The Continued Development of the Athletic Self-Appraisal Scale

J. Alex Cramptom
Pacific University
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Abstract
The present study represents the continued development of the Athletic Self-Appraisal Scale (ASAS), formerly titled the General Sports Self-Efficacy Scale. Based on Bandura's theory of self-efficacy and the resulting suggestions for appropriate scale construction, the authors present a measure that highlights the interdependent role of self-efficacy sources, known as self-appraisal. This measure includes item content specifically adhering to athletics in the four domains of self-appraisal including past experience, verbal persuasion, vicarious learning, and physiological cues. A nationwide sample included 501 participants from all three National Collegiate Athletic Association (NCAA) divisions representing over half of the existing conferences therein. Student-athletes provided demographic information and responded to surveys detailing their athletic self-appraisal, general self-efficacy, athletic self-confidence, and locus of control. With regard to the psychometric properties, ASAS was found to be reliable and valid and factor analysis retained two factors (athletic success and athletic adversity). The results indicated significant ASAS score differences between athletes competing for different NCAA divisions, between different sports, between true team sports and true individual sports, and between those athletes who achieved athletic awards and those who did not. No significant differences were found between ASAS scores and gender, age, ethnicity, and educational level. Limitations to the present study are discussed, and suggestions for future research are also provided.

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THE CONTINUED DEVELOPMENT OF THE ATHLETIC SELF-APPRAISAL SCALE

A DISSERTATION
SUBMITTED TO THE FACULTY
OF
SCHOOL OF PROFESSIONAL PSYCHOLOGY
PACIFIC UNIVERSITY, HILLSBORO, OREGON

BY
J. ALEX CRAMPTON, M.S.

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PSYCHOLOGY

JULY 20, 2010
ABSTRACT

The present study represents the continued development of the Athletic Self-Appraisal Scale (ASAS), formerly titled the General Sports Self-Efficacy Scale. Based on Bandura’s theory of self-efficacy and the resulting suggestions for appropriate scale construction, the authors present a measure that highlights the interdependent role of self-efficacy sources, known as self-appraisal. This measure includes item content specifically adhering to athletics in the four domains of self-appraisal including past experience, verbal persuasion, vicarious learning, and physiological cues. A nationwide sample included 501 participants from all three National Collegiate Athletic Association (NCAA) divisions representing over half of the existing conferences therein. Student-athletes provided demographic information and responded to surveys detailing their athletic self-appraisal, general self-efficacy, athletic self-confidence, and locus of control. With regard to the psychometric properties, ASAS was found to be reliable and valid and factor analysis retained two factors (athletic success and athletic adversity). The results indicated significant ASAS score differences between athletes competing for different NCAA divisions, between different sports, between true team sports and true individual sports, and between those athletes who achieved athletic awards and those who did not. No significant differences were found between ASAS scores and gender, age, ethnicity, and educational level. Limitations to the present study are discussed, and suggestions for future research are also provided.

Keywords: athletic self-appraisal, self-efficacy, sports, athletics
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The Continued Development of The Athletic Self-Appraisal Scale

In the United States in 2007, spectators spent more than 26 billion dollars on seats, parking, and concessions at major sporting events across the country (Sports Business Journal, 2008). The excitement of the crowd at a sporting event draws millions to continue to pay the rising ticket prices to watch their favorite teams and players over and over again. Children all over the world dream of becoming the next great basketball player or the next gold-medal Olympic swimmer; however, the National Collegiate Association of Athletics (NCAA) estimates that only three percent of high school seniors will go on to play at a NCAA member institution. Of those three percent that go on to play college sports, approximately one percent will go on to have a professional career (Teicher, 2005). What is it that makes these very select athletes successful? Research has shown that many factors affect athletic performance, such as athletic characteristics, general self-efficacy, emotional state, and external support (Bandura, 1994; Hanin, 2003; Harmison, 2006; Jones, Neuman, Altmann, & Dreschler, 2001; Shinke and da Costa, 2001). Of these factors, general self-efficacy is a developing individually-held perception of one’s ability to produce an effect.

According to Bandura (1977), an individual’s performance can be determined by their perceptions of a given goal affecting their choices, effort, and persistence. These perceptions are an individual’s self-efficacy and are the result of self-appraisals including: past experiences of actual performance, vicarious learning, physiological cues, and verbal persuasion. The relationship between self-efficacy and athletic performance has been a focus of much research since Bandura first introduced the concept of self-
efficacy in 1977. In particular, Feltz, Short, and Sullivan (2008) outlined the extensive research within the field of self-efficacy in sport. Within this research, a relationship between high self-efficacy and high sport performance has been found, while low self-efficacy has been found to be related to low sport performance. To provide a few examples, Mahoney and Avener (1977) provided research that supported self-efficacy as an important factor in discriminating between Olympic qualifiers and non-qualifiers in gymnastics. Similarly, Gould, Weiss, and Weinberg (1981) conveyed significant differences between successful and unsuccessful NCAA Division I wrestlers (Gould, Weiss, & Weinberg, 1981). More recently, Cleary and Zimmerman (2001) provided evidence that illustrated higher self-efficacy levels among expert athletes versus low self-efficacy levels among novice athletes. Furthermore, Feltz, Chow, and Hepler (2006) provided support for using self-efficacy measures as predictors for athletic performance when comparing diver self-efficacy and the individual’s performance.

