 presents the knowledge areas of expert, competent, and beginner S&C coaches. Within these tables the characteristics are ranked by their average rating of importance as expressed by the participants. A table does not exist to

display “experiences” for this round of the study because there were not any experiences that reached consensus during the third round.

Third-Round Findings

Skills

The data presented in Tables 15 and 16 further help in answering our research question in this study where we are looking to identify the characteristics that differentiate expert, competent, and beginner S&C coaches. In Table 15 we focused on skills. Two skills reached a level of consensus: one expert skill, zero competent skills, and one beginner skill. The 4.65 average rating for the expert skill that reached consensus with a standard deviation less than 1.0 indicates that the participants found this skill to be at least very important to be possessed by an expert S&C coach. Similarly, the 4.34 average rating for the beginner skill that reached consensus with a standard deviation less than 1.0 tells us that the participants found this skill to be at least very important to be possessed by a beginner S&C coach.

With these two skills, each having an interquartile range of one, along with a standard deviation of less than 1.0, this tells us that there was a small degree of variability from the participants’ responses. These standard deviations of less than 1.0 tell us that the majority of the ratings were close to the mean. An interquartile range value of one tells us that when we subtract the 75th percentile, or third quartile, data point from the 25th percentile, or first quartile, data point then the end result is one, which indicates that the third and first quartile are a very similar value. In other words, the ratings were very similar amongst all participants. In addition, the frequencies confirm this small degree of variability, as for these skills that reached a level of consensus, only eight percent of the total ratings for these skills were below “Very important.”

Skill						M (SD)	IQR
Beginner							
BS1) A competent S&C coach has earned at least an undergraduate degree in a kinesiology related discipline and obtained at least one S&C related certification, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.						4.34 (0.73)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	1	9	32	38		

Knowledge

Four knowledge areas reached a level of consensus in the third-round survey: one expert knowledge area, two competent knowledge areas, and one beginner knowledge area. The 4.20 average rating for the expert knowledge area that reached consensus had a standard deviation less than 1.0, indicating that this knowledge area was commonly rated by participants to be at least very important to be possessed by an expert S&C coach. Similarly, the 4.18 and 4.03 average ratings for the competent knowledge areas that reached consensus with a standard deviation less than 1.0 tell us that the participants found this knowledge area to be at least very important to be possessed by a competent S&C coach. Then the 4.63 average rating with a standard deviation of less than 1.0 also tells us that the participants found the beginner knowledge area to be at least very important to be possessed by a beginner S&C coach.

With these four knowledge areas each having an interquartile range of one, along with a standard deviation of less than 1.0, this tells us that there was a small degree of variability from the participants' responses. In addition, the frequencies confirm this small degree of variability, as for these knowledge areas that reached a level of consensus, 84 percent of the total ratings for these knowledge areas were at least "Very important." These data support that the participants overwhelmingly agreed upon that these knowledge areas are at least very important for an expert, competent, or beginner S&C coach to possess respectively.

Table 16 below displays the four knowledge areas that reached a level of consensus during the third round and are organized by knowledge areas to be possessed by an expert, competent, and beginner S&C coach. The mean rating for each knowledge area displays the average level of importance the knowledge area was rated by the participants while the standard deviation, interquartile range, and frequencies are provided in order to provide a distribution of how each knowledge area was rated.

Table 16

Knowledge Areas of Expert, Competent, and Beginner S&C Coaches that Reached Consensus During the Third Round

Knowledge Area						M (SD)	IQR
Expert							
EK1)	An expert S&C coach knows how to develop an athlete into being a better person.					4.20 (0.75)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	1	2	14	26	37		
Competent							
CK1)	A competent S&C coach knows how to effectively filter new information so that they can integrate new ideas while still maintaining their focus on achieving their primary goal.					4.18 (0.67)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	12	42	26		
CK2)	A competent S&C coach's knowledge should be rigorous and scientific in nature gained from sources such as books, journals, and direct transfer of applied practices and outcomes.					4.03 (0.75)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	2	15	42	21		
Beginner							
BK1)	A beginner S&C coach knows that they have much to learn and looks to gain knowledge from head S&C coaches with whom they work.					4.63 (0.58)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	0	3	22	55		

Experiences

There was only one new experience placed on the third-round survey to be rated by the participants and this characteristic did not reach consensus.

Non-Consensus Characteristics

It is important to mention that even though the non-consensus characteristics did not reach a level of consensus, they were generated based on the input of at least one coach in this study and made it to this final round of this study due to feedback provided by the participants. Two of these characteristics pertained to the use of technology by a coach and the other two characteristics were related to a coach's acquisition of educational degrees and S&C certifications.

It was these four non-consensus characteristics that generated the most feedback during this round. Regarding technology, an NCAA Division I FBS "Power Five" conference coach stated, "New technologies are the most irrelevant concern to a beginner or competent Coach, if core competencies are not absolutely rock solid. Technology will NEVER be a substitute for competency." On a similar note, another NCAA Division I FBS "Power Five" conference coach mentioned, "At times I feel like technology is like social media- it makes you feel good or makes you feel like you are doing the right thing. The fitband will never tell you - push through this- you will get your second wind and beat the opponent. I think the higher the skill and talent level- the more useful it can be- but for average college SAs- the mental 'get the 2nd wind' attitude can go a long way!"

Related to earning educational degrees and S&C certifications, an NCAA Division I FBS "Power Five" conference coach mentioned that, "It is not quantity, but quality of information and skill sets and competencies." Another NCAA Division I FBS "Power Five" conference coach

stated that, “What we need in the field are people who know how to [do] the job. Not people with advanced degrees that do not have experience.”

On the other end of the spectrum when referring to the acquisition of advanced degrees and multiple S&C certifications, a MLB S&C coach stated, “In my opinion an expert should have an advanced degree in a health and human performance related field. It is also my opinion that an expert S&C should show signs of investing in himself/herself with a multitude of different certifications. This way that person can show their diversity within the S&C community. He/she can be used as a resource for various subject within S&C.”

We can see from these comments that these non-consensus characteristics generated a wide range of input, which could explain why they did not reach a level of consensus as participants were rating these characteristics on opposite ends of the Likert scale.

Summary

The third and final round of the Delphi method provides the participants with their final opportunity to evaluate and respond to the data provided by them over the course of this study. During this final round, 80 of the 82 second-round participants completed their third-round survey. The third-round survey was generated based on the 10 new characteristics that were suggested by the participants in the open-ended response boxes of the second-round survey. These 10 new characteristics were either brand new or a suggestion to rephrase a characteristic that did not reach a level of consensus during the second round. As a result of this round of data collection, six of the 10 characteristics reached a level of consensus to earn a spot on the final list of characteristics to differentiate expert, competent, and beginner S&C coaches. These six characteristics included: one expert skill, one beginner skill, one expert knowledge area, two competent knowledge areas, and one beginner knowledge area.

Overall, the third-round findings aided in answering the research question of this study by identifying six characteristics that differentiate expert, competent, and beginner S&C coaches. The identification of these six characteristics has resulted in a total of 57 characteristics that have reached a level of consensus through the three rounds of this study, which can be seen in Tables 17-19 below. These 57 characteristics can now be used to serve a vital role in the field of S&C by aiding in the selection, evaluation, and development of both current and future S&C coaches.

Table 17

Final List of Characteristics of Expert S&C Coaches that Reached Consensus

Characteristic
Skills
ES1) An expert S&C coach remains humble because they know there is always more to learn.
ES2) An expert S&C coach communicates complex training prescription and long-term athlete development processes clearly and simply to a diverse population of athletes, sport coaches, and training staff members.
ES3) An expert S&C coach effectively coaches and communicates to a large group of athletes at one time while maintaining a strong control of the room and still be able to coach athletes on an individual basis.
ES4) An expert S&C coach intuitively identifies what is most important. Specifically, technical errors in movement, and then prescribes feedback including modifications to fix these errors in a manner that is simple for the athlete to understand.
ES5) An expert S&C coach develops a professional and personal relationship with the athletes, S&C coaches, sport coaches, nutritionists, training staff, front office, and administration which generates effective communication and understanding between all involved in the development of the athlete. The expert S&C coach then takes the knowledge gained from these relationships in better developing the athletes that they coach to help each athlete reach both their personal and athletic goals.
ES6) An expert S&C coach remains calm and confident when faced with adversity. They are able to intuitively make adjustments and fill any role needed to get the job at hand accomplished.
ES7) An expert S&C coach effectively motivates athletes and creates a culture based on a strongly grounded belief system where teammates motivate each other and trust the process.
ES8) An expert S&C coach effectively manages and develops the S&C coaches on their staff.

Characteristic
ES9) An expert S&C coach implements a long-term science-based individualized plan for an athlete that the expert S&C coach can adapt and adjust overtime based on the needs of the athlete.
ES10) An expert S&C coach trains athletes with the primary goal of helping each athlete excel in their specific sport.
ES11) An expert S&C coach properly oversees budget or departmental finances.

Knowledge Areas

- EK1) An expert S&C coach has a strong knowledge of training and technique of movements which enables the coach to apply simple and effective coaching cues to their athletes.
- EK2) An expert S&C coach has a strong knowledge and understanding of their athletes developed through positive interpersonal relationships which helps the coach know how to motivate their athletes and coach them on an individual level based on each athlete's needs.
- EK3) An expert S&C coach has a strong knowledge and understanding of their staff members, including S&C coaches, sport coaches, training staff, front office, and administration, developed through positive interpersonal relationships. This allows the expert S&C coach to be a more effective leader, particularly of S&C coaches on their staff, and have open lines of communication between all staff members.
- EK4) An expert S&C coach understands how to develop a multi-year effective goal-based training program that accounts for the demands of the given sport, sport coach, practice sessions, competition and travel schedule, possible academic schedule, recovery routines, nutritional programs, sleep patterns, possible injury rehabilitation plan, and has the knowledge to adjust this plan when needed.
- EK5) An expert S&C coach understands that the number one priority is to help the athlete accomplish the goals for their specific sport and the expert S&C coach knows more than one way to help the athlete accomplish these goals.
- EK6) An expert S&C coach understands how to apply advanced exercise science related knowledge to the training of their athletes so that each athlete improves their specific sport performance.
- EK7) An expert S&C coach understands that there is always more to learn and thus strives to learn from other coaches, read current research, attend and present at conferences, participate in continuing education programs, learn from their experiences, and look to publish their own research.
- EK8) An expert S&C coach knows how to develop an athlete into being a better person.

Experiences

- EE1) An expert S&C coach has experience working in a wide variety of environments with many different sports and sport coaches. During this time the expert S&C coach has faced challenging situations while still designing and implementing effective and comprehensive programs that have aided a wide variety of athletes with different needs such as those for the athlete's specific sport, injury rehabilitation, or nutrition-based needs.
- EE2) An expert S&C coach has experience leading, mentoring, and developing S&C coaches to aid in their development as S&C coaches.

Characteristic
EE3) An expert S&C coach has experience in developing a strong network of professionals, such as S&C coaches, nutritionists, sport coaches, sport psychologists, sport medicine specialists, general managers, athletic directors, and administrators that can be consulted for a wide variety of topics ranging from program design to coaching of an individual athlete along with aiding in the professional development of the expert S&C coach.
EE4) An expert S&C coach has at least 10 years of head S&C coaching experience. During their career the expert S&C coach has been a part of a mentor-protégé relationship as both a mentor and protégé, had constant reflection of their own experiences, and learned from their experiences in order to develop their coaching abilities.

Table 18

Final List of Characteristics of Competent S&C Coaches that Reached Consensus

Characteristic
Skills
CS1) A competent S&C coach confidently communicates proper exercise technique to athletes using simple verbal coaching cues and through physical demonstration.
CS2) A competent S&C coach develops a positive relationship and communicates effectively and regularly with sport coaches and training staff to gather their input and report the progress being made by athletes during S&C training sessions.
CS3) A competent S&C coach designs an effective periodized program based on the athlete's needs and their sport, making adjustments in the program when needed. Adjustments could be based on factors such as recent testing, injury, or input from the sport coach.
CS4) A competent S&C coach effectively manages a training environment involving a large group and runs the daily activities of a S&C program including managing a variety of circumstances that may arise.
CS5) A competent S&C coach clearly explains to an athlete or a sport coach the purpose and reason an exercise is included in the training program.
CS6) A competent S&C coach develops a professional and personal relationship with the athletes and all personnel involved in the development of each athlete which generates more effective communication and understanding between everyone involved. The competent S&C coach then takes the knowledge gained from these relationships in better developing the athlete's athletic performance.
CS7) A competent S&C coach provides specific corrective feedback to athletes immediately when needed in order to improve performance.
CS8) A competent S&C coach evaluates training techniques and proficiency to assess if regression or progression in training should be implemented.
CS9) A competent S&C coach has a firm identity of who they are as a coach, their coaching style, and their coaching philosophy, which they clearly communicate.

 Characteristic

Knowledge Areas

- CK1) A competent S&C coach has a strong level of understanding of exercise technique and thus knows when an athlete's movement pattern needs to be modified.
- CK2) A competent S&C coach understands how to manage a large group of athletes and enforce rules, regulations, and associated disciplinary actions.
- CK3) A competent S&C coach has gained knowledge from coaches under whom they have worked and other coaches in the field which has aided in their own development as a S&C coach.
- CK4) A competent S&C coach understands their training program thoroughly enough so that they can explain the purpose and reasoning behind every aspect of the program, such as periodization and exercise selection, and how it reflects their philosophy.
- CK5) A competent S&C coach understands how to design an individualized training program and implement the program based on an athlete's needs. This program can be designed by the coach based on their knowledge of energy systems, nutrition, stress management, injury rehabilitation, performance testing, sports psychology, and a variety of training methods.
- CK6) A competent S&C coach has a strong level of knowledge of exercise science, possibly obtained through a master's degree and current research, and understands how to apply this knowledge in training an athlete for their specific sport.
- CK7) A competent S&C coach knows how to effectively filter new information so that they can integrate new ideas while still maintaining their focus on achieving their primary goal.
- CK8) A competent S&C coach enhances knowledge and fosters a continual improvement model through continuing education and active participation in S&C development courses, events, and programs such as: FMS, SFMA, PRI, FST, and FRC.
- CK9) A competent S&C coach's knowledge should be rigorous and scientific in nature gained from sources such as books, journals, and direct transfer of applied practices and outcomes.

Experiences

- CE1) A competent S&C coach has earned at least an undergraduate degree in a kinesiology related discipline and obtained at least one S&C related certification, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.
 - CE2) A competent S&C coach has had experience training multiple sports and working with the sport coaches in developing an offseason and in-season evidence-based training program that encompasses the ideas of the sport coach, demands of the sport, and needs of each athlete, such as injury rehabilitation if applicable.
 - CE3) A competent S&C coach has five to nine years of S&C coaching experience where they were responsible for leading the training sessions of both individual athletes and large teams. During this time they have worked with a variety of sports, organizations, sport coaches, and athletes with different needs.
 - CE4) A competent S&C coach has had experience as a protégé in a mentor-protégé relationship where they experienced challenging situations and overcame them with the help of their mentor, who is an experienced and qualified S&C coach.
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Table 19

Final List of Characteristics of Beginner S&C Coaches that Reached Consensus

Characteristic
Skills
BS1) A beginner S&C coach displays and communicates a strong passion for the field of S&C, a willingness to be open-minded, learn, work hard, and pay attention to detail.
BS2) A beginner S&C coach displays great listening skills by modifying their own behavior based on feedback from the head S&C coach and following instructions. Instructions could include: setting up/cleaning the weight room, spotting athletes during exercises, and being prepared and reliable when needed for assistance.
BS3) A beginner S&C coach implements the coaching philosophy of the organization in which they are working.
BS4) A beginner S&C coach possesses an awareness of their own skills and abilities to properly implement the head S&C coach's program and will ask for guidance on areas of uncertainty.
BS5) A beginner S&C coach must have a consistent, professional decorum on a daily basis.
BS6) A beginner S&C coach displays strong time management, scheduling, and organizational skills personally and for athlete and team training programs.
BS7) A beginner S&C coach confidently communicates and teaches basic movements such as a squat, hinge, lunge, push, and pull, both verbally and through demonstration, along with explaining the goal of the exercise.
BS8) A beginner S&C coach develops a professional and personal relationship with the athletes, S&C coaches, sport coaches, and training staff which generates more effective communication.
Knowledge Areas
BK1) A beginner S&C coach knows that they have much to learn and looks to gain knowledge from head S&C coaches with whom they work.
Experiences
BE1) A beginner S&C coach has earned or is working toward earning an undergraduate degree in a kinesiology related discipline and has obtained or is working toward obtaining a S&C related certification, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.
BE2) A beginner S&C coach has experience taking part in resistance, speed, and plyometric training programs in order to deepen their understanding of techniques and coaching cues to more effectively coach their athletes.

CHAPTER 7

DISCUSSION AND RECOMMENDATIONS

The profession of full-time S&C coaches has existed since the year 1969, and until now, a research-based list of characteristics has not existed to differentiate expert, competent, and beginner S&C coaches. As a result, researched information has not been available to aid in the selection, evaluation, and development of S&C coaches. To solve this problem the researcher first asked the question: What are the characteristics that differentiate expert, competent, and beginner S&C coaches? That question directed the focus of this study.

In order to determine these characteristics, a panel of experienced elite-level head S&C coaches were asked to participate and to share their knowledge and experiences. These coaches had an average of 18 years of coaching experience and were employed by teams from the MLB, NBA, NFL, NHL, NCAA Division 1 FBS “Power Five” conferences, United States National Teams, and the Australian Football League. Eighty-seven coaches began the study and 80 finished.

To gather accurate and meaningful data the researcher chose to use the Delphi method for this study which involved three rounds of surveys. The first-round survey asked the participants to identify at least one important skill, knowledge area, and experience that should be possessed by an expert, competent, or beginner S&C coach respectively. The researcher then associated the 1,181 characteristics provided by the participants with a specific theme which then generated 68 aggregated characteristics that were peer debriefed. These characteristics were placed on a second-round survey, and using a five-point Likert scale, the participants were asked to rate how important it is for a coach to possess each characteristic. During this round, participants were

also offered open-ended response boxes to provide additional feedback. If a characteristic received a suggestion for rephrasing, and did not reach a level of consensus, or an entirely new characteristic was suggested, then it was placed on the final-round survey to be rated again. Characteristics that reached a level of consensus were placed on the final list of characteristics.

One of the benefits of the Delphi method is the opportunity for the participants to review the opinions of their peers and to reevaluate their prior responses. Consequently, the results are derived from both qualitative and quantitative data.

Discussion

The 57 characteristics generated through this study are considered by the participants to be very important for an expert, competent, or beginner S&C coach to possess respectively. Although this study was the first of its kind to identify the characteristics differentiating expert, competent, and beginner S&C coaches, comparisons were still able to be made to previous expertise studies in other fields along with studies pertaining to S&C coaches in general.

Expert S&C Coach Skills

There are several research studies that support the skills found in this study describing expert S&C coaches. Schempp, Tan, and McCullick (2002) found that expert teachers use a variety of ways in communicating concepts to students. This coincides with the findings of this study that identified a skill of an expert S&C coach to be an ability to communicate complex training prescription and long-term athlete development processes clearly and simply to a diverse population of athletes, sport coaches, and training staff members.

Expert teachers have also been found to create remedial activities for students having difficulties and quickly assess a student's current skill level and potential ability. This part of the literature agrees with the finding of this study that a skill of an expert coach is an ability to

prescribe feedback and modification to help an athlete. For this to happen, an expert S&C coach must first identify what is important. Perez and Emery (1996) found this to be a skill of expert instructional designers.

The literature also pointed to the importance of having strong technical skills and deliberate practice to develop expert skills. Several characteristics from this study support this research as expert coaches in this study were found to be humble, believing they had much to learn, and strove to continuously develop new skills while maintaining those skills obtained earlier in their career.

In addition, Gavin, Wagonfield, and Kind (2013) discussed the importance of an expert manager having a clear vision/strategy for the team. These authors also found that expert managers are good coaches, which can be related to characteristics of this study describing an expert coach's ability to coach an athlete, however, it can also support the finding that expert S&C coaches effectively manage and develop the S&C coaches on their staff.

Vallée and Bloom (2005) found that expert coaches are able to get their players to buy into their goals, philosophy, and personality in order to achieve success, which relates to a skill found in this study where an expert coach is able to create a culture based on a strongly grounded belief system where teammates motivate each other and trust the process.

A study by Saury and Durand (1998) found that expert coaches' cognitive function was not planned or reasoned, but instead was developed from a continuous, step-by-step adjustment based on what was occurring at the time. This relates to this current study where it was mentioned in multiple skills that expert coaches have a sufficient level of knowledge which enables them to make decisions based on intuition.

There were not any skills found in the literature pertaining to experts that refute the findings of the study. However, there were skills not included in the current study that were found in previous research on experts in other fields. These several studies (Chase & Simon, 1973; Love, 1977; Reitman, 1976) found that experts have superior recall ability. Specifically, Schempp, Tan, and McCullick (2002) and McKeithen, Reitman, Rueter, and Hirtle (1981) found that experts improved their recall ability by organizing information into meaningful chunks. The skill of having a strong memory or recall ability through organizing information into meaningful chunks was not found to be associated with expert S&C coaches in the current study.

Another skill found in the literature that was not included in this study was that Gavin, Wagonfield, and Kind (2013) found that expert managers empower their team and do not micromanage. No mention of management skills or styles were made in the present study.

Additionally, Perez and Emery (1996) found that expert instructional designers spend longer periods of time, compared to novices, solving a problem and use less learner-control strategies. These are skills that were not found in the current study as skills for expert S&C coaches.

Competent S&C Coach Skills

Two studies were found in the literature that looked to differentiate three levels of expertise (expert, competent, and beginner) of computer programmers. However, neither of these two studies looked to identify specific skills of the competent computer programmers. The studies concluded that there was a correlation between expertise and recall ability. This can be related to the current study where several competent skills relating to communication, management, and relationships existed to varying degrees for expert and beginner S&C coaches as well. For example, a skill of a competent S&C coach was that they can manage a large group

of athletes and a variety of circumstances that may arise, while a beginner coach must have personal and team management skills. Further, an expert can not only manage a large group, but also coach the athletes on an individual basis at the same time.

Beginner S&C Coach Skills

Only one study found in the literature pertained to identifying the skills of a beginner. Perez and Emery (1996) found that novice instructional designers identified the problem at hand and considered only one factor at a time when solving a problem. These skills were inferior to the skills portrayed by expert instructional designers, and these specific skills were not found in the current study.

Other studies found in the literature did not identify specific skills of beginners, but instead found that beginners performed skills to a lesser degree when compared to an expert. For example, several studies found that beginners had inferior recall ability when compared to experts (Charness, 1976; Chase & Simon, 1973; Egan & Schwartz, 1979; Engle & Bukstel, 1978; Larkin, McDermott, Simon, & Simon, 1980; McKeithen, Reitman, Rueter, and Hirtle, 1981; Sloboda, 1976). Fix, Wiedenbeck, and Sholtz (1993) also found beginner programmers possessed less developed skills than those of expert programmers. This differentiation of skills was seen throughout the current study as several beginner skills relating to communication, management, and relationships existed for both experts and beginners, however the skills of an expert were found to be of a higher complexity or degree of difficulty than the skills of a beginner S&C coach. For example, a skill identified for a beginner S&C coach was that they communicate and teach basic movements along with communicate the goal of the exercise, while an expert S&C coach communicates complex training prescription and long-term athlete development processes clearly and simply to a diverse population of athletes, sport coaches, and

training staff members. Despite both levels of expertise requiring the skill of communication, different degrees of this skill are required to be considered either a beginner or expert S&C coach.

Expert S&C Coach Knowledge Areas

Several studies support the knowledge areas found in this study that describe expert S&C coaches. Schempp, Tan, and McCullick's (2002) research on characteristics of expert teachers found that expert teachers have more knowledge than most teachers regarding their students, the subjects, or instructing students. This supports several of the characteristics from this study categorized under "Expert Knowledge Areas" where expert S&C coaches are deemed to have a greater level of knowledge compared to competent and beginner S&C coaches specifically regarding their athletes that they coach, staff members, S&C related content, and how to optimally coach their athletes. A study by Dörgö (2003) regarding an expert S&C coach also agreed that expert S&C coaches should have this knowledge base.

The literature also mentioned that expert teachers use any available knowledge to benefit their teaching. This agrees with the findings of this study where expert S&C coaches are always looking to learn more and thus look to gain knowledge from a wide variety of resources ranging from current research to continuing education programs.

A key characteristic outlined by Gavin, Wagonfield, and Kind (2013) described expert managers as being "productive and results-oriented." This was also found in the current study where it was emphasized that expert S&C coaches know that the number one priority of a S&C coach is to help the athlete excel at their specific sport and thus the athlete's training should be tailored in a way that best accomplishes this desired result.

Multiple pieces of literature found that it is important for expert managers and coaches to express concern for team members' success and well-being. This relates to the knowledge area found in this study where expert S&C coaches know how to develop an athlete into being a better person.

Vallée and Bloom (2005) found that expert coaches have organizational skills that allowed them to plan their seasons and games, which supported the present finding that an expert S&C coach can develop a multi-year effective goal-based training program. Related to this, it was found in the current study that expert S&C coaches use multiple sources of information to come to a solution such as developing a multi-year training program. This was found in literature by Perez and Emery (1996) where expert instructional designers considered many factors in combination with one another to solve a problem.

Specifically related to S&C coaches, Dörgö (2003) stated that expert S&C coaches have a knowledge of their athletes that allows them to develop coach-athlete relationships. This relates to a skill found in our study where it was established that expert S&C coaches develop professional and personal relationships with their athletes and then take the knowledge gained from these relationships in better developing the athletes whom they coach.

There was one knowledge area found in the literature that was not found in the current study. Dörgö (2003) found that expert S&C coaches should have knowledge of facility and equipment, however this knowledge area was not identified in our study as a characteristic attributable to expert S&C coaches. The reason for this characteristic not being included in the current study is likely due to coaches not finding this characteristic important to be possessed by an expert S&C coach. During the first round of this study, coaches were asked to identify at least one important knowledge area and then in the following rounds were asked to rate the

knowledge areas' importance to be possessed by an expert, competent, or beginner S&C coach. Thus, an expert S&C may very well possess knowledge of facility and equipment, however the participants in this study did not deem this knowledge area important for an expert S&C coach to possess.

All the expert knowledge areas found in this study were discussed in existing literature in relation to experts in other fields.

Competent S&C Coach Knowledge Areas

Three studies were included in the literature that were related to a knowledge area of a competent S&C coach found in the current study. Sutherland and Wiley (1997) studied S&C coaches from professional sports leagues and found that 37 percent of the participants had a master's degree, while a study by Martinez (2004) of NCAA Division I coaches and a study by Haggerty (2005) of Division II and III S&C coaches found that on average their participants had a master's degree. This relates to the current study where it was found that competent coaches acquired a strong level of knowledge of exercise science through earning a master's degree.

Dörgö (2009) found that foundational disciplinary knowledge is needed in order to become an expert S&C coach. The current study agreed that this is an important characteristic for an S&C coach to possess, however this study found this characteristic to be labeled as an experience that is needed by a competent S&C coach, not an area of knowledge. Specifically, it was found in this study that competent coaches should have earned an undergraduate degree in a kinesiology-related discipline and at least one S&C certification. It is interesting to note that this characteristic was labeled as an experience while the previously mentioned characteristic regarding a master's degree was labeled as a knowledge area. This is due to how the participants provided their input in their first-round surveys. The characteristic regarding holding a master's

degree refers to knowledge gained through the experience of earning a master's degree while the later characteristic regarding earning an undergraduate degree and earning an S&C certification refers to the experience that led to the knowledge gained.

Similarly, a study by Sutherland and Wiley (1997) found that when surveying S&C coaches from professional sports leagues most of them had at least a bachelor's degree typically in physical education or a science field, which in the current study was found to be an experience of a competent S&C coach. Sutherland and Wiley (1997), Martinez (2004), and Haggerty (2005) also found that the majority of their participants had a S&C certification, which was classified in our study as an experience that led to knowledge gained.

The knowledge areas found in this study do fall in line with previous research as they are more demanding than knowledge areas of a beginner, but less than an expert. At the same time, the exact meaning of each knowledge area is truly original and unique to this study as these specific knowledge areas have not been found in previous research pertaining to competent/intermediate professionals in other fields or any research pertaining to S&C coaches.

Beginner S&C Coach Knowledge Areas

Through the study only one beginner knowledge area reached consensus and this characteristic was not found in the literature. Participants in the current study identified beginner S&C coaches as those just entering the field and thus there was very little expectation for a knowledge base to exist for a beginner S&C coach. Several characteristics were presented over the three rounds of this study pertaining to topics such as understanding coaching cues and the importance of sport performance to an athlete. However, these knowledge areas did not reach a level of consensus primarily because the participants in this study did not expect beginner S&C coaches to know this information when first entering the field.

Expert S&C Coach Experiences

Several previous studies support the finding of this study regarding expert experiences. Nash and Sproule (2011) and Bloom (1997) found that it is not the experiences alone that create an expert coach, it is what is gained from these experiences that determine their expertise. This was also found in the present study where it was identified that expert S&C coaches should have at least 10 years of coaching experience of which included: a) being a part of a mentor-protégé relationship, b) having constant reflection upon their experiences, and c) learning from their experiences in order to develop their coaching abilities. Dörgö (2003) agreed with the study that expert S&C coaches should have at least 10 years of experience. Dörgö (2009) also found that practical and pedagogical knowledge used by an expert coach was obtained from real-life experiences.

Vallée and Bloom's (2005) research on expert coaches found that expert coaches displayed appropriate leadership behaviors based on the situation at hand. This is in line with the findings of this study where expert coaches were found to have experience leading and mentoring other S&C coaches on their staff along with leading large groups of athletes.

A finding by Dörgö (2003) refuted the findings of the current study as Dörgö (2003) found that expert S&C coaches should have experience as a head S&C coach at the collegiate or professional level. Participants from the current study believed that 10 years of experience was important, but it is what was done over these years that was important, not necessarily at what level of competition it was done.

Competent S&C Coach Experiences

There is one particular study that specifically supports a finding in our study regarding the experiences of competent S&C coaches. Sutherland and Wiley (1997)) studied S&C coaches from

professional sports leagues and it was found that 91 percent of the coaches possessed at least an undergraduate degree in physical education or a science field along with a S&C certification. This was also found in the present study as an experience of a competent S&C coach.

Beginner S&C Coach Experiences

In the current study only two beginner experiences reached consensus and neither of these experiences were found in previous research. One characteristic was nearly identical to the experience of a competent S&C coach, however, instead of having already earned an undergraduate degree and a S&C certification, beginners only need to be working toward obtaining them.

Similar to what was mentioned for beginner knowledge areas, the participants in the current study found beginner S&C coaches to be those that were just entering the field. As a result, no experiences that involved any type of coaching experience reached a level of consensus in the study.

Application

Expert S&C Coach

For those looking to select/hire an expert S&C coach, develop themselves into an expert S&C coach, or evaluate a S&C coach's expertise level, the skills, knowledge areas, and experiences found in this study can provide guidance and assistance. Those looking to select/hire or evaluate an expert S&C coach can use this list of characteristics in a checklist fashion through interviewing and observing the S&C coach in a coaching setting and then marking off the characteristics exemplified by the S&C coach. For example, if the majority of the characteristics displayed by the S&C coach are of the level of expert then the S&C coach can be deemed an expert S&C coach.

Those current S&C coaches looking to develop to an expert level can use the findings of this study to set both short-term and long-term goals to increase their level of expertise. For example, if a S&C coach currently qualifies as being a competent S&C coach, but wants to develop into an expert S&C coach then they may set the goal for themselves to achieve the skill of being able to communicate complex training prescription and long-term athlete development processes clearly and simply to a diverse population of athletes, sport coaches, and training staff members. At their current stage of expertise, they are able to communicate exercise technique using simple verbal coaching cues. In order to become an expert S&C coach, the competent S&C coach will evaluate the skills they have now and then generate a plan for how they can improve their current skill set in order to be able to communicate complex training prescription and long-term athlete development processes to a diverse population. This may be accomplished through increasing their knowledge base through continuing education opportunities in order to be more knowledgeable of complex training prescription combined with experience communicating with different populations in order to become more knowledgeable of effective ways to communicate to these different groups. During these experiences where the competent S&C coach is looking to develop their skills they could even ask for feedback from the personnel with whom they are communicating in order to check their understanding of what the competent S&C coach was trying to communicate.

Competent S&C Coach

Following the same procedure as was outlined for expert S&C coaches, the characteristics found in the study can serve as a checklist to aid those looking to select a competent S&C coach, develop into a competent S&C coach, or evaluate a S&C coach's level of expertise. For example, if a S&C coach currently qualifies as being a beginner S&C coach, but

wants to develop into a competent S&C coach then they may set the goal for herself or himself by looking to identify their coaching philosophy. As a beginner S&C coach they are implementing the coaching philosophy of the organization in which they are working. In order to become a competent coach, they must develop a philosophy of their own. For this to be accomplished, the coach can seek guidance and observe other S&C coaches, learn from personal coaching experience, or even conduct research on their own to increase their knowledge regarding coaching philosophies and how they can be implemented.

Beginner S&C Coaches

Following the same procedure as was outlined for expert and competent S&C coaches, the characteristics found in this study can serve as a checklist to aid those looking to select a beginner S&C coach, enter the field of S&C as a coach, or evaluate a S&C coach's level of expertise. Those looking to enter the field of S&C can use this list of characteristics to help them set both short-term and long-term goals for themselves in order to better their level of expertise. It may be the case for some individuals where they possess some characteristics of a beginner and while some characteristics they do not possess at all. For example, an individual looking to enter the industry as a beginner S&C coach may exhibit a professional decorum consistently, however they do not yet know how to teach the basic movement patterns. In order to learn how to teach the basic movement patterns this coach can learn from their own training experiences, seek guidance from other S&C coaches, or even conduct research on their own to increase their knowledge regarding optimal training techniques that they could implement.

Future Research

There were four new expert characteristics found in the current study that were not found in previous research. Two were skills, one of which was that an expert remains calm and

confident when faced with adversity while also being able to make adjustments and fill any role needed to get the job done. The other skill stated that an expert properly oversees budget or departmental finances.

Two other new characteristics were expert experiences. One experience related to working in a wide variety of environments facing challenging situations over the course of the expert's career. The second experience stated that experts developed a strong network of professionals to consult a wide variety of topics to aid in their job responsibilities. Given the potential for understanding four new characteristics of experts—particularly of S&C coaches, additional research on these characteristics is recommended.

As a result of the limited research on those that are identified as beginner or competent in their given field, the majority of the skills, knowledge areas, and experiences related to both beginner and competent S&C coaches found in the current study represents new findings. Due to the identification of the new findings for expert, competent, and beginner S&C coaches, further research is warranted regarding the skills, knowledge areas, and experiences of all three levels of expertise. This research should be looking to find additional skills, knowledge areas, and experiences that can be used to differentiate the three levels of expertise. It would also be beneficial to conduct research on how the characteristics identified in this study can be developed by coaches and how a coach can be evaluated to determine if they possess each characteristic.

A future research study could involve evaluating the current S&C coaches in the field today based on the characteristics established in this study and finding quantifiable correlations that could be used to further differentiate expert, competent, and beginner S&C coaches. For example, are expert S&C coaches correlated with coaching athletes that have lower injury rates

than that of beginner and competent S&C coaches? Do expert coaches coach on winning teams? Do expert coaches coach athletes that have earned prestigious player accolades? A study such as this would allow for a greater amount of evaluative measurements that could be used to further establish a S&C coach's level of expertise.

In addition, it would be beneficial to establish a coach development program based on these characteristics. The objective of the program would be to help S&C coaches reach a higher level of expertise. During this program coaches would be instructed on ways to improve their skills, level of knowledge, and how they can put themselves through experiences that can aid in their development as a S&C coach. This study has provided current S&C coaches with the characteristics that differentiate expert, competent, and beginner S&C coaches, now it would be extremely helpful to aid S&C coaches learn how to acquire characteristics that are at a higher level of expertise in order to become a better coach.

A final recommendation for future research involves the development of a checklist or formal outline of the characteristics as a guide for selecting and evaluating S&C coaches. Until this formal checklist or outline is created, these personnel can still use the characteristics provided in this study to select and evaluate S&C coaches. These personnel could do so through an interview and/or observation process in order to record the characteristics exhibited by the S&C coach being evaluated. Following this evaluation process, personnel may determine the level of expertise of the S&C coach by quantifying the number of expert, competent, and beginner characteristics possessed by the S&C coach. For whichever level of expertise the S&C coach possesses the most characteristics, that is the level of expertise the coach should be deemed. It is important to remember that this evaluation process is to determine the S&C coach's

current level of expertise, and with deliberate practice and attention to developing as a coach, the S&C coach can develop into an expert S&C coach.

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APPENDIX A

TIMELINE FOR DISTRIBUTION AND COMPLETION OF SURVEYS

Survey Distribution and Completion Schedule

Pilot Study:

October 17, 2016 – Pilot study surveys are e-mailed to participants

October 21, 2016 – Pilot study survey responses received

First Round:

October 31, 2016 – Initial first-round recruitment e-mail and surveys are e-mailed to participants

November 18, 2016 – First-round survey responses are received

Second Round:

December 8, 2016 – Initial second-round introduction e-mail and surveys are e-mailed to participants

January 16, 2016 – Second-round responses are received

Final Round:

January 19, 2016 – Initial final-round introduction e-mail and surveys are e-mailed to participants

February 24, 2017 – Final-round survey responses are received

APPENDIX B
PILOT STUDY RECRUITMENT E-MAIL

E-mail Subject Line: Expert Strength Coach Study

Dear Coach _____,

My name is David LaPlaca and I am a doctoral student at the University of Georgia currently conducting research to identify the characteristics differentiating expert, competent, and beginner strength and conditioning coaches. Based on your input, the findings of this study will support the selection, evaluation, and development of both current and future strength and conditioning coaches.

I am contacting you specifically Coach _____ because I am looking to gather input only from the most qualified and experienced strength and conditioning coaches in our field.

Your participation in this study would require the completion of one online survey that will take approximately 20 minutes or less depending on the amount of thought and detail you provide in your responses; where your name will be kept completely confidential. For your participation you will receive a copy of the final research report. The survey can be accessed now through the following link: [*Identifying the Characteristics Differentiating Expert, Competent, and Beginner Strength and Conditioning Coaches.*](#)

Thank you very much for your time Coach _____. Your input is extremely valuable to the success of this study. For further information pertaining to your rights as a participant and details of this study please see the information below this e-mail. For any questions please do not hesitate to contact me at any time Coach _____.

Sincerely,

David LaPlaca, MBA, CSCS, USAW, CFSC
Graduate Teaching Assistant and Intern Olympic Sports Strength Coach
University of Georgia
Athens, GA 30602
[\(860\) 614-9688](tel:8606149688)
DAL71311@uga.edu

Rights as a Participant:

Your participation is completely voluntary and you can withdraw from the study at any time. While there is a limit to the confidentiality that can be guaranteed due to the technology of Internet communications itself, standard confidentiality procedures will be employed and confidentiality will be guaranteed to the extent possible once the data are received. Your IP address will be stripped once received and your name and e-mail will remain completely confidential to only be used to contact you regarding this study. The results of the study plan to be published, but your name and e-mail will not be included.

Additional Contacts:

This study is being conducted under the leadership of Dr. Paul Schempp who can also be contacted by phone: [\(706\) 542-4210](tel:(706)542-4210) or e-mail: pschempp@uga.edu. If you have any questions or concerns about your rights as a research participant please do not hesitate to contact the University of Georgia Institutional Review Board by phone: [\(706\) 542-3199](tel:(706)542-3199) or e-mail: irb@uga.edu.

APPENDIX C
PILOT STUDY SURVEY FIRST VERSION

Expert S&C Coach Study – Pilot Study First Version

Identifying the Characteristics Differentiating Expert, Competent, and Beginner Strength and Conditioning Coaches

Please complete the demographic information below.

First name:

Last name:

E-mail:

Sex:

- ☐ Female
- ☐ Male

Highest level of education completed:

- ☐ High School Diploma
- ☐ Associate's Degree
- ☐ Bachelor's Degree
- ☐ Master's Degree
- ☐ Doctorate Degree

Current strength and conditioning (S&C) coaching position:

- ☐ MLB
- ☐ NBA
- ☐ NCAA Division I FBS - Power Five Conference
- ☐ NFL
- ☐ NHL
- ☐ Private Sector
- ☐ Other: _____

Please select all sports you have had experience coaching as a head S&C coach at any level of competition:

- ☐ Baseball
- ☐ Basketball
- ☐ Beach Volleyball
- ☐ Bowling
- ☐ Cross Country
- ☐ Other: _____
- ☐ Equestrian
- ☐ Fencing
- ☐ Field Hockey
- ☐ Football
- ☐ Golf
- ☐ Gymnastics
- ☐ Ice Hockey
- ☐ Lacrosse
- ☐ Rifle
- ☐ Rowing
- ☐ Rugby
- ☐ Skiing
- ☐ Soccer
- ☐ Softball
- ☐ Swimming and Diving
- ☐ Tennis
- ☐ Track and Field
- ☐ Volleyball
- ☐ Water Polo
- ☐ Wrestling

(Only one question related to championships appeared based on the participant's current coaching position. This was done automatically through Qualtrics).

As a head coach in Division I FBS how many championships have your teams won?

National Championships:

Conference Championships:

Bowl Victories:

As a head coach in Division I FBS how many championships have your teams won?

National Championships:

Conference Championships:

As a head coach in the NFL how many championships have your teams won?

Super Bowl Victories:

Conference Championships:

As a head coach in the NBA how many championships have your teams won?

NBA Championships?

Western/Eastern Conference Championships?

As a head coach in the MLB how many championships have your teams won?

World Series Championships:

American/National League Championships:

As a head coach in the NHL how many championships have your teams won?

Stanley Cups:

Eastern/Western Conference Championships:

As a head coach in Division I FBS how many postseason NCAA All-American honors have your players earned?

As a head coach in the MLB how many honors have your players earned?

All-Star Appearances:

League Most Valuable Player (MVP):

Silver Slugger:

Cy Young:

Other:

As a head coach in the NHL how many honors have your players earned?

All-Star Appearances:

Ted Lindsay Award (Most Outstanding Player):

Maurice Richard Trophy (League's Top Goal Scorer):

William M. Jennings Trophy (Fewest Goals Allowed):

Other:

As a head coach in the NBA how many honors have your players earned?

All-Star Appearances:

League Most Valuable Player (MVP):

Defensive Player of the Year:

Other:

As a head coach in the NFL how many honors have your players earned?

Pro Bowl Appearances:

Most Valuable Player (MVP):

Offensive Player of the Year:

Defensive Player of the Year:

Other:

Do you have head coaching experience at the Division I FBS level?

- ☐ Yes, with football
- ☐ Yes, with Olympic sports
- ☐ Yes, with football and Olympic sports
- ☐ No

As a head coach in Division I FBS how many championships did your teams win?

National Championships:

Conference championships:

Bowl Victories:

As a head coach in Division I FBS how many championships did your teams win?

National Championships:

Conference championships:

As a head coach in Division I FBS how many postseason NCAA All-American honors have your players earned?

Years experience as a S&C coach at all levels of competition:

Total:

Head Coach:

Current S&C related certifications:

- ☐ Certified Functional Strength Coach Level 1 (CFSC Level 1)
- ☐ Certified Functional Strength Coach Level 2 (CFSC Level 2)
- ☐ Certified Strength and Conditioning Specialist (CSCS)
- ☐ Functional Movement Screen Level 1 (FMS Level 1)
- ☐ Functional Movement Screen Level 2 (FMS Level 2)
- ☐ Master Strength and Conditioning Coach (MSCC)
- ☐ NASM Performance Enhancement Specialist (NASM-PES)
- ☐ Strength and Conditioning Coach Certified (SCCC)
- ☐ StrongFirst Bodyweight (SFB)
- ☐ StrongFirst Girya I (SFG I)
- ☐ StrongFirst Girya II (SFG II)
- ☐ StrongFirst Lifting (SFL)
- ☐ USA Weightlifting Level 1 (USAW Level 1)
- ☐ USA Weightlifting Level 2 (USAW Level 2)
- ☐ Other: _____

(Only one question related to awards appeared based on the participant's current coaching position. This was done automatically through Qualtrics).

S&C coaching awards:

- ☐ NCAA Conference S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year
- ☐ Other: _____

S&C coaching awards:

- ☐ MLB S&C Coach of the Year
- ☐ NCAA Conference S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year

S&C coaching awards:

- ☐ NBA S&C Coach of the Year
- ☐ NCAA Conference S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year

S&C coaching awards:

- ☐ NCAA Conference S&C Coach of the Year
- ☐ NFL S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year

S&C coaching awards:

- ☐ NCAA Conference S&C Coach of the Year
- ☐ NHL S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year

Purpose: The purpose of this study is to identify the characteristics that differentiate expert, competent, and beginner strength and conditioning (S&C) coaches. The findings of this study will support the selection, evaluation, and development of both current and future S&C coaches.

Providing your input: In the open-ended response sections provided below, please identify the skills, knowledge, and experiences that:

- Are minimum requirements for a beginner S&C coach
- Differentiate a competent S&C coach from a beginner S&C coach
- Differentiate an expert S&C coach from a competent S&C coach

Your input is very valuable so please make your responses as descriptive as possible.

Section 1 - Skills

A skill is something a coach does. An example of a skill that differentiates an expert S&C coach from a competent S&C coach could be that an expert uses multiple methods of communication, while a competent coach may use one method to teach an athlete how an exercise is performed.

Minimum Skills Required for a Beginner

Please identify the minimum skills required for a beginner S&C coach.

Skills that Differentiate Competent from Beginner

Please identify the skills that differentiate a competent S&C coach from a beginner S&C coach. What does a competent S&C coach do that a beginner S&C coach does not?

Skills that Differentiate Expert from Competent

Please identify the skills that differentiate an expert S&C coach from a competent S&C coach. What does an expert S&C coach do that a competent S&C coach does not?

Section 2 - Knowledge

Knowledge is something a coach knows. An example of knowledge that differentiates an expert S&C coach from a competent S&C coach could be that an expert knows their athletes exceptionally well which allows the coach to optimally design individualized training programs, while a competent coach knows their athletes minimally and relies on standardized programs.

Minimum Knowledge for a Beginner

Please identify the minimum knowledge required for a beginner S&C coach.

Knowledge that Differentiates Competent from Beginner

Please identify the knowledge that differentiates a competent S&C coach from a beginner S&C coach. What does a competent S&C coach know that a beginner S&C coach does not?

Knowledge that Differentiates Expert from Competent

Please identify the knowledge that differentiates an expert S&C coach from a competent S&C coach. What does an expert S&C coach know that a competent S&C coach does not?

Section 3 - Experience

Experience is professional work that increases the practical knowledge and skills of a S&C coach. An example of an experience that differentiates an expert S&C coach from a competent S&C coach could be that an expert has been a head coach on the elite level for at least 10 years, while a competent coach has been a head coach on a non-elite level for five years.

Minimum Experiences Required for a Beginner

Please identify the minimum experiences required for a beginner S&C coach.

Experiences that Differentiate Competent from Beginner

Please identify the experiences that differentiate a competent S&C coach from a beginner S&C coach. What experiences has a competent S&C coach had that a beginner S&C coach has not?

Experiences that Differentiate Expert from Competent

Please identify the experiences that differentiate an expert S&C coach from a competent S&C coach. What experiences has an expert S&C coach had that a competent S&C coach has not?

Thank you very much for your time and your input Coach _____. You will have completed this survey when you click the >> below.

Thank you again Coach _____ for all of your time and your effort put into completing this survey. You will receive the final research report at the completion of this study. For any questions please do not hesitate to contact David LaPlaca at any time by phone: (860) 614-9688 or e-mail: DAL71311@uga.edu.

APPENDIX D
PILOT STUDY SURVEY SECOND VERSION

Expert S&C Coach Study – Pilot Study Second Version

Identifying the Characteristics Differentiating Expert, Competent, and Beginner Strength and Conditioning Coaches

Please complete the demographic information below.

First name:

Last name:

E-mail:

Sex:

- ☐ Female
- ☐ Male

Highest level of education completed:

- ☐ High School Diploma
- ☐ Associate's Degree
- ☐ Bachelor's Degree
- ☐ Master's Degree
- ☐ Doctorate Degree

Current strength and conditioning (S&C) coaching position:

- ☐ MLB
- ☐ NBA
- ☐ NCAA Division I FBS - Power Five Conference
- ☐ NFL
- ☐ NHL
- ☐ Private Sector
- ☐ Other: _____

Please select all sports you have had experience coaching as a head S&C coach at any level of competition:

- ☐ Baseball
- ☐ Basketball
- ☐ Beach Volleyball
- ☐ Bowling
- ☐ Cross Country
- ☐ Other: _____
- ☐ Equestrian
- ☐ Fencing
- ☐ Field Hockey
- ☐ Football
- ☐ Golf
- ☐ Gymnastics
- ☐ Ice Hockey
- ☐ Lacrosse
- ☐ Rifle
- ☐ Rowing
- ☐ Rugby
- ☐ Skiing
- ☐ Soccer
- ☐ Softball
- ☐ Swimming and Diving
- ☐ Tennis
- ☐ Track and Field
- ☐ Volleyball
- ☐ Water Polo
- ☐ Wrestling

(Only one question related to championships appeared based on the participant's current coaching position. This was done automatically through Qualtrics).

As a head coach in Division I FBS how many championships have your teams won?

National Championships:

Conference Championships:

Bowl Victories:

As a head coach in Division I FBS how many championships have your teams won?

National Championships:

Conference Championships:

As a head coach in the NFL how many championships have your teams won?

Super Bowl Victories:

Conference Championships:

As a head coach in the NBA how many championships have your teams won?

NBA Championships?

Western/Eastern Conference Championships?

As a head coach in the MLB how many championships have your teams won?

World Series Championships:

American/National League Championships:

As a head coach in the NHL how many championships have your teams won?

Stanley Cups:

Eastern/Western Conference Championships:

As a head coach in Division I FBS how many postseason NCAA All-American honors have your players earned?

As a head coach in the MLB how many honors have your players earned?

All-Star Appearances:

League Most Valuable Player (MVP):

Silver Slugger:

Cy Young:

Other:

As a head coach in the NHL how many honors have your players earned?

All-Star Appearances:

Ted Lindsay Award (Most Outstanding Player):

Maurice Richard Trophy (League's Top Goal Scorer):

William M. Jennings Trophy (Fewest Goals Allowed):

Other:

As a head coach in the NBA how many honors have your players earned?

All-Star Appearances:

League Most Valuable Player (MVP):

Defensive Player of the Year:

Other:

As a head coach in the NFL how many honors have your players earned?

Pro Bowl Appearances:

Most Valuable Player (MVP):

Offensive Player of the Year:

Defensive Player of the Year:

Other:

Do you have head coaching experience at the Division I FBS level?

- ☐ Yes, with football
- ☐ Yes, with Olympic sports
- ☐ Yes, with football and Olympic sports
- ☐ No

As a head coach in Division I FBS how many championships did your teams win?

National Championships:

Conference championships:

Bowl Victories:

As a head coach in Division I FBS how many championships did your teams win?

National Championships:

Conference championships:

As a head coach in Division I FBS how many postseason NCAA All-American honors have your players earned?

Years experience as a S&C coach at all levels of competition:

Total:

Head Coach:

Current S&C related certifications:

- ☐ Certified Functional Strength Coach Level 1 (CFSC Level 1)
- ☐ Certified Functional Strength Coach Level 2 (CFSC Level 2)
- ☐ Certified Strength and Conditioning Specialist (CSCS)
- ☐ Functional Movement Screen Level 1 (FMS Level 1)
- ☐ Functional Movement Screen Level 2 (FMS Level 2)
- ☐ Master Strength and Conditioning Coach (MSCC)
- ☐ NASM Performance Enhancement Specialist (NASM-PES)
- ☐ Strength and Conditioning Coach Certified (SCCC)
- ☐ StrongFirst Bodyweight (SFB)
- ☐ StrongFirst Girya I (SFG I)
- ☐ StrongFirst Girya II (SFG II)
- ☐ StrongFirst Lifting (SFL)
- ☐ USA Weightlifting Level 1 (USAW Level 1)
- ☐ USA Weightlifting Level 2 (USAW Level 2)
- ☐ Other: _____

(Only one question related to awards appeared based on the participant's current coaching position. This was done automatically through Qualtrics).

S&C coaching awards:

- ☐ NCAA Conference S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year
- ☐ Other: _____

S&C coaching awards:

- ☐ MLB S&C Coach of the Year
- ☐ NCAA Conference S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year

S&C coaching awards:

- ☐ NBA S&C Coach of the Year
- ☐ NCAA Conference S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year

S&C coaching awards:

- ☐ NCAA Conference S&C Coach of the Year
- ☐ NFL S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year

S&C coaching awards:

- ☐ NCAA Conference S&C Coach of the Year
- ☐ NHL S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year

Purpose: The purpose of this study is to identify the characteristics that differentiate expert, competent, and beginner strength and conditioning (S&C) coaches. The findings of this study will support the selection, evaluation, and development of both current and future S&C coaches.

Providing your input: In the open-ended response sections provided below, please identify the skills, knowledge, and experiences that:

- Are minimum requirements for a beginner S&C coach
- Differentiate a competent S&C coach from a beginner S&C coach
- Differentiate an expert S&C coach from a competent S&C coach

Your input is very valuable so please make your responses as descriptive as possible.

Section 1 - Minimum Requirements for a Beginner S&C Coach

Minimum Skills Required for a Beginner

A skill is something a coach does. An example of a skill that differentiates an expert S&C coach from a competent S&C coach could be that an expert uses multiple methods of communication, while a competent coach may use one method of communication to teach an athlete how an exercise is performed. Please identify the minimum skills required for a beginner S&C coach.

Minimum Knowledge Required for a Beginner

Knowledge is something a coach knows. An example of knowledge that differentiates an expert S&C coach from a competent S&C coach could be that an expert knows their athletes exceptionally well which allows the coach to optimally design individualized training programs, while a competent coach knows their athletes minimally and relies on standardized programs. Please identify the minimum knowledge required for a beginner S&C coach.

Minimum Experiences Required for a Beginner

Experience is professional work that increases the practical knowledge and skills of a S&C coach. An example of an experience that differentiates an expert S&C coach from a competent S&C coach could be that an expert has been a head coach on the elite level for at least 10 years, while a competent coach has been a head coach on a non-elite level for five years. Please identify the minimum experiences required for a beginner S&C coach.

Section 2 - Differentiate a Competent S&C Coach from a Beginner S&C Coach

Skills that Differentiate Competent from Beginner

Please identify the skills that differentiate a competent S&C coach from a beginner S&C coach. What does a competent S&C coach do that a beginner S&C coach does not?

Knowledge that Differentiates Competent from Beginner

Please identify the knowledge that differentiates a competent S&C coach from a beginner S&C coach. What does a competent S&C coach know that a beginner S&C coach does not?

Experiences that Differentiate Competent from Beginner

Please identify the experiences that differentiate a competent S&C coach from a beginner S&C coach. What experiences has a competent S&C coach had that a beginner S&C coach has not?

Section 3 - Differentiate an Expert S&C Coach from a Competent S&C Coach

Skills that Differentiate Expert from Competent

Please identify the skills that differentiate an expert S&C coach from a competent S&C coach. What does an expert S&C coach do that a competent S&C coach does not?

Knowledge that Differentiates Expert from Competent

Please identify the knowledge that differentiates an expert S&C coach from a competent S&C coach. What does an expert S&C coach know that a competent S&C coach does not?

Experiences that Differentiate Expert from Competent

Please identify the experiences that differentiate an expert S&C coach from a competent S&C coach. What experiences has an expert S&C coach had that a competent S&C coach has not?

Thank you very much for your time and your input Coach _____. You will have completed this survey when you click the >> below.

Thank you again Coach _____ for all of your time and your effort put into completing this survey. You will receive the final research report at the completion of this study. For any questions please do not hesitate to contact David LaPlaca at any time by phone: (860) 614-9688 or e-mail: DAL71311@uga.edu.

APPENDIX E

FIRST-ROUND RECRUITMENT E-MAIL

E-mail Subject Line: Expert Strength Coach Study

Dear Coach _____,

I hope you are doing well. My name is David LaPlaca and I am a doctoral student at the University of Georgia conducting research to identify the characteristics that differentiate expert, competent, and beginner strength and conditioning coaches. Based on your input, the findings of this study will support the selection, evaluation, and development of both current and future strength and conditioning coaches. I wanted to follow-up with you in regards to my e-mail I sent to you last Monday afternoon to request your participation in this study.

I am contacting you specifically Coach _____ because I am looking to gather input only from the most qualified and experienced strength and conditioning coaches in our field. Specifically, head strength and conditioning coaches on the elite level.

Participation in this study requires the completion of three online surveys distributed in three separate rounds. The NSCA has confirmed that for completing this study you will be able to report 0.5 CEUs as Personal Development in Category D toward your CSCS recertification. In addition, you will receive a copy of the final research report.

The first-round survey is available now to complete until this Friday, November 18th, and should take about 20 minutes or less depending on the amount of thought and detail you provide in your responses. A few weeks from today you will receive the second-round survey asking you to rate your and your peers' responses. The third and final-round survey will be sent close to one month later requesting your confirmation of the final characteristics. At all times, your identity will be kept strictly confidential.

The first-round survey can be accessed through the following link: [First-Round Survey: Identifying the Characteristics that Differentiate Expert, Competent, and Beginner Strength and Conditioning Coaches](#)

Thank you very much for your time Coach _____. Your input is extremely valuable to the success of this study. For further information pertaining to your rights as a participant and details of this study please see the information below this e-mail. For any questions please do not hesitate to contact me at any time Coach _____.

Sincerely,

David LaPlaca, MBA, CSCS, USAW, CFSC
Graduate Teaching Assistant and Intern Olympic Sports Strength Coach
University of Georgia
Athens, GA 30602
(860) 614-9688
DAL71311@uga.edu

Rights as a Participant:

Your participation is completely voluntary and you can withdraw from the study at any time. While there is a limit to the confidentiality that can be guaranteed due to the technology of Internet communications itself, standard confidentiality procedures will be employed and confidentiality will be guaranteed to the extent possible once the data are received. Your IP address will be stripped once received and your name and e-mail will remain completely confidential to only be used to contact you regarding this study. The results of the study plan to be published, but your name and e-mail will not be included.

Additional Contacts:

This study is being conducted under the leadership of Dr. Paul Schempp who can also be contacted by phone: (706) 542-4210 or e-mail: pschempp@uga.edu. If you have any questions or concerns about your rights as a research participant please do not hesitate to contact the University of Georgia Institutional Review Board by phone: (706) 542-3199 or e-mail: irb@uga.edu.

APPENDIX F
FIRST-ROUND SURVEY

Expert Strength Coach First-Round Survey

Identifying the Characteristics Differentiating Expert, Competent, and Beginner Strength and Conditioning Coaches

Please complete the demographic information below.

First name:

Last name:

E-mail:

Sex:

- ☐ Female
- ☐ Male

Highest level of education completed:

- ☐ High School Diploma
- ☐ Associate's Degree
- ☐ Bachelor's Degree
- ☐ Master's Degree
- ☐ Doctorate Degree

Current strength and conditioning (S&C) coaching position:

- ☐ MLB
- ☐ National Team
- ☐ NBA
- ☐ NCAA Division I FBS - Power Five Conference
- ☐ NFL
- ☐ NHL
- ☐ Australian Football League
- ☐ Other: _____

Please select all sports you have had experience coaching as a head S&C coach at any level of competition:

- ☐ Baseball
- ☐ Basketball
- ☐ Beach Volleyball
- ☐ Bowling
- ☐ Cross Country
- ☐ Other: _____
- ☐ Equestrian
- ☐ Fencing
- ☐ Field Hockey
- ☐ Football
- ☐ Golf
- ☐ Gymnastics
- ☐ Ice Hockey
- ☐ Lacrosse
- ☐ Rifle
- ☐ Rowing
- ☐ Rugby
- ☐ Skiing
- ☐ Soccer
- ☐ Softball
- ☐ Swimming and Diving
- ☐ Tennis
- ☐ Track and Field
- ☐ Volleyball
- ☐ Water Polo
- ☐ Wrestling

(Only one question related to championships appeared based on the participant's current coaching position. This was done automatically through Qualtrics).

As a head coach in Division I FBS how many championships have your teams won?

National Championships:

Conference Championships:

Bowl Victories:

As a head coach in Division I FBS how many championships have your teams won?

National Championships:

Conference Championships:

As a head coach in the NFL how many championships have your teams won?

Super Bowl Victories:

Conference Championships:

As a head coach in the NBA how many championships have your teams won?
 NBA Championships?
 Western/Eastern Conference Championships?

As a head coach in the MLB how many championships have your teams won?
 World Series Championships:
 American/National League Championships:

As a head coach in the NHL how many championships have your teams won?
 Stanley Cups:
 Eastern/Western Conference Championships:

(The question below only appeared if the participant claimed to have some point been a head coach in Division I FBS. This was done automatically through Qualtrics).

As a head coach in Division I FBS how many postseason NCAA All-American honors have your players earned?

(Only one question related to player accolades appeared based on the participant's current coaching position. This was done automatically through Qualtrics).

As a head coach in the MLB how many honors have your players earned?
 All-Star Appearances:
 League Most Valuable Player (MVP):
 Silver Slugger:
 Cy Young:
 Other:

As a head coach in the NHL how many honors have your players earned?
 All-Star Appearances:
 Ted Lindsay Award (Most Outstanding Player):
 Maurice Richard Trophy (League's Top Goal Scorer):
 William M. Jennings Trophy (Fewest Goals Allowed):
 Other:

As a head coach in the NBA how many honors have your players earned?
 All-Star Appearances:
 League Most Valuable Player (MVP):
 Defensive Player of the Year:
 Other:

As a head coach in the NFL how many honors have your players earned?

Pro Bowl Appearances:

Most Valuable Player (MVP):

Offensive Player of the Year:

Defensive Player of the Year:

Other:

As a head coach on the National Team how many awards have your athletes won?

Gold medal

Silver medal

Bronze medal

Other:

(The question below only appeared if the participant's current position is outside of NCAA Division I FBS. This was done automatically through Qualtrics).

Do you have head coaching experience at the Division I FBS level?

- ☐ Yes, with football
- ☐ Yes, with Olympic sports
- ☐ Yes, with football and Olympic sports
- ☐ No

(The questions below pertaining to Division I FBS only appeared if the participant claimed to have some point been a head coach in NCAA Division I FBS. This was done automatically through Qualtrics).

As a head coach in Division I FBS how many championships did your teams win?

National Championships:

Conference championships:

Bowl Victories:

As a head coach in Division I FBS how many championships did your teams win?

National Championships:

Conference championships:

As a head coach in Division I FBS how many postseason NCAA All-American honors have your players earned?

Years experience as a S&C coach at all levels of competition:

Total:

Head Coach:

Current S&C related certifications:

- ☐ Certified Functional Strength Coach Level 1 (CFSC Level 1)
- ☐ Certified Functional Strength Coach Level 2 (CFSC Level 2)
- ☐ Certified Strength and Conditioning Specialist (CSCS)
- ☐ Functional Movement Screen Level 1 (FMS Level 1)
- ☐ Functional Movement Screen Level 2 (FMS Level 2)
- ☐ Other: _____
- ☐ Master Strength and Conditioning Coach (MSCC)
- ☐ NASM Performance Enhancement Specialist (NASM-PES)
- ☐ Registered Strength and Conditioning Coach (RSCC)
- ☐ Strength and Conditioning Coach Certified (SCCC)
- ☐ StrongFirst Bodyweight (SFB)
- ☐ StrongFirst Girya I (SFG I)
- ☐ StrongFirst Girya II (SFG II)
- ☐ StrongFirst Lifting (SFL)
- ☐ USA Weightlifting Level 1 (USAW Level 1)
- ☐ USA Weightlifting Level 2 (USAW Level 2)

(Only one question related to awards appeared based on the participant's current coaching position. This was done automatically through Qualtrics).

S&C coaching awards:

- ☐ NCAA Conference S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year
- ☐ Other: _____

S&C coaching awards:

- ☐ MLB S&C Coach of the Year
- ☐ NCAA Conference S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year

S&C coaching awards:

- ☐ NBA S&C Coach of the Year
- ☐ NCAA Conference S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
- ☐ NSCA Professional S&C Coach of the Year

S&C coaching awards:

- ☐ NCAA Conference S&C Coach of the Year
- ☐ NFL S&C Coach of the Year
- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
- ☐ NSCA Boyd Epley Award
- ☐ NSCA College S&C Coach of the Year
- ☐ NSCA High School S&C Coach of the Year
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- ☐ NSCA Alvin Roy Award
- ☐ NSCA Assistant College S&C Coach of the Year
- ☐ Other: _____
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- ☐ NSCA Professional S&C Coach of the Year

Purpose: The purpose of this study is to identify the characteristics that differentiate expert, competent, and beginner strength and conditioning (S&C) coaches. The findings of this study will support the selection, evaluation, and development of both current and future S&C coaches.

Providing your input: In the open-ended response sections provided below, please identify one important skill, area of knowledge, and experience that:

- Is a minimum requirement for a beginner S&C coach
- Differentiates a competent S&C coach from a beginner S&C coach
- Differentiates an expert S&C coach from a competent S&C coach

Your input is very valuable so please make your responses as descriptive as possible.

Section 1 - Skills

A skill is something a coach does. An example of a skill that differentiates an expert S&C coach from a competent S&C coach could be that an expert uses multiple methods of communication, while a competent coach may use one method to teach an athlete how an exercise is performed.

Minimum Skill Required for a Beginner

Please identify one important skill required for a beginner S&C coach. You may identify more than one skill if you would like.

Skill that Differentiates Competent from Beginner

Please identify one important skill that differentiates a competent S&C coach from a beginner S&C coach. What does a competent S&C coach do that a beginner S&C coach does not? You may identify more than one skill if you would like.

Skill that Differentiates Expert from Competent

Please identify one important skill that differentiates an expert S&C coach from a competent S&C coach. What does an expert coach do that a competent coach does not? You may identify more than one skill if you would like.

Section 2 - Knowledge

Knowledge is something a coach knows. An example of knowledge that differentiates an expert S&C coach from a competent S&C coach could be that an expert knows their athletes exceptionally well which allows the coach to optimally design individualized training programs, while a competent coach knows their athletes minimally and relies on standardized programs.

Minimum Knowledge Required for a Beginner

Please identify one important area of knowledge required for a beginner S&C coach. You may identify more than one area of knowledge if you would like.

Knowledge that Differentiates Competent from Beginner

Please identify one important area of the knowledge that differentiates a competent S&C coach from a beginner S&C coach. What does a competent coach know that a beginner does not? You may identify more than one area of knowledge if you would like.

Knowledge that Differentiates Expert from Competent

Please identify one important area of knowledge that differentiates an expert S&C coach from a competent S&C coach. What does an expert know that a competent coach does not? You may identify more than one area of knowledge if you would like.

Section 3 - Experience

Experience is professional work that increases the practical knowledge and skills of a S&C coach. An example of an experience that differentiates an expert S&C coach from a competent S&C coach could be that an expert has been a head coach on the elite level for at least 10 years, while a competent coach has been a head coach on a non-elite level for five years.

Minimum Experience Required for a Beginner

Please identify one important experience required for a beginner S&C coach. You may identify more than one experience if you would like.

Experience that Differentiates Competent from Beginner

Please identify one important experience that differentiates a competent S&C coach from a beginner S&C coach. What experience has a competent coach had that a beginner has not? You may identify more than one experience if you would like.

Experience that Differentiates Expert from Competent

Please identify one important experience that differentiates an expert S&C coach from a competent S&C coach. What experience has an expert had that a competent coach has not? You may identify more than one experience if you would like.

Thank you very much for your time and your input Coach _____. You will have completed this survey when you click the >> below.

Thank you again Coach _____ for all of your time and your effort put into completing this first-round survey. You will receive the second-round survey close to one month following the initial distribution of this first-round survey. For any questions please do not hesitate to contact David LaPlaca at any time by phone: (860) 614-9688 or e-mail: DAL71311@uga.edu.

APPENDIX G

FORM OF BEGINNER SKILLS ORIGINAL CHARACTERISTICS USED DURING THE PEER DEBRIEFING

Beginner Skills

Appropriate Characteristic	Raw Data Response
	Willing to learn
	Ability to learn
	You must be open to learning from those around you and
	ability and desire to learn and evolve
	willingness/eagerness to learn
	Drive to learn
	Seeks knowledge continually
	eager to learn
	The ability to learn the coaching philosophy of the organization they are working in
	Willing to learn
	passion for learning
	Ability and willingness to learn
	WATCH-LISTEN-ASK QUESTIONS-DONT THINK YOU KNOW HOW TO COACH SINCE YOU TOOK A CLASS
	Open minded
	Open to new ideas
	Open-mindedness to learn and grow
	Communication
	Great communication skills
	Communicates simple, yet understandable and effective teaching cues
	Explain the primary goal of the exercise.
	Communication: a Beginner coach will understand basic concepts of communication within the department and to athletes.
	communication
	communicate
	Effective communication including delivering and receiving a message
	Ability to communicate with athletes
	Ability to communicate with athletes, coaches, trainers, etc.
	Communication
	Effective communication skills
	The ability to convey a clear and concise message verbally and in writing from the head coach to his or her team you are training.
	COMMUNICATE WITH THEIR ATHLETES
	Effective communicator
	Confident communication of the message

	ability to communicate
	Communication skills are a must.
	While being authentic, must be able to communicate effectively/relate to different athletes
	Reference points and past coaching experience to draw from to communicate to the athlete.
	communication skills
	Communicate clearly
	Attention to detail.
	Attention to detail
	Work ethic
	Work ethic
	Work ethic
	Hard working
	Work Ethic
	Hardworking
	work ethic
	Ability to follow instructions
	The ability to accomplish tasks completely and accurately, no matter how big or small. Nothing is insignificant from facility upkeep to exercise technique.
	Willing to do whatever is asked in an accurate and efficient manner
	follow direction of superiors
	Should only have to be told/shown how to do something once
	They need to follow instructions
	The ability to take feedback and modify your behavior to reflect that feedback
	Ability to teach core exercises and speed and speed Improvement drills
	See it and teach it
	Ability to teach the correct main big movements
	Teaching the core exercises
	Listening
	Great listening skills
	Listen
	The ability to LISTEN
	Great listener
	The ability to keep your mouth shut
	Ability to listen
	Technique - self execution
	demonstrate lifts/exercises
	ability to execute every exercise as demonstration, be able to do and show

	demonstrate all lifts in the weight-room
	Demonstrate an exercise
	Basic ground based exercise technique
	The ability to perform the various athletic movements that they will be teaching with some level of competency.
	Proficiency at performing the exercises and drills used in program
	good demonstrator
	An ability to proficiently demonstrate proper technique in strength, speed, and agility exercises.
	execute exercises and training techniques that are implemented in training
	Ability to move well in order to demonstrate and command respect
	plan a year long program for a team that would improve strength, conditioning, flexibility, and body composition. They should be able accomplish this in a safe, organized, progressive system.
	Writing a training program: create a proper annual plan (macrocycle), training block (mesocycle), and weekly plan (microcycle) for a team, including properly developed single training sessions.
	Program design
	PROGRAM DESIGN
	Ability to consider Work-load Variables when designing Training Regiments: VOLUME- reps & sets / INTENSITY; % of Effort / DURATION ; appropriate work within time allotted
	A strong desire to make a profession out of collegiate/pro strength and conditioning.
	Enthusiasm for the profession
	passion for the field
	Passion for the profession
	Passion. If you there is not a passion to embrace the commitment of learning the science and it's application and also the art of coaching, then the beginner will lose motivation eventually.
	Ability to accurately observe movement quality and technique
	Look but don't touch - observe the program you are getting into and see how things operate before asking a ton of questions or questioning. Asking questions are very important but not at the expense of watching what takes place.
	OBSERVE AND CORRECT MOVEMENTS
	Ability to accurately assess movement quality and technique
	ability to seek out and implement feedback
	Ability to coach exercise technique
	Teaching lifting mechanics
	Teach flawless technique for safety and progression
	Proficiency at teaching exercises and drills used in program

	deliver and explain exercises
	Being able to teach the basic movements (i.e. bench, squat, deadlift, clean, etc)
	Be able to teach proper technique for most lifts and exercises
	Teaching basic athletic movement patterns
	The ability to effectively teach various exercise technique
	Ability to over-coach to their comfort level
	People skills
	Interpersonal Skills, a coach must be able to connect well with athletes and coaches
	Ability to relate with athletes
	Ability to connect with athletes, coaches, trainers, etc.
	The ability to relate with people
	Confident and personable interaction skills (does not need to be technical) with athletes, coaches and medical staff members
	Ability to develop rapport
	must know how to manage themselves and their intentions appropriately
	Monitoring the training of the student-athlete is a skill that the beginning coach may struggle with
	must be able to run a weight room
	Proficiency in spotting techniques
	Basic spotting
	The ability to implement the coaching philosophy of the organization they are working in
	Implementation of the philosophy of the Head strength and conditioning coach
	may just force the prescribed workout on the individual regardless of their preparedness
	Program Implementation
	Don't be a coaching "robot" but understand that you work within a system
	Not getting carried away with too much volume. Keeping a small exercise library
	The ability to set up and clean up
	assist in all basic facets of the daily activity from set-up ,organization, athlete monitoring, and conditioning
	Computer skills
	Compromise
	Dependable
	Follows-up with appropriate feedback and corrective directives, if necessary
	Floor presence
	Command a room

	Have respect
	Energy
	Energy
	Not good at managing team and personal time
	time management
	Restating coaching cues
	Confidence
	Confidence
	Must have a love for training
	ability to think on your feet
	ability to ensure you are a rule follower
	reliability
	loyalty
	Loyal
	Integrity
	over-rely on new technology
	Technical application of ALL exercises
	Assertiveness
	Self-Starter
	Being able to adjust quickly with information being presented by the athlete at that moment
	ADJUST PROGRAM TO ATHLETES NEEDS

APPENDIX H

FORM OF COMPETENT SKILLS ORIGINAL CHARACTERISTICS USED DURING THE

PEER DEBRIEFING

Competent Skills

Appropriate Characteristic	Raw Data Response
	Ability to communicate effectively with both players and staff
	Being able to communicate/develop relationships with sports coaches
	COMMUNICATE WELL WITH ATHLETES AND SKILL COACHES
	Communicate with the coaching staff and athletic trainers
	Effectively communicates with Coaching staff and athletes for purposes of training model design
	able to speak intelligently on all aspects of training
	Communicating skills
	communication
	communication level
	Higher level communication skills.
	People skills, sound communication skills.
	Verbal and physical communication
	understand the importance of communication. Communication with your athletes along with everyone else involved.
	Successful communication between all head coaches and athletic training staffs
	regular communication within the department, to athletes, and to coaches
	Advanced communication skills and
	How to communicate with a sport coach
	Increased knowledge and ability to communicate that knowledge with players and coaches
	communication with sport coaches
	The ability to communicate with the athlete that does not want to train and finding a way to motivate and educate them
	A competent S&C coach schedules individual meetings with all coaches involved with the athletes he will be coaching.
	may not fully use technology it to its utmost capability.
	A competent coach is better with managing a room of clients or athletes
	limited experience in dealing with the team dynamics (management, coaches, medical staff, equipment staff, team services, etc).
	Time management of a sport
	ability to run the daily activities of strength and conditioning program
	ability to supervise multiple athletes as well as supervise and mentor beginner s&c coaches.
	a Competent Coach should explain the goal of an exercise, the reason for it's inclusion in the program

	Should be able to demonstrate/explain the workouts for your program.
	The ability to explain why certain things are performed in the course of a training program, not only to the coaches, but the student-athletes as well.
	be able to talk through the explanation of the exercise
	A competent strength coach listens and knows there is more than one way to get the job done.
	ability to adapt to many different coaches.
	are flexible with their programming and implementation to facilitate recovery, adaption, and performance.
	the ability to adapt on the fly with short notice. sometimes you cannot stick to the plan you had set for that day and change what you wanted to do and do what is needed to do.
	Ability to manipulate programmes in an instant due to a change in circumstance (gym equipment not being available, athlete fatigue etc)
	Ability to critically evaluate a program and modify program based on evaluation outcomes
	As the coach matures, his perspective broadens allowing him/her to make more informed decisions, and adapt to the individuals under there supervision.
	Competent coach should be able to design a training program and adjust and adapt accordingly.
	Has a full arsenal of modified movements for those who cannot perform the by-the-book, mainstream ones for various reasons.
	Ability to coach exercise technique and identify what my limiting good technique.
	able to create a plan in order to execute training techniques in order to improve performance
	Can identify technique flaws and has the expertise, communicative, and demonstration skills to correct them.
	Detailed understanding of nuance of exercise technique and how to regress/lateralize as needed.
	Instruction on Technique
	The ability to identify common technique flaws in a multitude of exercises and demonstrate solutions to the flaws.
	The ability to integrate advanced training tools within the program design; such as, proper integration of plyometric techniques within the training program, ability to integrate vintage training techniques within the standard training protocols (Kettlebells, suspensions tools, bars with various grips...etc. This would include the ability to properly integrate these tools within the standard training cycles throughout the year.
	Ability to competently demonstrate the movements they will prescribe. This is a form of communication.

	able to demonstrate and deliver training principles to a diverse athlete population
	Be able to demonstrate every lift and exercise.
	be able to expertly demonstrate the exercise
	The ability to perform those various athletic movements with greater technical proficiency
	ability to correct / enhance lifts/exercises and write progressive programming
	Ability to teach various athletic movements in a manner that the athlete can replicate the correct movements.
	The ability to assess and correct movement pattern flaws as it pertains to strength and conditioning
	ability to correct and instruct athletes in the pillars of the s&c program including
	Competent - Can visually assess movement faults that need correction in both basic and more advanced movement patterns
	Ability to lead large groups while still focusing on the minor details.
	assess athletes' movement patterns and competency in an individual or group setting.
	Being able to teach/coach the basic movements in large groups/teams.
	Confidence and presence in the room that holds the groups attention.
	see and teach a group not a individual
	Ability to conduct a team workout
	ability to learn from pervious experience
	Programming.. Beginners need to learn how to coach on the floor before concerning themselves with writing programs!
	Investment into their own continuing education through certifications and/or graduate level work.
	Understanding - through observation and asking the right questions you begin to develop a deeper understanding of what this profession is all about.
	Actual teach and coach. Doesn't rely on text book protocol all the time.
	an abundance of Confidence in teaching most applicable exercises.
	Be able to teach every lift and exercise.
	Expert teacher.
	Teaching ability - confidence in leading/coaching
	Teaching complex movement patterns like standard Olympic lifting and speed/agility mechanics
	Teaching skills
	teach the olympic lifts
	adjust coaching cues for a variety of athletes (e.g. use verbal, visual, auditory/explanatory, and/or kinesthetic cues).

	Adjustments
	be able to adjust the plan on the fly and create modifications for athletes
	QUICK AND SMART ADJUSTMENTS TO MOVEMENT AND PROGRAM
	The ability to make adjustments on the fly
	Ability to critically think and implement adjustment in training as needed.
	Being able to adjust without truly adjusting.
	Alternatives need to be applied at times, and knowing when and how can be a separation quality.
	Ability to construct periodized programming for advanced (high training age) athletic populations
	appropriate application of basic periodization principles
	ability to critically evaluate scientific research and program evaluations in order to improve knowledge
	Basic understanding of player and/or position specific program design for in-season and off-season training.
	Decision making as it relates to programming
	Design progressive programs using experience.
	Effective program designer.
	I think that for a strength coach to be considered competent that they would be aware that our jobs are to assist the head coach to win games. In order to be competent you would need to be able to understand the demands that the athletes are under year round. Your programming should compliment the sport practice and game demands to ensure the athletes needs are being met without overtraining.
	Proficiency in implementing the principles of the strength and conditioning program
	Programming Skills
	Quality programmer
	Ability to organize and detail multiple training plans for various sports
	Ability to construct and conduct training programs that successfully integrate all the components of a sound training program in a complementary fashion.
	Able to develop science based training programs
	see beyond the exercises and view the program as a progressive system
	He takes the information he gathers from the meetings and builds a S&C training plan/program.
	Confidence
	confidence in their knowledge ability
	Relationship/confidence with Athletes
	Being able to give clear and concise coaching cues without confusing the athlete.

	Make complicated concepts simple
	Most young coaches are overconfident therefore they over coach.
	can problem solve a he spur of the moment.
	Realizing what needs to be done before being asked or told.
	Realizing that not all individuals respond to the same cues and explanations.
	Ability to individualize the training process based on previous experience of what works.
	understand the importance of a healthy relationship between strength coach and head coach, strength coach and athletic trainer, etc...
	Ability to navigate tough personalities
	The ability to put your ego aside and come to common ground with everyone else involved in the organization at certain times is a skill that separates good strength coaches.
	The ability to see the big picture, it's not just about training. It's about the entire well-being of your players.
	the relationship with that teams coaching staff.
	interpersonal skills(coaching)
	Able to use multiple coaching cues
	Coach and understand basic movements.
	Coaching skills
	Ability to handle people and situations that arise
	ability to control a situation
	Ability to maintain a level of composure in confrontational situations
	Ability to deal with failure.
	Again, always provides some form of feedback (intrinsic, augmented, or summary).
	critical thinking skills
	Delegation of responsibility
	has a firm identity of who they are as a coach and what their coaching style is.
	Identification of self (i.e. what sport or sports does he/she want to be involved with).
	Testing/Assessment
	The competent coach may or may not have a good enough eye to see an athlete's readiness to train upon arrival to the training facility.
	They should have the ability to evaluate and instruct main lifts in the weight room.
	Ability to work around injuries
	helps improve performance and prevents injury
	They should be able to lead a proper athlete prep.

	putting the basic skills into practice in the situations that will yield the best results with players
	The ability to recognize there are different methods to train and improve athletes and teams.
	While being authentic, must be able to help teach the athlete(s) how to better solve problems within life and help guide them through obstacles in life.
	willingness to go where the job takes you

APPENDIX I

FORM OF EXPERT SKILLS ORIGINAL CHARACTERISTICS USED DURING THE PEER DEBRIEFING

Expert Skills

Appropriate Characteristic	Raw Data Response
	Coaching an exercise. an Expert Coach should be able to fulfill the qualities of the Competent Coach, and additionally modify a given exercise for the current condition of an athlete (e.g. current pain, previous injury history, change of equipment, individual anatomy, competency of movement, etc.).
	correct feedback/techniques for a wide variety of athletes.
	provide appropriate feedback and correction.
	how to technically, tactically and manually correct kinematic problems
	Monitoring the training environment: fulfill the skills of the Competent Coach, assess athletes' movement patterns and competency in a group setting
	Ability to adjust on the fly with a large group of players under unforeseen variables (weather, lack of time, etc..)
	ability to understand the deep psyche of an athlete (or group of athletes) to get the most out of them in the face of extreme adversity
	Being able to teach/coach the basic movements in large groups/teams, all while programming teams' workouts and working around injuries.
	Can vary coaching within a group, for different individuals, etc.
	The ability to teach the above skills to larger groups of individuals
	able to train large groups
	Ability to oversee an entire facility with more than 40 athletes lifting at once
	Ability to adjust
	Ability to adjust on the fly with a large group of players under unforeseen variables (weather, lack of time, etc..)
	Ability to adjust programming and exercise selection to individual needs
	ability to receive data from the individual and make adjustments within the training session.
	Be able to make adjustments on the fly.
	Can adjust a plan while its in motion.
	Can read/adjust to the situation, and most importantly the athlete, and maximize the desired results.
	the ability to adjust workouts according to what the athlete's are capable of doing that day.
	Being able to progress or regress an exercise on the fly.
	flexibility in program design and periodization
	how to deviate from the plan and think on your feet
	Ability to come up with alternate methods of training in odd / difficult situations
	adjust the plan accordingly.

	The ability to do anything on the fly,
	Ability to apply science to programs
	able to coach with both science and creativity. Coaching is both science based, but is also an art. Expert coaches are able to effectively blend the two.
	Science-based
	Communication: an Expert coach will understand the necessity of regular and frequent communication with sport coaches, athletes, colleagues, other departments, and administrators.
	Able to communicate training concepts appropriately to different audiences (i.e. how does a coach teach a player vs. a staff member vs. a coach, etc).
	An expert S&C coach can identify technical errors and employ exercises and modifications to fix these errors that do not involve explicit communication.
	Communicate the "Why" to your athletes so they have an understanding of your program and what the goals of it are. Very important for buy-in and adherence vs. telling them what to do.
	communication
	Communication with athletes
	Effectively communicates and uses their practical knowledge for any given situation.
	Exceptional communication skills.
	Great communication skills with athletes, coaches, sport coaches, medical personnel and administrators
	should be able to communicate
	special communication ability with coaches, management and veteran athletes.
	Strong Communication with peripheral fields
	The ability to communicate and educate on all fronts: Your own staff, players, coaches
	Unique ability to communicate and deliver complex training prescription and long term athlete development processes to a diverse population of athletes, coaches and medical staff members
	Using your example...communication, specifically verbal, written and visual. I believe it is one of the most important skills in life, not just as an S&C coach.
	Verbal and physical communication
	educating him on the "Why"
	ability to communicate that to peers.
	Communication.
	ability to command the "room"
	Learns how to teach and lead and command respect.
	presence in a big room
	Ability to coach exercise technique with fewest words needed

	Ability to convert complex information into easily understandable information that the client/athlete can understand.
	Make complicated concepts simple
	how to take large amounts of information and appropriately assimilate it into the training process.
	Ability to grasp the whole annual picture with an in depth understanding of their sport.
	Expert coaches realize weight lifted is secondary to ultimate performance. Whole picture
	One that sees the big picture and knows what buttons to push, to inspire and motivate.
	Sees the "whole picture" not just sets, reps and poundages.
	The ability to see the big picture, picks up on visual cues from his players in the facility, weight room, practice field
	Expert coaches realize weight lifting is secondary
	I would say an expert would spend the majority of their time being driven to make their athletes the best people they can be. An expert should be able to do more than run a strength and conditioning program.
	Ability to lead and mentor a staff.
	Leads a staff of coaches
	ability to coach athletes and coaches expertise in all aspects of program and facility management
	Ability to manage all facets of an S&C department including training, employee management, facility management.
	Effectively manage and develop a staff that promotes and disperses your philosophical beliefs
	manage a room and deliver a program to multiple levels of athletes and or ability levels.
	Manage and empower his/her staff to grow in-and-out of the training facility.
	Management
	Management experience
	team management... all of these, but on an even greater level
	The ability to manage and develop other coaches at a variety of levels. A competent S&C coach may only be able to take care of themselves.
	Time management for multiple sports, teams, players, etc.
	handle the variations that occur within those groups in a fluid manner
	An expert would have the experience to see problems coming and fix them before they manifest themselves.
	An expert would have the skill to manage lots of moving parts to maintain the integrity of their program to ensure consistent results.

	Adapting complex movement patterns to fit the needs of each sport (e.g. appropriate variations of Olympic lifting movements, or sport-specific variations of basic running and agility movements)
	Experts have the skill set to adapt to and construct effective training plans for any sport once familiar with it. They are able to adapt and influence any and all personality types.
	have the ability to adapt and instruct all facets of performance.
	read their team and adapt to the needs of the team and individual even if it varies from the program.
	ability to adapt program rationale to specific unique situations without hesitation
	Ability to adapt to anything.
	Ability to determine relative influence of any of the above areas in a given unique situation.
	Ability to plan ahead, but also adapt to changes as they occur.
	Writing a training program: an Expert Coach should fulfill the skills of the Competent Coach, and be able to write unique programs for individual athletes of a team (considering individual needs and goals).
	ability to target training direction based on individual athlete requirements within the performance metrics of the professional environment.
	The ability to make appropriate changes to training regiments by matching the base program design to the individual athletes needs; this would include variables such as age, injury history (this would include both disabilities - short and long term disabilities, and the ability to build an appropriate training model based on an individuals medical conditions & pathologies...e.g.; sickle cell anemia, diabetes, hepatitis, Crohn's disease, etc.
	The ability to make changes to program based on information gathered from individual players, coaches, subjective and objective information, travel schedule and weather issues, and in game work loads.
	deliver a program to multiple levels of athletes and or ability levels.
	applies case-specific abatement procedures.
	ability to build a s&c program that accounts for the variables of psychology, movement skills, recovery, nutrition and hydration in a fashion that enhances performance and player availability within the vision of the head football coach and his program.
	be able to identify what is limiting good technique
	immediately provide an intervention to help improve technique.
	improving/eliminating more profound deficiencies in technique that various athletes may display.
	Can analyze the movements of the athlete and
	Can see why there are flaws, deficiencies
	experience in relating to and

	Relationship based coaching
	The relationship building of an expert coach is something that is usually only gained from time spent in the field.
	PEOPLE SKILLS - ABLE TO COACH TO ALL AGES AND EXPERIENCE LEVELS
	connection
	Deal with athlete, coach, and/or staff conflicts appropriately and professionally.
	Good person
	knows how to deal with all different type of situations and different types of athletes and coaches and still get done what they want or need to get done.
	able to attend a staff meeting with a sport coach and speak your mind freely and give your opinion of what is needed.
	has the eye the and the understanding of athlete readiness
	Has the well-being of the athlete in mind
	The ability to read people
	I now believe I am in a race against time to earn trust. I currently spend most of my time trying to identify which of my athletes are struggling either on the court, in the classroom, or in their personal lives. I try to use the trust I have earned to help my athletes with their problems so they can focus on improving themselves.
	Ability to deal with various personalities and/or egos in-and-out of the training facility.
	can interact with the entire sports medicine team
	Dealing with coaches
	create a long term plan and prescribe training throughout the corse of a season or multiple seasons
	long-term development of athletes (4+ year planning vs. single cycles or years)
	ability to decipher and deduct what is the most efficient way to build and develop a training plan for all sports at your place of employment
	Approaches errorless programming
	has experience in program design
	Programming expertise
	Programming skills
	understand they are a piece of a larger puzzle
	understanding of the sport coach's vision for the program and how S&C fits into that vision
	Being the eyes, ears, voice of the Head Coach on the player level because HBC isn't always in the trenches with the players.
	The ability to balance out the coaches needs of the team and the players needs

	Vision of sport coach for S&C
	Development of competent and beginner coaches
	Teach, lift up and bring other coaches along the journey by giving back
	has the confidence to allow his coaches to coach, not be a control freak.
	and are a source of knowledge for younger strength coaches.
	coaching and teaching young coaches how to design and implement program design
	Properly oversee budget or departmental finances.
	as well budgetary skills
	Strongly grounded belief system.
	they dont distracted and change their programs based upon what the current trends in training are
	enforces what the players need to be done
	Public speaking or leading continuing education seminars.
	being able to move from station to station and coach.
	Being available for whatever needs done.
	mastered all facets of the delivering a effect strength and conditioning program.
	To be great at everything: in increasing strength, nutritional information, sleeping and recovery.
	Operating their program like a well oiled machine.
	able to see both sides of any argument because they have the practical experience to back up or deny the knowledge that they have gained.
	Being a forward thinker (heading off issues before they become issues)
	hey should have the ability to contribute on a higher level with the medical staff and provide insight into performance activites.
	Technical Ability
	They can analyze performance data to show growth and performance projections based on historical data.
	Coaching level & skills
	kinesthetic awareness
	Ability to keep to the illusion of perceived knowledge
	Increased level of confidence.
	Keeps detailed training records and delivers targeted valid test measures in order to demonstrate physical progression, maintenance or regression.
	their experience has given them incredible confidence
	The expert then disseminates this information back through all involved people, gathers feedback, makes any needs revisions and then systematically proceeds to implement his plan.
	Understand different motivational techniques to drive their athletes to get better.

	motivating players to work tirelessly day in and day out.
	Motivating athletes
	motivation
	Understand different motivational techniques to drive their athletes to get better.
	Ability to drive the process.
	Master of making players buy into the program.
	Pays strict attention to detail
	The attention to detail. The ability to accomplish tasks completely and accurately, no matter how big or small.
	Calmness
	they are level headed
	Expert coaches are anchored, they are humble
	Ability to implement sport specific performance parameters in a practical sense that takes into account player / team performance, team / sport culture, and other stake holders.
	Building a culture
	They can establish and uphold culture.
	An expert would work daily to have everyone believing in their program.
	Is a difference maker in young people's lives. Has the ability to institute, direct, and uphold values and chemistry within the team. Is an important cog in the culture of the team.
	The ability to create a culture where teammates motivate each other, trust the process, and motivate the unmotivated athlete for you.
	combine all elements of human performance and behaviours and manipulate the environment around them in order to expose their athletes to optimal learning environments
	Has the expertise to troubleshoot and identify specific reasons for: Lack of progress, muscle imbalances, working around injuries, overtraining signs, etc.
	Talent identification. Being able to see talent before the athlete.
	Floor vision
	ability to know what battles to fight, knowing who you are enough to stay with the profession regardless of what "sport" you work with.
	Experts can evaluate globally and knows how the systems interact
	learning to identify and eliminate unnecessary, ineffective or harmful exercises or conditioning from training programs
	Expert - Can visually assess movement faults that need correction in basic, advanced, high speed and complex patterns quickly and efficiently
	Knows what to problem solve and
	see and hear everything around you but act on what needs the most work

APPENDIX J

FORM OF BEGINNER KNOWLEDGE ORIGINAL CHARACTERISTICS USED DURING THE PEER DEBRIEFING

Beginner Knowledge

Appropriate Characteristic	Raw Data Response
	Knowledge of a given Sport: a Beginner coach may write training programs for a specific sport by training the general qualities needed (e.g. strength and power).
	as well as the movements for the sports they train
	Beginner coach has basic knowledge of programming for a specific sport.
	Identify sport, or sports, basic training characteristics that are necessary for proper crossover onto the field of play.
	Programming methods and specific demands of sport. Able to write a sound program and defend it.
	From a physical standpoint, the performance of the athlete in practice and competition is far more important than their performance in the weight room.
	Realizing that we as strength coaches are one piece in a large working puzzle.
	the sport specific kinesiology of human movement.
	Anatomy and Physiology: a Beginner coach should have a fundamental understanding of human anatomy, physiological processes, and bioenergetics. This is usually a "textbook understanding."
	basic anatomy & physiology
	Basic anatomy and physiology.
	Basic exercise physiology
	Basic physiology
	basic understanding of exercise science, exercise physiology, sports psychology, and sport science.
	exercise physiology
	Exercise physiology, anatomy and physiology, exercise technique.
	Fundamental exercise physiology and
	Know basic anatomy and physiology
	More than likely (we hope anyways) a beginner isn't put in charge of writing the periodized plan and workouts, so they need to understand the physiology of the body, the energy systems and how to execute all the movements they will be coaching.
	physiology, biology
	Physiology! example , Football is an alactic/anaerobic, aerobic sport but all coaches do is place their athletes in high "lactic" environments. WHY? the sport is a sport of repeat accelerations and decelerations. Major energy source is ATP-PC (free energy as the late Charlie Francis called it). If you want to expand the alactic envelope you must train in the alactic environment!
	Proficient in the areas of basic exercise physiology and biomechanics

	The "basics" of anatomy and physiology.
	A&P, ex pays and athletic training courses.
	ability to communicate them effectively, basic nutrition, general A&P understanding
	Basic science
	basic physiologic knowledge
	General knowledge of training and science associated with the training
	Understanding energy systems.
	Basic human movement principles, physiology
	anatomy and kinesiology and how the body works and functions.
	Basic anatomy
	Basic anatomy and the ability to work hard and learn
	corresponding anatomy.
	Understanding of human anatomy and basic principles of biomechanics and musculoskeletal systems
	functional human anatomy & physiology
	Basic understanding of exercise biomechanics (lifting technique)
	A beginner S&C coach knows the underlying principles of exercises to develop all the basic motor qualities (Strength, speed, endurance, agility, flexibility).
	3. Continuing Education: a Beginner coach will often have the knowledge gained from academic classes and textbooks, which may be up to 5-10 years old.
	A beginner S&C should have basic understanding of all information from a proper B.S Exercise Science education.
	further education on your time and under your own initiative.
	Continuing education training with his/her city and/or state.
	a certification from a recognized S&C organization, such as NSCA
	Certification from a reputable organization (CSCS, CSCCA, CFSC, NASM)
	Minimum knowledge for a beginner is what is necessary to become certified in the NSCA or CSCCA.
	Specialist qualification in S&C
	a degree in the sport science field, and
	Basic Bachelor Degree in Sport or exercise science
	Degree in a related field.
	degree in KINES, PE or other related degrees
	High School and working towards bachelor degree
	I would think a beginner should have an undergraduate degree in a relevant field of study.
	In addition to earning your degree,

	undergraduate degree in a sports science related field.
	Undergraduate degree in an exercise science related field
	BA or BS in related field
	Bachelor of Science
	Bachelors
	basic exercise technique
	Basic lifts and movement techniques.
	Body building techniques
	Evaluation techniques and Measures: means to determine the current physical fitness status of the athlete.
	exercise and drill technique,
	Exercise Technique
	Exercise Technique and Movement Patterns
	Oly lift technique
	Powerlifting technique
	Understand of Basic exercise techniques, exercise and weight room safety concerns
	Understanding how to carry out all exercises within the program.
	Basic Lifts
	Exercise knowledge.
	Familiarity with various gym equipment and proper usage.
	Fundamental knowledge of strength & conditioning exercises &
	Know all the lifts well
	know the olympic lifts
	competent understanding of proper lifting technique
	CSCS - broad exposure to all the elements necessary to run a sound program.
	CSCS exam and the content it covers in the text in preparation for the exam (basic intro into what this profession is all about).
	passing the CSCS
	They should also understand the basic principles of the human body and training principles from CSCS.
	Basic concepts in movement instruction
	Basic knowledge of movement patterns
	Basic knowledge of movements and
	Basic understanding of movements and muscles involved
	human movement
	know how to teach movements to the athletes
	teaching fundamental movements in both the weight room & on the field/court/ice/etc

	Understand movements and certain lifts in weight room
	Understanding movement
	Basic fundamentals of exercise prescription and program design.
	Basic Principles of Program Design
	basic understanding of fundamental S&C program principles
	Concept on programming
	Delivers generic training programs
	How to organize and program team lifting sessions.
	know how to perform all the lifts that are used in a coach's program
	Knowledge of basic program design.
	Not expected to write programs but willingness to learn.
	One area of knowledge for the beginning coach is in to have a basic understanding of programming.
	Practical Programming
	Program design
	Programming
	Basic knowledge of principles, ie adaptation, periodization
	Basic understanding of the importance of timing exercise prescription and recovery
	General knowledge on sets and rep schemes.
	Periodization
	training principles
	General adaptation syndrome (GAS)
	Understands the importance of balancing workouts for comprehensive development.
	beginner coach knows how to deal with off season, pre season and in season training.
	Understanding strength programming and periodisation
	basic training programming
	Then within that understanding all appropriate coaching cues and when to give them.
	Facility safety and emergency protocols.
	safety
	safety procedures
	Basic nutrition understanding
	nutrition
	nutrition
	injured rehabilitation.
	Basic understanding of training, nutrition, injured rehabilitation.
	a Master's of Science degree and

	Knowledge in how to truly make a player stronger during the course of an 8 week off-season.
	Acceptable expectations
	understanding of the main points of emphasis for the program as determined by the head s&c coach.
	Basic Understanding of people
	Life

APPENDIX K

FORM OF COMPETENT KNOWLEDGE ORIGINAL CHARACTERISTICS USED DURING
THE PEER DEBRIEFING

Competent Knowledge

Appropriate Characteristic	Raw Data Response
	Knowledge of a given Sport: a Competent coach may write a training program that addresses specific needs of the given sport (e.g. short accelerations, rotator cuff strength).
	Competent coach knows within a sport that different positions may have different needs and can program accordingly.
	Sport specific knowledge
	these coaches have learned what sometimes makes sense in a text book, is not always applicable in the sporting environment.
	training calendar for given sport
	Understanding the needs of the sport and
	understanding different sport and team dynamics
	In-depth knowledge of sport
	a general understanding of biomechanical and physiological screens/tests and how they apply to the athlete and to their unique sporting skill.
	advanced understanding of involved sport
	Is able to analysis movement as it pertains to his sports he is training
	The physiology and biomechanics of sport
	understanding the why of specific exercises are done for a sport and why some should not be done.
	Anatomy and Physiology: a Competent coach will understand who anatomy and physiology work within the context of sport, and within the specific framework of a sport's movements, practice and game demands, and time windows. For example, understanding the role of the aerobic system for intermittent team sports, or understanding muscle recruitment for a swimming stroke.
	A competent coach knows not only the underlying principles behind exercises to develop the basic motor qualities but also how each interacts with one another in the holisitic physical development program.
	a competent coaches knows how to use the course work and apply it to the weightroom or field
	Understanding energy systems and being able to apply this information to training sessions.
	Understanding of how to implement the above into a physical development plan that is appropriate for the teams he/she trains
	know how to take that knowledge and apply it to S&C program design.
	training knowledge and

	Continuing Education: a Competent coach will often attend conferences and read journal articles to stay abreast of new information or advances in techniques.
	They are aware of current research and continue to learn and progress from the everyday coaching environment.
	A decent understanding of the current literature and where to find said literature in order to practice an evidence-based philosophy.
	Personal studying activities like reading relevant literature and books, site visits,
	Competent coaches have branched out to all other areas of training outside of standard knowledge. They may read/research areas that are not of their particular field.
	A competent S&C will have advanced knowledge beyond the B.S Exercise Science and CSCS.
	a Master's of Science degree
	masters degree
	Masters Degree
	They will have a advanced degree in Exercise Science related program.
	Advancing knowledge in strength science
	increased understanding of exercise science
	Advanced concepts in movement and training, functional anatomy, basic performance testing concepts, functional screening
	anatomy and physiology of the body, muscle insertions, actions and etc
	Basic knowledge of movements/corresponding anatomy while being able to identify weaknesses.
	Deeper understanding of functional anatomy
	A competent S&C coach must understand functional human anatomy & physiology, and the sport specific kinesiology of human movement
	The need for a good undergraduate degree in a relevant exercise science area is a must. Armed with this knowledge, they need to understand the physiological and biomechanical demands of the sports they work with.
	Understanding the science behind what we do.
	Application of knowledge
	Apply the sets and rep schemes over time in a periodized fashion.
	Variations of foundational S&C principles that can be applied in a team setting
	CSCS
	CSCS. CSCCA maybe.
	passing the CSCS
	alterations to the program designs based on environmental factors.
	Knowledge of intermediate program design.

	Program Design
	program design and planning
	Should have the ability to fit the components of preparation that they are responsible for into the overall physical/mental/tactical/technical plan of the athlete/sport in a way that promotes growth in all of those areas.
	At this point your philosophy should begin to take shape based on your education and experiences up to this point.
	Has worked with different methodologies and philosophies.
	I would think a competent strength coach would have a philosophy and not be searching for the next trend.
	They are starting to develop personal philosophy and ability to implement there own programming.
	working knowledge of multiple training philosophies
	A competent coach is in his 30's is still learning and developing a philosophy and training methodologies.
	I think a deep understanding of periodization is something a competent coach should acquire after years of working in the field.
	periodization strategies
	Year long periodization
	Deeper understanding of factors which influence exercise prescription such as athlete pathology, concurrent training effects and how to priodise the training stimulus to promote optimal performance.
	knowing the training calendar and periodization needed
	Better understanding of programming and the differences in them.
	Can provide more targeted programs for individual athletes
	fundamental programming
	increased understanding of fundamental S&C program principles
	Knowledge outside the ability to build standard training programs; such as, ability to build a complementary nutritional program including the knowledge to provide advise on proper supplementation as would be advised when completing advanced training programs - especially poignant when advising on supplementations that may require changes in administration based on in-season vs. off-season demands
	practicing new program planning and design.
	programming
	programming and the effects on the system.
	Programming skills
	the ability to communicate and relate to players and get them to adhere to a program

	The focus to have athletes complete training programs correctly increases rather than just passing out a sheet.
	The knowledge of technique and programming of lifting, plyometrics, movement and speed development
	They should also have enough knowledge to be able to determine what really is effective programing.
	To have a better understanding of programming, not only in weight training, but all aspects of
	Understanding that our programs must be flexible based on all other working parts within a team/organization
	what should be trained and the differences in the yearly programing
	understanding a yearly plan.
	Can begin to see flaws in exercises, movement patterns, etc.
	CUES ON HOW TO CHANGE MOVEMENT PATTERNS THAT THE ATHLETE UNDERSTANDS
	expanded knowledge of exercise techniques
	human movement solutions
	how to coach / teach a movement
	Good vision and knowledge on training,
	Exercise variety
	strong understanding of coaching skills (teaching, communication, motivational techniques).
	Competent strength coaches understand and can explain the "why" behind everything they do with their athletes.
	Understand WHY we do what we do
	Should also be able to explain why in every aspect.
	In-depth understanding of training principles and/or concepts that pertains to his/her athletes.
	appropriate energy system training
	Energy systems
	energy system development
	exercise physiology
	How to organize and coach a group
	They should be able to run a room with a large group of athletes and have the knowledge/experience to ensure that the group can train in an effective fashion.
	competent coach knows how to teach a beginner, so that I have confidence that they can run a small group of new players.
	Attendance at FMS, PRI
	How to conduct a needs analysis

	Plan for athlete intake (i.e. physicals, performance testing, measurements, etc).
	nutrition
	nutrition and supplementation
	nutrition
	Nutrition, and
	Fatigue and recovery management
	recovery methods
	recovery/restoration.
	The ability to visual see the fatigue in an athlete and or team or there peaking. Variations from the norm.
	This is about stress management and understanding each athlete has a individually unique response to the stressers imposed upon them. Biometrics is changing our profession rapidly, you are no longer a strength coach! We are stress managers! Too much volume imposed upon athletes in an attempt to make them tough without understanding accumulative trauma over time!
	NCAA rules and regulations
	disciplinary actions.
	sports psychology
	Trouble shoot training issues/problems with safe training alternatives that achieve the same goal or outcome.
	Competent coaches use what they have seen other coaches do before.
	expanding network of other professionals in the field as resources.
	Trouble shoot training issues/problems with safe training alternatives that achieve the same goal or outcome.
	working knowledge of multiple training systems
	a diverse range of training methods,
	complex training models of loading for strength, speed, power
	injury rehab.
	Injury Modifications
	injury prevention (sports med)
	Basic understanding of various rehabilitation protocols of injuries pertaining to his/her sport(s).
	Knows how to assume the second phase of rehab from the athletic training staff with a seamless transition.
	An exercise for one athlete may not be the best exercise for another athlete.
	The realization that not everyone is the same person.
	Understanding of physical differences between athletes
	A competent coach should understand the specific needs of the athlete in the various sports they are working with.

Developing relationships with your athletes and knowing what buttons to press to motivate them.

APPENDIX L

FORM OF EXPERT KNOWLEDGE ORIGINAL CHARACTERISTICS USED DURING THE PEER DEBRIEFING

Expert Knowledge

Appropriate Characteristic	Raw Data Response
	Proficiently program for any team at any point of the year.
	Knowledge of a given Sport: an Expert coach will often write a training program that considers the needs of the athlete and the specific needs of the game, or an individual's position within that sport (e.g. develop power and speed while only maintaining strength, develop power for an athlete who also has a history of low back pain).
	ability to carry out the overall mission and feel of the s&c program.
	Able to be very specific with each athlete's science based training program
	advanced individualized and group program design ability to mesh with facility development, maintenance and spelling
	advanced individualized and group program design ability to mesh with maintenance
	advanced individualized and group program design ability to mesh with rehab programs facility development, maintenance and spelling
	An expert coach can put all aspects of the program together
	An overarching understanding of how the program fits into the overall picture of the team and how to best direct the teams training based in that knowledge.
	apply it to S&C program design utilizing periodization/progression/regulation over time.
	Applying the Practical Programming and Fatigue/recovery management together
	Develops long-range programs that account for appropriate intensity levels, workout durations, workout frequencies, recovery periods (including nutrition concerns), rejuvenation techniques, and variety.
	Has the ability to combine Acute/chronic physical data in conjunction with subjective athlete knowledge to deliver athlete specific training programs.
	having a system to implement this training in a year-long program.
	how to integrate those unique findings into the programming and organization of the athlete's sport training and skill level within the sport.
	how to make a whole calendar year program that is organized, top to bottom, from accountability, strength, power, nutrition, mobility, speed
	I would think that expert strength coach would know their programming works. For me if an athlete is not improving at the rate I believe they should I know I have a problem. If the athlete is performing their workouts at the intensity I demand then I need to look elsewhere. Are they eating right, sleeping enough, and not killing themselves at night. An expert would have the skill to then educate their athletes about all factors that they need to address to become the best they can be.

	Knowledge of advance program design
	Programming a team for off-season training.
	The expert designs the program and is able to draw conclusions from it in terms of effectiveness and over all benefit to the athlete.
	understanding of multiple programming parameters
	Utilizes science to a high degree in programming and coaching
	A thorough understanding of long-term athletic development and the planning processes that go into achieving it. Without this knowledge, it's just exercise, not training.
	Deep understanding of the how the demands of the given sport, coaching staff, practice sessions, competition and travel schedule, academic schedule (if applicable), recovery routines, nutritional programs, sleep patterns, and injury rehab plan (if applicable) effect and are effected by the physical development plan you implement.
	expanded knowledge of periodization strategies (to the point that you can teach developing coaches)
	Long term athletic development as it relates to the 4-5 year plan for a student-athlete.
	Maximize training, recovery, nutrition and other aspects directly impacting performance as well as understanding of peripheral fields i.e. athletic training, sports science, nutrition
	To find the minimum effective dose (volume) for results. Remembering the athlete is not there to become a weightlifter, they are there to improve their performance in sport.
	an expert coach takes into account overall wellness information.
	Should be able to coordinate all aspects of physical loading with respect to the intensity/volume/density of practice loading and speed/strength/power/conditioning training in a manner that will help promote sporting success.
	The expert strength and conditioning coach knows how to blend the strength and conditioning plan with the technical, tactical and mental plan so that the entire program is seamless.
	understanding and utilizing different periodization styles at appropriate times of training cycle
	Understands how to manipulate training load to maximize strength workouts which support performance and reduce injury risk.
	an expert coach takes into account even more specificity including lifting age
	able to apply the appropriate stimuli that are optimal for performance on-field in the long run
	Can understand why a program will or will not work
	Experts are subject matter experts in multiple disciplines of training
	Having the ability to adjust your program based on all other elements (practices, coaches, injuries, fatigue etc.)

	they understand when to manipulate , increase or decrease and what the real objective is
	the knowledge to program with flexibility and specifically for players individual needs.
	Experts coaches know how to change training over the course of years to enable their athletes to continue to improve.
	have a vision for where a program is going to end up in the long term.
	An expert/experienced S&C coach meets with the sport head coach, position coach (if it exists), and athletic trainer to gather all the data on expectations of strength & conditioning related parameters, position specific parameters and previous and common injuries, and then he prepares a detailed plan that outlines all facets of training from A to Z.
	Anatomy and Physiology: an Expert coach will understand the anatomy and physiology of the human body, how it relates to that specific sport, how an individual's tested measures compare to a group norm, and may make recommendations to the sport coach for performance improvement. For example, recommending an altitude training camp for an elite distance runner or making recommendations for shift changes in ice hockey that are based on team fitness testing.
	A expert S&C has knowledge from a advanced degree in Exercise Science
	A greater understanding of exercise science
	a Master's of Science degree
	Greater understanding of functional anatomy, sports science concepts (non-tech and tech-related), advanced performance testing (force plate, accelerometry, etc), advanced movement screening
	know the science of the who, what, where, and why you are doing everything.
	Ability to adapt to to the injured athlete in reconditioning setting
	an expert coach takes into account injury information
	Has become elite at injury rehab.
	implementation of program design for injured athletes
	Recognize potential injury or training issues before they arise and deal with them accordingly.
	Advanced physiological concepts and specific requirements for adaptation.
	Advanced anatomy and physiology and function.
	An expert S&C coach must understand functional human anatomy & physiology, and the sport specific kinesiology of human movement
	Deep knowledge of exercise physiology, biomechanics, medicine, data, psychology and the interlinks between them all.
	Has a speciality - physiology / biomechanics
	in-depth understanding of how to successfully develop an athlete based on their current capabilities determined from biomechanical and physiological screens/tests

	The physiology and biomechanics of the sport and specifically his/team
	Knowledge of movements/corresponding anatomy while being able to identify weaknesses, and making adjustments on the fly.
	Having a command on anatomy and function. this could include the ability to change tissue as well as strengthen it. Soft tissue manipulation and or techniques designed to relax or inhibit soft tissue tension.
	Always strive to learn and see what others / other disciplines can add to your philosophy and program design.
	Always strive to learn something new and share ideas with other experts to get their feedback.
	are continual learners
	Attend conferences and seminars that will add value to your program based on what you learn and knowledge gained.
	Continually investigating and learning the best system for your athletes!
	learning HOW to get the job done
	That you don't know everything
	Comfort level in what you do not know
	they are book readers
	Knowing and understanding my "limits" of expertise as a strength coach.
	Knowledge base continues to grow with continuing education and practical experience.
	Knowledge based on both years of personal experience
	On the maturity continuum, the knowledge base broadens and is an extension of the trajectory from from beginner to competent extends to a deepening of the understanding of all of the above.
	peer collaboration.
	Surrounding yourself with other experts in the industry / field who are smarter than you and are outside of your sport.
	An expert coach is in his 40's has learned from past mistakes,
	and is still learning from past mistakes and mentors.
	life longer learner
	rely heavily upon what they have learned from their years in the field
	they are great learners(meaning they know they dont have all the answers)
	They have a relentless pursuit of CON ED.
	They have the ability to take current research and apply it to the daily programing in a weight room.
	understand the importance of evolving over time.
	An expert can begin to develop their own brand of knowledge that is a mix of all research and literature mixed with their personal empirical evidence.
	An expert gets the different methods and research.

	has the ability to develop new and advanced training protocols from current research and experience.
	scientific research
	you get player better/stronger.

APPENDIX M

FORM OF BEGINNER EXPERIENCES ORIGINAL CHARACTERISTICS USED DURING THE PEER DEBRIEFING

Beginner Experiences

Appropriate Characteristic	Raw Data Response
	attending conferences
	experience playing a sport
	extensive GA or volunteer experience with sport teams.
	working with athletes and coaches full-time.
	< 1 yr
	0 - 3yrs experience for a beginner
	0-2 years of experience after school.
	0-5 years of consistent interaction with both male and female and team and individual sport athletes across all levels of chronological and biological development.
	1 year full-time or equivalent part time
	1-2 certifications needed for employment.
	1-2 years coaching at NCAA or professional level.
	1-2 years experience.
	1-2 years of volunteer coaching
	1-3 years experience
	1-5 years regardless of level of experience
	Competition: a Beginner coach might take a group of athletes through a competitive season, experiencing wins and losses.
	1st hand Training experience themselves.
	2-3 competent internship experiences, or 3 years of work experience alongside an expert S&C.
	2-3 years of internship/entry level coaching positions without much programmings and program design/implementation.
	Injury: a Beginner coach might have an athlete who develops an injury, and will receive treatment from a sports medicine professional.
	3 month internship.
	3-4 years of undergraduate classroom work
	3-5 years experience coaching at intern, graduate assistant, assistant coach level.
	3. Conflict: a Beginner coach might encounter small disagreements with colleagues and department staff members (strength coaches).
	400+ hrs of floor time
	A beginner must experience challenge, if they are not challenged, they won't grow.
	A beginner needs to have earned a bachelors degree, preferably in a human movement oriented discipline (P.E., Exercise Science, Kinesiology)

	A beginner S&C is right out of a B.S degree program with minimal hands on experience. (Intern/GA).
	A beginner strength and conditioning coach will have at least one year of experience in the programming and delivery of a physical preparation plan at any level.
	a Master's of Science degree
	Ability to work with more than five athletes at one time
	academic course work
	Also, being in charge of a specific area in the WR or on the field on a rotating basis, so that skills are honed in multiple situations.
	An internship within a well established S&C program at the level they are pursuing and under the tutelage of an expert S&C coach. This internship program should not just be cleaning and making coffee, but contain an academic component to include hands-on and a project.
	Any athletic experience combined with strength training experience.
	Apprenticeship under a strength coach (1-3 years)
	appropriate educational background
	As i said experience breeds wisdom and there's only one way to Wisdom and thats years of service.
	Asst S&C coach of a non-elite level for one year.
	At least 1 year part time on the floor coaching experience with an amateu sports team
	at least 2 different internships of at least 100 hours each in different settings with athletes.
	Athlete
	Attend a conference
	B.S. in exercise science or related field.
	Bachelors degree
	Background in athletics or sport
	Basic certifications.
	Beginner - Experience assisting a competent/expert strength coach on how to work with athletes, control groups, organize all facets of training for an individual/team
	beginner coach knows how to deal with off season, pre season and in season training.
	BS
	Certification
	certifications
	Coach
	Colligate coaching experience
	communication skills

	competent understanding of proper lifting technique
	Continuing education training with his/her city and/or state.
	core courses in Ex Phys program,
	CSCS and College Degree in related field.
	CSCS certification,
	Developing relationships with your athletes.
	Experience doing a wide range of strength and conditioning activities yourself
	Experience is specific to level(i.e. A expert strength and conditioning coach at an elite may not be an expert at coaching high school athletes due to athlete and situational differences)
	experience of helping someone get better at something
	experience of training themselves - across a range of training methods - not just big dudes!!!
	experience the life of a volunteer S&C
	experience working at a facility with limited resources
	experienced coaching a sport, a group, or an exercise class at any level.
	Experienced in NCAA strength coaching
	exposure to multiple sports and training modalities
	FLOOR TIME COACHING TIME
	GA
	Gaining experience dealing with an athlete who simply is unmotivated to train, and professionally getting that athlete to train.
	Get to work with more than one sport
	Hands on experience executing and coaching the various exercises and routines that are implemented within the profession.
	Has at least trained individuals and some teams
	Have to go through the grind. Has to be an intern and experience the struggles of the grind.
	have worked as an intern/volunteer with an expert S&C coach.
	Having played organized sports is certainly valuable for any coach starting out. This will help to understand the needs of each sport and how you can direct training.
	I would think doing an internship is a great way to get enough experience to get started.
	Inter, GA, Volunteer strength coaches
	Intern for 2 - 3 years.
	Intern level experience (observing - learn by watching other S&C coaches)
	intern or volunteer position in exercise instruction
	interning for free to gain knowledge

	Interning, volunteering,
	Internship
	Internship and volunteer experience.
	Internship at multiple schools
	internship experience with excellent review scores
	Internship within strength and conditioning.
	It would help a beginner coach if they had been an athlete.
	It's helpful to have been a collegiate athlete, so as to relate to the special needs and circumstances faced daily.
	Just because you have time doesn't make you a great, good or even average coach. Elite level coaches know exactly what they believe to be true. Its time and battle tested.
	Just completed or currently within a good undergraduate degree in a relevant exercise science area.
	knowledge in what it takes to facilitate a room (cleaning / organization / flow)
	leading warmups
	Minimum, the intern should have experience training themselves.
	Must have at least trained themselves or been apart of training in the past.
	None.
	participation in a sport
	passing the CSCS
	Perhaps completed an internship at a local gym, performance center, etc (less than 5 years of experience).
	Personal experience as a collegiate athlete (ideal but not necessary)
	planning, programming and
	Plus education.
	Potentially have some experience training youth athletes.
	Previous athletic or coaching experience, regardless of the type of sport they participated in or role in coaching (sport coach, performance coach, etc.)
	Prior athletic playing experience
	Simple; Internships;
	Teaching the core lifts
	they could learn tons from us old timers especially the ones who study daily! three strength coaches that i fear, 1. I'm old school (write the same program for all / a cookie cutter approach)2. i don't know science but i know how to train athletes and 3. its what i did when i played!
	They will have be completing or have completed B.S in Exercise Science related field and working towards obtaining or possessing CSCS certification.

	Time is the best experience. Time well spent questioning bro-science and youtube garbage
	time management
	time spent personally performing lifts in order to deepen understanding of techniques and coaching cues
	time spent watching and learning
	Train as many athletes as possible
	Understanding that its your job to find the most productive ways to train your athletes, which means you need to read daily and not nonsense articles by the governing bodies of this profession.
	unpaid internship(s)
	Voluntary observation of sessions
	Volunteer experience.
	volunteering at the collegiate level
	volunteering, internships, and grad assistantships
	work ethic
	work under an experienced strength coach either as an athlete or student coach
	Working one-on-one with athletes to develop communication skills and build relationships.

APPENDIX N

FORM OF COMPETENT EXPERIENCES ORIGINAL CHARACTERISTICS USED DURING
THE PEER DEBRIEFING

Competent Experiences

Appropriate Characteristic	Raw Data Response
	passing the CSCS
	+3yrs paid employment
	1 week Mentorship
	1-2 job title promotions showing continued career growth and development.
	1-9 yrs
	1. Competition: a Competent coach will take a team of athletes through the competitive season, including a conference play-off and maybe national championship, and through multiple seasons. This includes seeing wins, losses, heartbreak efforts, disappointing losses, and memorable victories.
	2-6 years of experience in the field of strength and conditioning at the NCAA or professional level.
	2-7years of experience after schooling, planning, programming, working with other professional performacne staff, athletes coaches and learning.
	2-year graduate classroom and research experience, and
	2. Injury: a Competent coach will work with an injured athlete and the sports medicine professional to develop a framework for treatment and rehabilitation, including treatment and modified training.
	2.5 years minimal experience leading up to this. What we would hire as an assistant coach.
	2500+ hrs of floor time
	3 years full-time S&C
	3-6 years experience
	3. Conflict: a Competent coach may experience regular disagreement with co-workers, and yet continue to maintain a working relationship. He/she may also encounter disagreements with other departments (e.g. nutrition, sports medicine, psychology, equipment).
	4 - 10yrs experieince
	4 year undergraduate classroom experience
	5 years of crafted work, having been mentored and stretched
	6-10 years of consistent interaction with male and/or female and team and/or individual sport athletes across selective levels of chronological and biological development.
	6-8 years of coaching experience with team supervision responsibilities, and collaboration with sports medicine colleagues.
	A competent coach is in his 30's is still learning and developing a philosophy and training methodologies.
	A competent coach should understand the specific needs of the athlete in the various sports they are working with.

	A competent S&C has multiple internship/GA experiences as well as being full time assistant position.
	A competent S&C needs to have earned a bachelors degree, preferably in a human movement oriented discipline (P.E., Exercise Science, Kinesiology)
	A competent strength and conditioning coach will have two years experience in a full time paid position as either an assistant or head strength and conditioning coach.
	a lot of different experiences
	a Master's degree in Exercise Science
	Ability to conduct a team workout
	above, plus min 2 years in team setting,
	additional certifications
	Also has experience of developing quality training plans and programs for a variety of sports/athletes. All should be evidence-based.
	Alternatives need to be applied at times, and knowing when and how can be a separation quality.
	an assistant and in charge of a sport team(s) that requires 365 days of monitoring.
	And at least 2 years of volunteering under a competent mentor.
	And has been afforded the opportunity to learn from experience and implement program changes.
	Assistant for 1 - 2 years
	Asst S&C coach at Elite level for 3 years
	Bachelors degree and 2-3 competent internship experiences, plus at least 2 years of independent working experience, or 3 years of work experience alongside an expert S&C, with at least 2 years of independent working experience.
	been a volunteer/GA
	BS
	certifications
	communication with sport coaches
	competent - experience in managing all facets of training and coaching
	Competent coach may have some post season experience, but not enough to add flexibility to their programming.
	Competent coaches have more programming experience and implementation of programming.
	Competent coaches must experience what it is like to be in a leadership position.
	Competent strength coaches have had the opportunity to lead teams. These experiences are invaluable in the learning process.

	Completed a graduate assistantship at a well established S&C program at the level they are pursuing and under the tutelage of an expert S&C coach.
	Continueing education training within his/her region of the country (i.e. northeast, Midwest or southwest).
	CONTROLLING LARGE GROUPS OF ATHLETES
	CSCS - broad exposure to all the elements necessary to run a sound program.
	CSCS with possible RSCC (2 years).
	Degree in a related field.
	demonstrated ability to program for multiple sports
	Developing relationships with your athletes and knowing what buttons to press to motivate them.
	Div 1 competitive BCS level S&C experience
	each year, there must be reflection, re-tooling and growth, without this, years of experience is irrelevant. No need to have 2-7 years experience, by having the same experience year after year.
	entry level jobs
	Evidence of holding current credentials in more than one accredited certification (NSCA, CSCCA, UKSCA) and certificate based program (USAW, USATF)
	expanding network of other professionals in the field as resources.
	experience across a range of sports and environments
	Experience at a Private Performance Enhancement Business
	experience coaching individuals
	experience developing and implementing annual plans for multiple sports / experience adjusting plans based on team needs and sport coach desires
	experience in leading a group in workouts
	experience in managing communication w/ head coaches
	Experience in teaching complex lifts to an untrained audience.
	Experience in the field as assistant or head strength coach
	Experience performing and coaching all aspects of a training program.
	experience training athletes and handling their own teams
	Experience working at the collegiate level
	Further education/professional development. Master's
	Graduate Assistant or Paid Intern
	Graduate assistant/fellowship/internship experience with excellent review scores + full time experience with excellent review scores from other institutional s&c coaches, athletes and sport coaches.
	Hands on S&C certification
	Has a full arsenal of modified movements for those who cannot perform the by-the-book, mainstream ones for various reasons.

	Has been a head coach for more than 5 years
	has been asked to handle all aspects of programming and working with the sport coaches/docs/athletic training.
	has had some interactions with ATC's, MD's and sport coaches.
	Has performed a full year internship plus 1 full year as a full time coach at a profession or semi elite sports team
	Has trained teams and
	have at least one year of full-time coaching experience.
	have worked as an intern/volunteer with an expert S&C coach
	Having some experience vs having no experience.
	Having worked with different organizations, programs, coaches, and philosophies.
	Head S&C Coach at a non-elite level for 3 years.
	I also believe that the more successful strength coaches you can work under early in your career the better.
	I feel a competent coach has worked with a team for at least a year under the supervision of a higher level coach
	I think that a competent strength coach would have the experience to deal with all of the people we deal with daily. The administration, coaches, trainers, etc. No matter how good you are your relationships with these people can end your career. A competent strength coach would be able to establish good relationships as well as training their respective sport teams.
	I would atleast recommend 15-20yrs. Being able to survive the entire cycle of trends that come full-circle.
	knowing the training calendar and periodization needed
	Lead coach for a specific sport
	Leadership along with familiarity of weight room management and
	leading entire session
	Leading the physical preparation of a sport team or an individual athlete through at least one complete training/competition cycle while being able to identify areas that were conducted well and areas where improvements can be made to have a direct impact on sporting results.
	Mentorship with expert strength coach (3-5 years)
	More floor time actually teaching and coaching. Getting reps coaching
	More time around teams, Starts to develop who he is as a coach, enhances knowledge and starts to fill his tool box.
	Multi year experience, and leadership roles
	Multiple certifications showing continued personal growth development.
	multiple seasons spent with sport teams
	must learn under a highly reputable mentor or appropriate lineage.

	Nationally certified professional (CSCS)
	No substitute for time in the room.
	NSCA CSCS
	One experience of the competent strength coach is the experience of leading a team or a groups through workouts.
	paid internship/graduate assistantship
	Practical experience taking SA through workouts
	Previously coaching for a full year at their current job, programming for their own sports - not just coaching someone else's program, understanding what their sport coach wants.
	program design in team setting
	Seminars, clinics, professional visits
	SITTING IN BUDGET MEETINGS WITH FRONT OFFICE
	SITTING IN MEETINGS WITH SKILL COACHES
	Somebody that has worked with a large variety of athletes from different sports. A lot can be learned from coaching athletes of different ability levels.
	The ability to communicate with the athlete that does not want to train and finding a way to motivate and educate them.
	The competent coach has experience training youth athletes and possibly general public.
	The training of sport athletes for 2 plus years in various training environments.
	They will have a B.S in Exercise Science related field and
	This is about stress management and understanding each athlete has a individually unique response to the stressors imposed upon them. Biometrics is changing our profession rapidly, you are no longer a strength coach! We are stress managers! Too much volume imposed upon athletes in an attempt to make them tough without understanding accumulative trauma over time!
	Time in weight room and
	time spent watching ,learning and discussing
	Train as many elite athletes as possible
	understanding different sport and team dynamics
	Using various modalities I.e. Weights, track, stability ball, etc
	Visit another facility and watch another coach train athletes
	who has experience working with a team at various levels (high school, college or pro) for at least 5 years.
	willingness to go where the job takes you
	working with a collegiate athletic department.
	Working with injured athletes

APPENDIX O

FORM OF EXPERT EXPERIENCES ORIGINAL CHARACTERISTICS USED DURING THE
PEER DEBRIEFING

Expert Experiences

Appropriate Characteristic	Raw Data Response
	experience in managing communication w/ administrators & front office, strong public speaking skills (present at conferences, etc)
	Leadership opportunities
	lectured
	+10 would be a start, but technically, it's what you've done over those years that make you an expert. if you've only worked with 3-4 sports during a 10yr window, you may only be an expert on those sports, whereas, someone like myself, I've worked with or oversee 35 sports, thus making me a more well-rounded "expert"
	Competition: an Expert coach will have coached NCAA All-Americans, professional, or Olympic athletes. This may include national championships, professional championships, World Championships, or Olympic Games.
	10 years of carefully crafted work, having been mentored and stretched as well as having mentored.
	10 years of independent working experience.
	10+ years experience each year, there must be reflection, re-tooling and growth, without this, years of experience is irrelevant. No need to have 2-7 years experience, by having the same experience year after year.
	10+ yrs
	11+ years of consistent interaction with male or female and team or individual sport athletes within a specific level of chronological and/or biological development.
	12+ years working at NCAA level or above
	Injury: an Expert coach will have experience with injured athletes and has seen this condition before. He/she understands the injury, the surgical procedure, the treatment/intervention, the timeline, and necessary modifications. He/she works with the athlete, coach, sports medicine staff, nutrition/dietitian, and sport psychologist to ensure a proper recovery and return to sport.
	20yrs plus coaching.
	3. Conflict: an Expert coach will understand the necessity and importance of disagreeing with colleagues, and work diligently to create an open atmosphere of discussion and collaboration across departments and with the sport coaching staff.
	6 + years of training athletes at a high level
	6-8+ years at an elite level.
	6+ years of experience in the field of strength and conditioning at the NCAA or professional level.
	7 - 10 years full-time S&C at a high level

	a 5+ year full time career with excellent review scores from all supervisors, sport coaches, and athletes.
	A expert S&C will have one or more advanced degree as well as CSCS and RSCC.
	a head S&C and involved with the daily preparation and the monitoring of the total well being of all athletes on a sports team(s) for 365 days a year.
	a Master's degree in Exercise Science, passing the CSCS, been a GA/volunteer
	Ability to develop staff members so they can better assist you with your teams
	ability to know what battles to fight, knowing who you are enough to stay with the profession regardless of what "sport" you work with.
	Ability to oversee an entire facility with more than 40 athletes lifting at once
	All of the above, with 8-10 years of coaching experience. I do not believe that the 'level of athlete' with whom you work makes you an expert or a non-expert. I believe that expertise comes with years of experience, the long lens of perspective, and thousands and thousands of hours of learning and coaching. Some of the best coaches work with young athletes and 'lower level' athletes.
	Also, must continue their own education with an appropriate peer group that will hold accountable for growth.
	An expert coach is in his 40's has learned from past mistakes
	An expert coach should understand how to address the needs of the athlete not only based on sport specificity, but also base the training on that individuals physiology in a way the may differ from other individuals in that sport.
	An expert must have the experience of leading leaders
	An expert S&C coach needs to have earned a masters degree in a human movement oriented discipline (P.E., Exercise Science, Kinesiology)
	An expert strength and conditioning coach will have had experience as the head strength and conditioning coach for over five years and at more than one team.
	An expert would have the experience to see problems coming and fix them before they manifest themselves.
	An expert would have the skill to manage lots of moving parts to maintain the integrity of their program to ensure consistent results.
	An expert would work daily to have everyone believing in their program.
	and are a source of knowledge for younger strength coaches.
	and the knowledge to program with flexibility and specifically for players individual needs.
	Apprenticing strength coaches (3-5 years)
	Cannot be quantified due to too many variables

	COACHING A COACHING STAFF
	coaching and teaching young coaches how to design and implement program design
	coaching
	Continued growth and development with continuing education and/or certifications nationally or internationally.
	Daily or weekly communication with administrators
	dealing with and communicating with them and sport coaches.
	designing
	Diversified experience and implementation of those experiences from multiple backgrounds
	evaluating
	evidence of continual reflection and evolution as a coach across many fields and multiple sporting environments
	Evidence of developing or assisting in the development of a successful S&C department elsewhere.
	Evidence of speaking, publishing, and mentoring.
	Evidence of success in developing athletes.
	Experience with a variety of training and programming methods.
	Experience coaching multiple sports and a variety of athletes.
	experience in managing other coaches
	Experience performing,
	experience supervising other strength coaches
	Experiencing struggle and resolution in the conduct of your job over time.
	Expert - Highest level of experience managing all facets of training, coaching and cueing.
	expert coach has bowl, final four etc experience
	Expert coaches have much more experience dealing with sport coaching staffs and how to manage sport coach expectations with their knowledge of what is best for the athletes.
	Expert strength coaches have led teams for multiple years. Their experiences have allowed them to grow through mistakes and obtain a certain level of knowledge on everything involved.
	Experts can evaluate globally and knows how the systems interact
	Experts coaches know how to change training over the course of years to enable their athletes to continue to improve.
	Exposure to high level coaches/experts from a multitude of different disciplines and backgrounds.
	Extensive experience at Division I level.
	facility/equipment planning - with regard to how it can affect programming and future exercise selection

	Full time position
	has a strong grasp of his philosophy and is still learning from past mistakes and mentors.
	Has also gained a post graduate qualification in sports science, strength and conditioning or ecelse vise physiology/biomechanics
	Has been in the trenches and has seen the worst and the best. Knowing that change is always good but core values always stand firm. Been through, always has the right guidance for the team in regards to any event .
	Has coached for greater than 10 years, has made consistent effort to enhance level of understand each year and continues to seek out way for continued improvement.
	Has experienced 4 full time years in a professional team sport or a full Olympic cycle. (4 years allow sufficient time to understand how to be consistent in an unproductable environment whilst also providing sufficient time for a coach to gain a deep understanding of athlete requirements throughout the various phases of multiple competition cycles).
	Has worked with teams autonomously while making final decisions.
	have a vision for where a program is going to end up in the long term.
	have worked as a full-time S&C coach for at least 5 years.
	Having a command on anatomy and function. this could include the ability to change tissue as well as strengthen it. Soft tissue manipulation and or techniques designed to relax or inhibit soft tissue tension.
	Having survived firings. Having atleast reinvented yourself once.
	Head for 2+ years
	Head S&C Coach at an elite level for 7+ years
	Head S&C for at least 10 years at an elite program (at any level).
	Hosting of High level coaches within their facitlity
	How to deal with sport coaches, parents, and administrators
	I am not sure if the level that a strength coach is working would determine if they are better or worse than another.
	I would think that an expert at any level would have the education, skill, and experience to sell everyone that they deal with on the importance of strength and conditioning.
	implementing,
	Individualized programming and training for elite athletes
	Interaction with PRO Teams sport coaches
	Is a difference maker in young people's lives. Has the ability to institute, direct, and uphold values and chemistry within the team. Is an important cog in the culture of the team.

	It all depends on the coach whether he is taking the "Coaching" before he becomes a head coach Certain schools allow the assistant coaches to function as head coaches, which is how it should be
	Job title states that he/she is at the top or near the top of their department.
	Knowing and motivating your athletes while working with athletic trainers and sport coaches.
	Knowing who to hitch your cart to, coaches and players. Time in the field is as much about your work ethic/expertise as it is about the people you choose to do business with.
	Leading a coaching staff and leading the preparation of a team or individual athletes through multiple training/competition cycles.
	learning to identify and eliminate unnecessary, ineffective or harmful exercises or conditioning from training programs
	Mastery of the above skills with the additional responsibility of staff management
	Mentorship with expert strength coach (3-5 years)
	Minimum 10 years.
	minimum of 7 years full time, being a first assistant or head coach
	Multiple past failures that provide a frame of reference for future decision making.
	multiple years of running total program at an elite level
	Olympic weight lifting cert
	Over 10yrs experience either as a head, first assistant, or assistant
	plus min 5 years in team setting, program design in team setting for multiple teams (football a plus)
	Provides mentorship in all phases of the athlete's lives.
	Rehabbing a torn ACL
	Reps and time.
	revising training programs.
	Somebody that has spent several years at one place of employment so that they can truly hone their craft instead of having jumped from school to school constantly in start up mode.
	Speak at a conference or seminar and espouse your ways or views.
	Speaking at Sports Med or High Performance Seminars
	The ability to create a culture where teammates motivate each other, trust the process, and motivate the unmotivated athlete for you.

	<p>The development of an accountability system; having a group of peers and a strong list of professional consultants that you have a personal trust in consulting with when designing programs with unique obstacles.</p> <p>This is a group of individuals that can will be blatantly honest and will openly challenge the Why's, How's, and When's within your designs.</p> <p>A.) Develop a list of specialist to consult on various aspects of your program.</p> <p>B.) Develop a group (conference call style) to discuss the current issues facing the profession.</p>
	the experience of managing a large staff or multiply facilities and multiple sports and sport coaches while maintaining a high level of respect from athletes, administration, coaches and peers
	The expert coach has experience at the professional or Olympic/national level.
	The expert coach has put all things together, motivating, leading, organizing, programming, etc.
	They have held a Head or Director position for multiple years.
	They have trained and programmed for athletes over the course of time and in and out of competition.
	They have worked under multiple strength and conditioning coaches and have gained exposure to multiple styles of athlete development.
	They will have published research
	This would either be someone in charge of multiple sports for 10+ years or the head of the department (which usually has happened after an appropriate amount of time)
	Thousands of human interactions.
	Time in field (> 10 years)
	time spent watching ,learning ,discussing and teaching
	To be great at everything: in increasing strength, nutritional information, sleeping and recovery.
	Vision of sport coach for S&C
	Working for atleast 50 different sport coaches. You can't stay in the same place for 20yrs and call it experience.
	YEARS of experience breeds WISDOM! like the commercial says "we know alot, cause we've seen alot>>>>(Farmer"s insurance). Certifications only tell me that you passed a test it doesn't mean you can coach or have knowledge of the sequencing of biomotor abilities or bioenergetic demands
	years of experience in dealing with position/ various sports coaches, having confidence in what you are doing, and not be a windsock to the program.
	Years of lots of little experiences that add up to great decision making skills.

APPENDIX P

FORM OF BEGINNER SKILLS AGGREGATED CHARACTERISTICS USED DURING THE PEER DEBRIEFING

Beginner Skills

Number	Characteristic
1	Displays and communicates a strong passion for the field of strength and conditioning, a willingness to be open-minded, learn, work hard, and pay attention to detail.
2	Displays great listening skills by modifying behavior based on feedback from the head strength coach and following instructions. Instructions could include: setting up/cleaning the weight room, spotting athletes during exercises, and being prepared and reliable when needed for assistance.
3	Ability to confidently communicate and teach basic movements such as squat, hinge, lunge, push, and pull, both verbally and through demonstration, along with the goal of the exercise.
4	Ability to accurately observe movement quality and technique.
5	Ability to develop a personal relationship with the athletes, strength coaches, sport coaches, and training staff.
6	Ability to implement the coaching philosophy of the organization they are working in.
7	Ability to design a year-long training program that takes into account several variables such as the needs of the athlete.
8	Ability to use technology, but relies on it too heavily and thus may not be able to function as well as a coach without it.
9	Possesses an awareness of their own skills and abilities to properly implement the head strength and conditioning coach's program and will ask for guidance on areas of uncertainty.
10	Displays strong time management, scheduling, and organizational skills both personally and in athlete and team training programs.
0	The raw data does not apply to any of the above characteristics.

APPENDIX Q

FORM OF COMPETENT SKILLS AGGREGATED CHARACTERISTICS USED DURING
THE PEER DEBRIEFING

Competent Skills

Number	Characteristic
1	Ability to develop a positive relationship and communicate effectively and regularly with sport coaches and training staff in order to gather their input and report the progress being made by athletes during training sessions under the strength coach's supervision.
2	Ability to manage a training environment involving a large group and run the daily activities of a strength and conditioning program including managing a variety of circumstances that may arise.
3	Ability to confidently communicate proper exercise technique to athletes using simple verbal coaching cues and through physical demonstration.
4	Ability to design an effective periodized program based on the athlete's needs and the sport they participate in and make adjustments in the program when needed. Adjustments could be based on factors such as recent testing, injury, or input from the sport coach.
5	Ability to explain an exercise's purpose and reason for inclusion in the program.
6	Ability to use technology, but does not use it to its full potential.
7	Ability to provide corrective feedback to athletes immediately when needed.
8	Ability to develop a personal relationship with their athletes which allows the strength coach to know more about their athletes and thus coach them more effectively.
9	Possesses the willingness to go where the job takes them.
10	Has a firm identity of who they are as a coach, their coaching style, and their coaching philosophy.
11	Ability to evaluate training technique and proficiency to assess if regression or advancement in training should be implemented.
0	The raw data does not apply to any of the above characteristics.

APPENDIX R

FORM OF EXPERT SKILLS AGGREGATED CHARACTERISTICS USED DURING THE

PEER DEBRIEFING

Expert Skills

Number	Characteristic
1	Ability to communicate complex training prescription and long term athlete development processes clearly and simply to a diverse population of athletes, sport coaches, and training staff members.
2	Ability to coach and communicate to a large group of athletes at one time while maintaining a strong control of the room and still be able to coach athletes on an individual basis.
3	Ability to intuitively identify only what is most important. Specifically, technical errors in movement, and then prescribe feedback including modifications to fix these errors in a manner that is simple for the athlete to understand.
4	Ability to manage and lead fellow staff members in order to aid in their development as strength and conditioning coaches.
5	Ability to see the whole picture and be able to prepare the athlete in the weight room so that they excel in their specific sport.
6	Ability to properly oversee budget or departmental finances.
7	Ability to develop a personal trusting relationship with their athletes, no matter the athlete's background or personality, in order to help them both personally when needed and with their athletic goals.
8	Ability to implement a long-term science-based individualized plan for an athlete that the coach can adapt and adjust overtime based on the needs of the athlete.
9	The ability to motivate athletes and create a culture based on a strongly grounded belief system where teammates motivate each other, trust the process, and motivate the unmotivated athlete for the coach.
10	Ability to remain humble because they know there is always more to learn.
11	Ability to remain calm and confident when faced with adversity. They are able to intuitively make adjustments and fill any role needed to get the job at hand accomplished.
0	The raw data does not apply to any of the above characteristics

APPENDIX S

FORM OF BEGINNER KNOWLEDGE AGGREGATED CHARACTERISTICS USED
DURING THE PEER DEBRIEFING

Beginner Knowledge

Number	Characteristic
1	Understands basic exercise science such as physiology, anatomy, and biomechanics, possibly obtained from an undergraduate degree in an exercise science related field of study.
2	Has enough strength and conditioning related knowledge regarding exercise technique, program design, nutrition, how to progress, injury rehabilitation, and safety procedures to earn a strength and conditioning certification such as becoming a Certified Strength and Conditioning Specialist (CSCS) through the National Strength and Conditioning Association (NSCA).
3	Understands the coaching cues that can be utilized to coach basic movements patterns, such as a squat, hinge, lunge, push, and pull, and understands how these movement patterns translate to the specific sport that their athletes compete in.
4	Understands the importance of enhancing an athlete's sport performance along with the additional goals and main points of emphasis of the training program as determined by the head strength and conditioning coach.
0	The raw data does not apply to any of the above characteristics.

APPENDIX T

FORM OF COMPETENT KNOWLEDGE AGGREGATED CHARACTERISTICS USED
DURING THE PEER DEBRIEFING

Competent Knowledge

Number	Characteristic
1	Understands their program thoroughly enough so that they can explain the purpose and reasoning behind every aspect of the program, such as periodization and exercise selection, and how it reflects their philosophy.
2	Has a strong level of understanding of exercise technique and is thus knows when an athlete's movement pattern needs to be corrected.
3	Has a strong level of knowledge of exercise science, possibly obtained through a master's degree and current research, and understands how to apply this knowledge in training their athletes for the specific sport their athletes compete in.
4	Understands that their athletes require an individualized training program based on the athlete's physical and psychological needs. This program can be designed by the coach based on their knowledge of energy systems, nutrition, stress management, injury rehabilitation, performance testing, and a variety of training methods.
5	Understands how to manage a large group of athletes; including knowledge of rules, regulations, and associated disciplinary actions.
6	Has gained knowledge from coaches they have worked under and other coaches in the field which has aided in their own development as strength and conditioning coach.
7	Enhances knowledge and fosters a continual improvement model through continuing education and active participant in strength and conditioning development courses, events, and programs such as: FMS, SFMA, PRI, FST, and FRC.
0	The raw data does not apply to any of the above characteristics.

APPENDIX U

FORM OF EXPERT KNOWLEDGE AGGREGATED CHARACTERISTICS USED DURING
THE PEER DEBRIEFING

Expert Knowledge

Number	Characteristic
1	Understands how to develop a multi-year effective goal-based program that accounts for the demands of the given sport, coaching staff, practice sessions, competition and travel schedule, possible academic schedule, recovery routines, nutritional programs, sleep patterns, possible injury rehab plan, and has the knowledge to adjust this plan when needed.
2	Understand that there is always more to learn and thus strive to learn from other coaches, read current research, attend conferences, participate in continuing education programs, learn from their experiences, and look to publish their own research.
3	Has a strong knowledge of their athletes developed through positive interpersonal relationships which helps the coach know how to motivate their athletes and coach them on an individual level.
4	Has a strong knowledge of their staff members developed through positive interpersonal relationships which allows for better leadership by the strength coach and open-lines of communication between staff members.
5	Understand that the number one priority is to help the athlete and/or team accomplish their goals for their sport and there is typically more than one way to help them accomplish this goal.
6	Understands how to apply advanced exercise-science related information to the training of their athletes and how it can best translate to their specific sport performance.
7	Has a strong knowledge of training and technique of movements and thus enables the coach to apply simple and effective coaching cues to their athletes.
0	The raw data does not apply to any of the above characteristics.

APPENDIX V

FORM OF BEGINNER EXPERIENCES AGGREGATED CHARACTERISTICS USED

DURING THE PEER DEBRIEFING

Beginner Experiences

Number	Characteristic
1	Experience being a sport coach.
2	Experience playing a sport.
3	Volunteer internship experience.
4	1 to 3 years of coaching experience on any level.
5	Experience training through resistance training, speed training, and plyometric training.
6	Experience coaching multiple sports.
7	Experience with a variety of different athletes from different sports in both group and individual settings.
8	Experience in a variety of different roles ranging from coaching and leading warmups to helping design programs.
0	The raw data does not apply to any of the above characteristics.

APPENDIX W

FORM OF COMPETENT EXPERIENCES AGGREGATED CHARACTERISTICS USED
DURING THE PEER DEBRIEFING

Competent Experiences

Number	Characteristic
1	2-5 years coaching experience at any level of competition.
2	2-5 years coaching at the elite level.
3	More than 6 years coaching experience.
4	Assistant coaching experience.
5	Experience earning multiple certifications.
6	Graduate assistantship experience.
7	Experience coaching through a variety of experiences including dealing with adversity and injured athletes.
8	Experience leading teams.
9	Experience interacting with sport coaches.
10	Experience coaching under a successful strength coach.
0	The raw data does not apply to any of the above characteristics.

APPENDIX X

FORM OF EXPERT EXPERIENCES AGGREGATED CHARACTERISTICS USED DURING THE PEER DEBRIEFING

Expert Experiences

Number	Characteristic
1	Have coached athletes and/or teams that have won championships.
2	Have coached athletes that have won all-American/all-star honors.
3	Experience leading a coaching staff.
4	10+ years experience coaching at the elite level.
5	10+ years experience coaching at any level.
6	5-9 years experience coaching at any level.
7	Experience as a head coach.
8	Has had a variety of experiences ranging from designing programs, coaching, and evaluating.
9	Has had experience lecturing and publishing related to strength and conditioning.
10	Has served as a mentor to protégés.
11	Has overcome adversity.
12	Has experience interacting with many strength coaches.
0	The raw data does not apply to any of the above characteristics.

APPENDIX Y

SECOND-ROUND INTRODUCTION E-MAIL

E-mail subject line: Expert Strength Coach Study – Second Round

Dear Coach _____,

I hope you are doing really well and thank you very much for choosing to participate in the Expert Strength Coach Study. The first round of this study was phenomenal. The input you and your peers provided Coach _____ sheds remarkable light on the skills, knowledge, and experiences that differentiate beginner, competent, and expert strength and conditioning coaches.

After receiving 1,181 important characteristics from you and 86 other head strength and conditioning coaches from the MLB, NBA, NFL, NHL, NCAA Division I Power Five Conferences, United States National Teams, and the Australian Football League, every single characteristic was associated with a specific theme which then generated 68 aggregated characteristics that have been peer debriefed and confirmed to accurately represent every single important characteristic you and your peers provided.

Now this second round of the study asks you to confirm through a five-point scale survey the relative importance of each characteristic in describing a beginner, competent, or expert strength and conditioning coach. Your second-round survey is available now to complete and can be accessed through the following link: [Coach _____'s Second-Round Survey](#).

Close to one month following the initial distribution of this second-round survey you will receive the final-round survey asking you to confirm the final characteristics that will aid in the selection, evaluation, and development of both current and future strength and conditioning coaches. Following your completion of the final round of this study you will receive the results and be able to report 0.5 CEUs as Personal Development in Category D toward your CSCS recertification.

Thank you very much for all of your time and your input Coach _____. If there is anything at all that I can help with please do not hesitate to contact me at anytime.

Sincerely,

David LaPlaca, MBA, CSCS, USAW, CFSC
Ph.D. Candidate and Intern Olympic Sports Strength Coach
University of Georgia
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APPENDIX Z
SECOND-ROUND SURVEY

Expert Strength Coach Second-Round Survey

Identifying the Characteristics Differentiating Expert, Competent, and Beginner Strength and Conditioning Coaches

Coach _____'s Second-Round Survey

Purpose: The purpose of this study is to identify the characteristics that differentiate beginner, competent, and expert strength and conditioning (S&C) coaches. The findings of this study will support the selection, evaluation, and development of both current and future S&C coaches.

Providing your input: Please rate each characteristic on its level of importance to be possessed by a beginner, competent, or expert S&C coach respectively.

If you would like to provide any additional feedback regarding your rating of a characteristic, such as why you rated it the way you did, suggestions to improve the phrasing of the characteristic, or the addition of an entirely new characteristic, please include this information in the open-ended response boxes provided for each level of expertise. Characteristics that receive an average rating of "Very important" or higher by you and your peers will be placed on the final list of characteristics. Any characteristic with an average rating below this will be revised based on your feedback in the open-ended response boxes and placed on the third/final-round survey to be evaluated.

Section 1 - Skills

Skills of a Beginner S&C Coach

a) A beginner S&C coach displays and communicates a strong passion for the field of S&C, a willingness to be open-minded, learn, work hard, and pay attention to detail.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) A beginner S&C coach displays great listening skills by modifying their own behavior based on feedback from the head S&C coach and following instructions. Instructions could include: setting up/cleaning the weight room, spotting athletes during exercises, and being prepared and reliable when needed for assistance.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

c) A beginner S&C coach confidently communicates and teaches basic movements such as a squat, hinge, lunge, push, and pull, both verbally and through demonstration, along with explaining the goal of the exercise.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

d) A beginner S&C coach accurately observes, identifies, and demonstrates proper movement quality and technique.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

e) A beginner S&C coach develops a professional and personal relationship with the athletes, S&C coaches, sport coaches, and training staff which generates more effective communication.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

f) A beginner S&C coach implements the coaching philosophy of the organization in which they are working.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

g) A beginner S&C coach can design a several month long training program that takes into account several variables such as the needs of the athlete.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

h) A beginner S&C coach uses technology, but relies on it too heavily and thus may not be able to function as well as a coach without it.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

i) A beginner S&C coach possesses an awareness of their own skills and abilities to properly implement the head S&C coach's program and will ask for guidance on areas of uncertainty.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

j) A beginner S&C coach displays strong time management, scheduling, and organizational skills personally and for athlete and team training programs.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

If you would like to provide any additional feedback regarding your ratings of a beginner S&C coach's skills, such as why you rated the skill the way you did, suggestions to improve the phrasing of the skill, or the addition of an entirely new skill, please provide it here:

Skills of a Competent S&C Coach

a) A competent S&C coach develops a positive relationship and communicates effectively and regularly with sport coaches and training staff to gather their input and report the progress being made by athletes during S&C training sessions.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) A competent S&C coach effectively manages a training environment involving a large group and runs the daily activities of a S&C program including managing a variety of circumstances that may arise.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

c) A competent S&C coach confidently communicates proper exercise technique to athletes using simple verbal coaching cues and through physical demonstration.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

d) A competent S&C coach designs an effective periodized program based on the athlete's needs and their sport, making adjustments in the program when needed. Adjustments could be based on factors such as recent testing, injury, or input from the sport coach.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

e) A competent S&C coach clearly explains to an athlete or a sport coach the purpose and reason an exercise is included in the training program.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

f) A competent S&C coach uses technology, but may not use it to its full potential.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

g) A competent S&C coach provides specific corrective feedback to athletes immediately when needed in order to improve performance.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

h) A competent S&C coach develops a professional and personal relationship with the athletes and all personnel involved in the development of each athlete which generates more effective communication and understanding between everyone involved. The competent S&C coach then takes the knowledge gained from these relationships in better developing the athlete's athletic performance.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

i) A competent S&C coach possesses the willingness to go where the job takes them.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

j) A competent S&C coach has a firm identity of who they are as a coach, their coaching style, and their coaching philosophy, which they clearly communicate.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

k) A competent S&C coach evaluates training techniques and proficiency to assess if regression or progression in training should be implemented.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

If you would like to provide any additional feedback regarding your ratings of a competent S&C coach's skills, such as why you rated the skill the way you did, suggestions to improve the phrasing of the skill, or the addition of an entirely new skill, please provide it here:

Skills of an Expert S&C Coach

a) An expert S&C coach communicates complex training prescription and long-term athlete development processes clearly and simply to a diverse population of athletes, sport coaches, and training staff members.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) An expert S&C coach effectively coaches and communicates to a large group of athletes at one time while maintaining a strong control of the room and still be able to coach athletes on an individual basis.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

c) An expert S&C coach intuitively identifies what is most important. Specifically, technical errors in movement, and then prescribes feedback including modifications to fix these errors in a manner that is simple for the athlete to understand.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

d) An expert S&C coach effectively manages and develops the S&C coaches on their staff.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

e) An expert S&C coach trains athletes with the primary goal of helping each athlete excel in their specific sport.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

f) An expert S&C coach properly oversees budget or departmental finances.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

g) An expert S&C coach develops a professional and personal relationship with the athletes, S&C coaches, sport coaches, nutritionists, training staff, front office, and administration which generates effective communication and understanding between all involved in the development of the athlete. The expert S&C coach then takes the knowledge gained from these relationships in better developing the athletes that they coach to help each athlete reach both their personal and athletic goals.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

h) An expert S&C coach implements a long-term science-based individualized plan for an athlete that the expert S&C coach can adapt and adjust overtime based on the needs of the athlete.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

i) An expert S&C coach effectively motivates athletes and creates a culture based on a strongly grounded belief system where teammates motivate each other and trust the process.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

j) An expert S&C coach remains humble because they know there is always more to learn.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

k) An expert S&C coach remains calm and confident when faced with adversity. They are able to intuitively make adjustments and fill any role needed to get the job at hand accomplished.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

If you would like to provide any additional feedback regarding your ratings of an expert S&C coach's skills, such as why you rated the skill the way you did, suggestions to improve the phrasing of the skill, or the addition of an entirely new skill, please provide it here:

You have now completed 47% of your second-round survey Coach _____. Please click the >> below to evaluate Section 2 - Knowledge.

Section 2 - Knowledge

Knowledge of a Beginner S&C Coach

a) A beginner S&C coach understands basic exercise science such as physiology, anatomy, and biomechanics, possibly obtained from an undergraduate degree in an exercise science related field of study.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) A beginner S&C coach has enough S&C related knowledge regarding exercise technique, program design, nutrition, how to progress, injury rehabilitation, and safety procedures to become a certified S&C coach such as a Certified Strength and Conditioning Specialist (CSCS) through the National Strength and Conditioning Association (NSCA).

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

c) A beginner S&C coach understands the coaching cues that can be utilized to coach basic movement patterns, such as a squat, hinge, lunge, push, and pull, and understands how these movement patterns translate to the athlete's specific sport.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

d) A beginner S&C coach understands the importance of enhancing an athlete's specific sport performance along with the additional goals and main points of emphasis of the training program that are determined by the head S&C coach.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

If you would like to provide any feedback regarding your ratings of a beginner S&C coach's knowledge, such as why you rated the area of knowledge the way you did, suggestions to improve the phrasing of the area of knowledge, or the addition of an entirely new area of knowledge, please provide it here:

Knowledge of a Competent S&C Coach

a) A competent S&C coach understands their training program thoroughly enough so that they can explain the purpose and reasoning behind every aspect of the program, such as periodization and exercise selection, and how it reflects their philosophy.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) A competent S&C coach has a strong level of understanding of exercise technique and thus knows when an athlete's movement pattern needs to be modified.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

c) A competent S&C coach has a strong level of knowledge of exercise science, possibly obtained through a master's degree and current research, and understands how to apply this knowledge in training an athlete for their specific sport.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

d) A competent S&C coach understands how to design an individualized training program and implement the program based on an athlete's needs. This program can be designed by the coach based on their knowledge of energy systems, nutrition, stress management, injury rehabilitation, performance testing, sports psychology, and a variety of training methods.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

e) A competent S&C coach understands how to manage a large group of athletes and enforce rules, regulations, and associated disciplinary actions.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

f) A competent S&C coach has gained knowledge from coaches under whom they have worked and other coaches in the field which has aided in their own development as a S&C coach.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

g) A competent S&C coach enhances knowledge and fosters a continual improvement model through continuing education and active participation in S&C development courses, events, and programs such as: FMS, SFMA, PRI, FST, and FRC.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

If you would like to provide any additional feedback regarding your ratings of a competent S&C coach's knowledge, such as why you rated the area of knowledge the way you did, suggestions to improve the phrasing of the area of knowledge, or the addition of an entirely new area of knowledge, please provide it here:

Knowledge of an Expert S&C Coach

a) An expert S&C coach understands how to develop a multi-year effective goal-based training program that accounts for the demands of the given sport, sport coach, practice sessions, competition and travel schedule, possible academic schedule, recovery routines, nutritional programs, sleep patterns, possible injury rehabilitation plan, and has the knowledge to adjust this plan when needed.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) An expert S&C coach understands that there is always more to learn and thus strives to learn from other coaches, read current research, attend and present at conferences, participate in continuing education programs, learn from their experiences, and look to publish their own research.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

c) An expert S&C coach has a strong knowledge and understanding of their athletes developed through positive interpersonal relationships which helps the coach know how to motivate their athletes and coach them on an individual level based on each athlete's needs.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

d) An expert S&C coach has a strong knowledge and understanding of their staff members, including S&C coaches, sport coaches, training staff, front office, and administration, developed through positive interpersonal relationships. This allows the expert S&C coach to be a more effective leader, particularly of S&C coaches on their staff, and have open lines of communication between all staff members.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

e) An expert S&C coach understands that the number one priority is to help the athlete accomplish the goals for their specific sport and the expert S&C coach knows more than one way to help the athlete accomplish these goals.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

f) An expert S&C coach understands how to apply advanced exercise science related knowledge to the training of their athletes so that each athlete improves their specific sport performance.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

g) An expert S&C coach has a strong knowledge of training and technique of movements which enables the coach to apply simple and effective coaching cues to their athletes.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

If you would like to provide any additional feedback regarding your ratings of an expert S&C coach's knowledge, such as why you rated the area of knowledge the way you did, suggestions to improve the phrasing of the area of knowledge, or the addition of an entirely new area of knowledge, please provide it here:

You have now completed 74% of your second-round survey Coach _____. Please click the >> below to evaluate the final section, Section 3 - Experiences.

Section 3 - Experiences

Experiences of a Beginner S&C Coach

a) A beginner S&C coach has up to four years of S&C coaching experience through an internship or volunteer position. During this time they have taken on multiple coaching responsibilities such as designing a program and implementing a head S&C coach's program and philosophy when coaching individual or small groups of athletes for multiple sports.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) A beginner S&C coach has athletic playing experience at the collegiate or professional level which helps the beginner S&C coach relate to the special needs and circumstances faced daily by their athletes.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

c) A beginner S&C coach has experience taking part in resistance, speed, and plyometric training programs in order to deepen their understanding of techniques and coaching cues to more effectively coach their athletes.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

d) A beginner S&C coach has earned or is working toward earning an undergraduate degree in a kinesiology related discipline and has obtained or is working toward obtaining a S&C related certification, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

e) A beginner S&C coach has experience observing and interviewing experienced and qualified S&C coaches, attending conferences, and reading relevant literature in order to aid in their development as a S&C coach.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

f) A beginner S&C coach has experience overcoming challenging situations such as limited availability of training resources, under-motivated athletes, injured athletes, and differences between S&C coaches on staff.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

If you would like to provide any additional feedback regarding your ratings of a beginner S&C coach's experiences, such as why you rated the experience the way you did, suggestions to improve the phrasing of the experience, or the addition of an entirely new experience, please provide it here:

Experiences of a Competent S&C Coach

a) A competent S&C coach has earned at least an undergraduate degree in a kinesiology related discipline and obtained at least one S&C related certification, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) A competent S&C coach has five to nine years of S&C coaching experience where they were responsible for leading the training sessions of both individual athletes and large teams. During this time they have worked with a variety of sports, organizations, sport coaches, and athletes with different needs.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

c) A competent S&C coach has had experience training multiple sports and working with the sport coaches in developing an offseason and in-season evidence-based training program that

encompasses the ideas of the sport coach, demands of the sport, and needs of each athlete, such as injury rehabilitation if applicable.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

d) A competent S&C coach has had experience as a protégé in a mentor-protégé relationship where they experienced challenging situations and overcame them with the help of their mentor, who is an experienced and qualified S&C coach.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

e) A competent S&C coach has experience attending and presenting at conferences, participating in continuing education programs, and conducting professional visits to other S&C programs where they interacted with, observed, and learned from other S&C coaches in order to develop their own coaching abilities.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

If you would like to provide any additional feedback regarding your ratings of a competent S&C coach's experiences, such as why you rated the experience the way you did, suggestions to improve the phrasing of the experience, or the addition of an entirely new experience, please provide it here:

Experiences of an Expert S&C Coach

a) An expert S&C coach has earned an advanced degree, such as a master's or doctorate, in a kinesiology related discipline and obtained multiple S&C related certifications, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) An expert S&C coach has been a coach for multiple championship-winning athletes and/or teams.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

c) An expert S&C coach has been a coach for multiple athletes who have won prestigious personal honors such as most valuable player, all-american, or all-star awards.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

d) An expert S&C coach has at least 10 years of head S&C coaching experience. During their career the expert S&C coach has been a part of a mentor-protégé relationship as both a mentor and protégé, had constant reflection of their own experiences, and learned from their experiences in order to develop their coaching abilities.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

e) An expert S&C coach has experience working in a wide variety of environments with many different sports and sport coaches. During this time the expert S&C coach has faced challenging situations while still designing and implementing effective and comprehensive programs that have aided a wide variety of athletes with different needs such as those for the athlete's specific sport, injury rehabilitation, or nutrition-based needs.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

f) An expert S&C coach has experience leading, mentoring, and developing S&C coaches to aid in their development as S&C coaches.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

g) An expert S&C coach has experience in developing a strong network of professionals, such as S&C coaches, nutritionists, sport coaches, sport psychologists, sport medicine specialists, general managers, athletic directors, and administrators that can be consulted for a wide variety of topics ranging from program design to coaching of an individual athlete along with aiding in the professional development of the expert S&C coach.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

If you would like to provide any additional feedback regarding your ratings of an expert S&C coach's experiences, such as why you rated the experience the way you did, suggestions to improve the phrasing of the experience, or the addition of an entirely new experience, please provide it here:

Thank you very much for all of your time and your input Coach _____. You will have completed your second-round survey when you click the >> below.

Page 3 of 3

Thank you again Coach _____ for all of your time put in to completing your second-round survey. You will receive the final-round survey close to one month following the initial distribution of this second-round survey. For any questions please do not hesitate to contact David LaPlaca at any time by phone: (860) 614-9688 or e-mail: DAL71311@uga.edu.

APPENDIX AA

NON-CONSENSUS CHARACTERISTICS FROM THE SECOND ROUND

Table 20

Skills of Expert, Competent, and Beginner S&C Coaches that Did Not Reach Consensus During the Second Round

Skill						M (SD)	IQR
Expert							
<i>There are no skills for experts that did not reach a level of consensus during the second round.</i>							
Competent							
C1) A competent S&C coach possesses the willingness to go where the job takes them.						3.84 (1.06)	2
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	2	6	23	23	28		
C2) A competent S&C coach uses technology, but may not use it to its full potential.						2.93 (1.03)	0
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	12	5	46	14	5		
Beginner							
B1) A beginner S&C coach accurately observes, identifies, and demonstrates proper movement quality and technique.						3.79 (0.91)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	8	20	35	19		
B2) A beginner S&C coach can design a several month long training program that takes into account several variables such as the needs of the athlete.						2.95 (1.09)	1.75
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	9	15	37	13	8		
B3) A beginner S&C coach uses technology, but relies on it too heavily and thus may not be able to function as well as a coach without it.						2.63 (1.25)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	20	17	25	13	7		

Table 21

Knowledge Areas of Expert, Competent, and Beginner S&C Coaches that Did Not Reach Consensus During the Second Round

Knowledge Area	M (SD)	IQR
Expert		
<i>There are no knowledge areas for expert coaches that did not reach a level of consensus during the second round.</i>		
Competent		
<i>There are no knowledge areas for competent coaches that did not reach a level of consensus during the second round.</i>		
Beginner		
B1) A beginner S&C coach has enough S&C related knowledge regarding exercise technique, program design, nutrition, how to progress, injury rehabilitation, and safety procedures to become a certified S&C coach such as a Certified Strength and Conditioning Specialist (CSCS) through the National Strength and Conditioning Association (NSCA).	3.99 (0.76)	1.25
<u>Rating</u> 1 2 3 4 5		
<u>Frequency</u> 0 3 15 44 20		
B2) A beginner S&C coach understands the coaching cues that can be utilized to coach basic movement patterns, such as a squat, hinge, lunge, push, and pull, and understands how these movement patterns translate to the athlete's specific sport.	3.95 (0.80)	2
<u>Rating</u> 1 2 3 4 5		
<u>Frequency</u> 0 1 25 33 23		
B3) A beginner S&C coach understands the importance of enhancing an athlete's specific sport performance along with the additional goals and main points of emphasis of the training program that are determined by the head S&C coach.	3.79 (0.83)	1
<u>Rating</u> 1 2 3 4 5		
<u>Frequency</u> 0 5 23 38 16		

Table 22

Experiences of Expert, Competent, and Beginner S&C Coaches that Did Not Reach Consensus During the Second Round

Experience						M (SD)	IQR
Expert							
E1) An expert S&C coach has earned an advanced degree, such as a master's or doctorate, in a kinesiology related discipline and obtained multiple S&C related certifications, such as a ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.						3.96 (1.19)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	7	2	11	29	33		
E2) An expert S&C coach has been a coach for multiple championship-winning athletes and/or teams.						2.60 (1.18)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	18	20	27	11	6		
E3) An expert S&C coach has been a coach for multiple athletes who have won prestigious personal honors such as most valuable player, all-american, or all-star awards.						2.38 (1.15)	2
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	25	16	30	7	4		
Competent							
C1) A competent S&C coach has experience attending and presenting at conferences, participating in continuing education programs, and conducting professional visits to other S&C programs where they interacted with, observed, and learned from other S&C coaches in order to develop their own coaching abilities.						3.84 (0.84)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	6	18	41	17		
Beginner							
B1) A beginner S&C coach has experience observing and interviewing experienced and qualified S&C coaches, attending conferences, and reading relevant literature in order to aid in their development as a S&C coach.						3.87 (0.90)	2
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	5	24	30	23		

Experience						M (SD)	IQR
B2) A beginner S&C coach has up to four years of S&C coaching experience through an internship or volunteer position. During this time they have taken on multiple coaching responsibilities such as designing a program and implementing a head S&C coach's program and philosophy when coaching individual or small groups of athletes for multiple sports.						3.70 (0.95)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	1	9	19	37	16		
B3) A beginner S&C coach has experience overcoming challenging situations such as limited availability of training resources, under-motivated athletes, injured athletes, and differences between S&C coaches on staff.						3.51 (1.03)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	3	8	31	24	16		
B4) A beginner S&C coach has athletic playing experience at the collegiate or professional level which helps the beginner S&C coach relate to the special needs and circumstances faced daily by their athletes.						2.73 (1.08)	1.75
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	10	27	24	17	4		

APPENDIX BB

THIRD-ROUND INTRODUCTION E-MAIL

E-mail Subject Line: Expert Strength Coach Study – Final-Round Survey

Dear Coach _____,

I hope you are doing well and thank you very much for completing the first two rounds of the Expert Strength Coach Study. From the incredible input provided by you and your peers, thus far 51 characteristics have received an average rating of at least “Very important” to earn the right to be placed on the final list of characteristics that differentiate beginner, competent, and expert strength and conditioning coaches.

We have now reached the third and final round of this study, which should take you less than five minutes to complete. In this round you are asked to please rate the level of importance of 10 new characteristics that were suggested by you and your peers in the open-ended response boxes of the second-round survey. The 10 new characteristics are either brand new or a suggestion to rephrase a characteristic that did not receive an average rating of at least “Very important.” Your final-round survey can be accessed now through this link: [Coach _____’s Final-Round Survey](#).

Immediately following the collection and analysis of the data from this final round you will receive the final results of this study through your e-mail and in hard copy sent to your postal address. You will also be able to report 0.5 CEUs as Personal Development in Category D toward your CSCS recertification.

Thank you very much for all of your time and your input Coach _____. It is due to your time and effort put into this study that the results have the potential to be truly groundbreaking for our field of strength and conditioning. If there is anything at all that I can help with please do not hesitate to contact me at anytime.

Sincerely,

David LaPlaca, MBA, CSCS, USAW, CFSC
Ph.D. Candidate and Intern Olympic Sports Strength Coach
University of Georgia
Athens, GA 30602
(860) 614-9688
DAL71311@uga.edu

APPENDIX CC
THIRD-ROUND SURVEY

Expert Strength Coach Third-Round Survey

Identifying the Characteristics Differentiating Expert, Competent, and Beginner Strength and Conditioning Coaches

Coach _____'s Final-Round Survey

Purpose: The purpose of this study is to identify the characteristics that differentiate beginner, competent, and expert strength and conditioning (S&C) coaches. The findings of this study will support the selection, evaluation, and development of both current and future S&C coaches. Final round characteristics: These 10 new characteristics were suggested by you and your peers in the open-ended response boxes of the second-round survey. These characteristics are either brand new or a suggestion to rephrase a characteristic that did not receive an average rating of at least "Very important."

Providing your input: Please rate each characteristic on its level of importance to be possessed by a beginner, competent, or expert S&C coach respectively.

If you would like to provide any additional feedback regarding your rating of a characteristic, such as why you rated it the way you did, please include this information in the open-ended response box provided at the bottom of this page. Only characteristics that receive an average rating of at least "Very important" by you and your peers will be placed on the final list of characteristics.

Section 1 - Skills

Skills of a Beginner S&C Coach

a) A beginner S&C coach must have a consistent, professional decorum on a daily basis.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) A beginner S&C coach has the ability to implement industry-standard technology to assess an athlete's physical abilities and monitor adaptations to training.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

Skills of a Competent S&C Coach

a) A competent S&C coach is proficient in utilizing technology in their coaching and finds new and innovative ways to use it in improving their training programs.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

Skills of an Expert S&C Coach

a) An expert S&C coach strives to continuously develop new skills while also maintaining those skills obtained earlier in their career.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

Section 2 - Knowledge**Knowledge of a Beginner S&C Coach**

a) A beginner S&C coach knows that they have much to learn and looks to gain knowledge from head S&C coaches with whom they work.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) A beginner S&C coach has enough S&C related knowledge by the end of their first year of coaching to earn a CSCS or SCCC.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

Knowledge of a Competent S&C Coach

a) A competent S&C coach knows how to effectively filter new information so that they can integrate new ideas while still maintaining their focus on achieving their primary goal.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

b) A competent S&C coach's knowledge should be rigorous and scientific in nature gained from sources such as books, journals, and direct transfer of applied practices and outcomes.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

Knowledge of an Expert S&C Coach

a) An expert S&C coach knows how to develop an athlete into being a better person.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

Section 3 - Experiences**Experiences of a Beginner S&C Coach**

No new characteristics to evaluate.

Experiences of a Competent S&C Coach

No new characteristics to evaluate.

Experiences of an Expert S&C Coach

a) An expert S&C coach has earned an advanced degree, such as a master's or doctorate, in a S&C related discipline (kinesiology, sports psychology, nutrition, etc.) and obtained multiple S&C related certifications, such as a(n) ASCA, ASCC, CSCS, CFSC, FMS, MSCC, NASM-PES, RSCC, SCCC, SFG, SFL, or USAW.

- ☐ Not at all important
- ☐ Slightly important
- ☐ Moderately important
- ☐ Very important
- ☐ Extremely important

If you would like to provide any additional feedback regarding your rating of a characteristic, such as why you rated it the way you did, please provide it here:

Thank you very much for all of your time and your input Coach \${m://LastName}. You will have completed your final-round survey when you click the >> below.

Page 1 of 1

Thank you Coach _____ for all of your time put into completing the three rounds of the Expert Strength Coach Study. It is because of your input that this study has been a success in providing data that can be truly groundbreaking for our field of strength and conditioning. You will receive the final results through your e-mail and in hard copy sent to your postal address immediately following the collection and analysis of data from the final round. For any questions please do not hesitate to contact David LaPlaca at any time by phone: (860) 614-9688 or e-mail: DAL71311@uga.edu.

APPENDIX DD

NON-CONSENSUS CHARACTERISTICS FROM THE THIRD ROUND

Table 23

Skills of Expert, Competent, and Beginner S&C Coaches that Did Not Reach Consensus During the Third Round

Skill						M (SD)	IQR
Expert							
<i>There are no skills for experts that did not reach a level of consensus during the second round.</i>							
Competent							
C1) A competent S&C coach is proficient in utilizing technology in their coaching and finds new and innovative ways to use it in improving their training programs.						3.65 (0.66)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	0	1	33	39	7		
Beginner							
B1) A beginner S&C coach has the ability to implement industry-standard technology to assess an athlete's physical abilities and monitor adaptations to training.						2.76 (0.89)	1
<u>Rating</u>	1	2	3	4	5		
<u>Frequency</u>	5	25	37	10	3		

Table 24

Knowledge Areas of Expert, Competent, and Beginner S&C Coaches that Did Not Reach Consensus During the Third Round

Knowledge Area	M (SD)	IQR
<p>Expert</p> <p><i>There are no knowledge areas for experts that did not reach a level of consensus during the third round.</i></p> <p>Competent</p> <p><i>There are no knowledge areas for competent coaches that did not reach a level of consensus during the third round.</i></p> <p>Beginner</p> <p>B1) A beginner S&C coach has enough S&C related knowledge by the end of their first year of coaching to earn a CSCS or SCCC.</p>	3.93 (0.99)	1.25
<p><u>Rating</u></p> <p><u>Frequency</u></p>	<p>1 2 3 4 5</p> <p>2 6 12 36 24</p>	

APPENDIX EE

PARTICIPANT'S RESULTS AND THANK YOU LETTER

Date

Coach First and Last Name

Position

University/Organization

Dear Coach _____,

I want to thank you for your participation in the Expert Strength Coach Study. Due to the incredible input provided by you and your peers, a total of 57 characteristics were identified to differentiate expert, competent, and beginner strength and conditioning coaches. The identification of these characteristics has never been done before in our field.

These 57 characteristics were generated based on your input and that of 86 other elite-level head strength and conditioning coaches with an average of 18 years of coaching experience from the MLB, NBA, NFL, NHL, NCAA Division I FBS Power Five conferences, United States National Teams, and Australian Football League. In order to be placed on the final list of characteristics, a characteristic needed to receive an average rating of at least "Very important" in the second or third round of this study. This final list of characteristics can be found on the following page and each characteristic is ranked based on their average rating of importance.

Detailed demographic information describing you and the 86 other elite-level head coaches in this study can be found on the eighth page of this letter, including information such as coaching experience, sports coached, championships won, player accolades, certifications, and awards. The extensive experiences of you and your peers is a vital factor that has generated significant reliability and credibility to the results of this study.

It is because of your input Coach _____ that this was made possible. I cannot thank you enough for all the time and effort you put in to making this study a success and creating the potential for these results to have a truly groundbreaking impact in our field. Due to your feedback, these results can now aid in the selection, evaluation, and development of both current and future strength and conditioning coaches.

If you have any additional information you would like to supply, any response to this study, or if there is anything at all that I can help with please do not hesitate to contact me at any time.

Sincerely,

David LaPlaca, MBA, CSCS, USAW, CFSC
Ph.D. Candidate and Intern Olympic Sports Strength Coach
University of Georgia
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DAL71311@uga.edu