Bandura (1994) stated that individuals will not pursue areas where they believe their self-efficacy is lacking. In other words, it is unlikely for individuals who perceive themselves as less competent in their abilities to continue to pursue that activity. The opposite of this trend is also believed to be true in that individuals who perceive themselves to be competent in any particular area will continue to pursue that activity. Previous research has found a relationship between constructs of athletic self-efficacy and academic self-efficacy (Crampton & Davis, 2008; Ayiku, 2005). However, within the Crampton and Davis study, a small sample was used to determine this relationship, and Ayiku utilized an athletic self-confidence scale assuming it related directly to sport self-efficacy. Although self-confidence has been labeled as a functioning portion of self-
efficacy (Feltz, Short, & Sullivan, 2008), the assumption that athletic self-confidence and athletic self-efficacy represent a singular construct, however, has not been fully developed within the research literature.

While self-confidence is expected to be an active component in the development of an individual’s athletic self-efficacy, the authors of this study will investigate self-perceptions of athletic ability in terms of Bandura’s (1977) formulation of efficacy development by attempting to measure self-appraisal constructs within an athletic context.

**Self-efficacy Scale Development**

Feltz and Lirgg (1998) developed a scale to measure longitudinal collective efficacy among female student-hockey players. This scale was developed with a particular focus on collective efficacy in hockey, which is indicative of Bandura’s (1994) outlines for domain specific scale development. Bandura’s recommendations for scale development include: domain specificity, gradations of challenge, content relevance (i.e., can do rather than will do), response scales, face validity, items phrased as sport-related, and minimizing social evaluative concerns (Bandura, 2006). However, it is theorized that self-appraisal constructs of past performance, verbal persuasion, vicarious learning, and physiological cues all are the primary contributors to self-efficacy (Bandura, 1977; Bandura, 2006; Feltz, Short, & Sullivan, 2008). If self-efficacy is derived from these constructs does it not seem necessary to measure these factors in an attempt to determine where or how an athlete’s self-efficacy was primarily derived?

**NCAA Division Differences**

With regard to the direction of the current study, it is necessary to examine the
presence of three NCAA Divisions and the differences among them. Institutions with Division I membership have to sponsor at least seven sports for men and women, or six for men and eight for women (NCAA, 2007). Of these 14 sponsored sports, two must be for both genders (e.g., men’s and women’s basketball). All of these sport teams are required to compete 100 percent of their games or matches against Division I opponents. However, basketball and football are somewhat different. Basketball scheduling requires both men and women to play all but two of their games within Division I. The men are also required to play at least one-third of their games at home. For football, there are two separate subdivisions: Football Bowl Subdivision (formerly NCAA Division I-A) and Football Championship Subdivision (formerly NCAA Division I-AA). Schools competing within the Football Bowl Subdivision are required to host at least 15000 in attendance each game, actual or paid, while those teams competing within the Football Championship Subdivision have no minimum attendance requirements. All school athletic programs must provide their teams with the minimum financial scholarship assistance without exceeding the maximum amount.

Institutions with Division II membership have to sponsor at least five sports for men and five sports for women, or four sports for men and six sports for women. Two of these sports need to be conventional team sports for each gender (e.g., basketball or soccer). Football and men’s and women’s basketball are the only sports with scheduling requirements and are required to play at least 50 percent of their games against other Division II or Football Bowl Subdivision or Football Championship Subdivision opponents. Maximum athletic scholarship limits are included and must not be exceeded and local and in-state athletes usually feature a number of the student-athletes on each
Similar to Division II schools, Division III institutions have to sponsor at least five sports for men and five for women while each gender must represent two conventional team sports. Division III differs from the other Divisions because there are minimum contest and participation limits for each sport and no student-athlete receives athletic scholarship aid. While spectators are of exponential importance in Division I and Division II athletics, it is the athletes’ experience that is the primary focus and concern within Division III athletics. Thus, the maximizing of participation opportunities exists in the form of regional and conference competition (NCAA, 2007).

The differences in each Division are apparent with regard to athletic approach. However, each division emphasizes differently financial aid, academic, and extracurricular activities other than sports. In particular, Division I is said to be much more athletically focused where the athlete needs to commit to the sport first and balance school activities around their chosen sport to maintain their athletic scholarships (Montgomery, 2008). Division II athletes receive scholarships like Division I athletes but each individual receives an average of $6000 a year versus the Division I average of $14000 a year (La Vaque, 2008). Thus, potentially attracting less capable athletes comparative to Division I athletes. Division III on the other hand, does not offer athletic scholarships but is able to maintain full rosters by offering extracurricular scholarships (i.e., orchestra member, school newspaper editor, etc.) or academic scholarships to their athletes. Due to the different focus of financial support to recruit athletes, it is assumed an athlete competing at the Division III level will be more global and less sport-focused (Montgomery, 2008).
Direction of the Paper

Due to the clear and apparent differences among NCAA Divisions the study investigated differences among athletes from NCAA Division I, Division II, and Division III athletic programs on measures of general self-efficacy, general sports self-appraisal, academic self-efficacy, and locus of control. We also investigated the differences among Division I athletes, Division II athletes, and Division III athletes with regard to general sports self-appraisal and the other scales included. This paper will review studies conducted around sports performance, the many factors effecting sport performance, and how these factors have been assessed in both individuals and collective approaches.

Literature Review

Athletic Characteristics

Several athletic characteristics influencing athletic performance have been identified through an inventory developed by Jones, Neuman, Altman, and Dreschler (2001). This inventory included 83 Likert-scale questions that measured competitiveness, team orientation, mental toughness, emotional control, positive attitude, and safety consciousness. The measure was administered to 274 male and female students in a large Division I athletic college; 66 students were varsity-level athletes while the rest were novice athletes. Results indicated significant differences in positive attitude and higher competitiveness in varsity-level college athletes compared to novice athletes. Additionally, females were found to be more team oriented and more competitive than male athletes at the college level. While these findings suggest these factors to be related to athletic success at the college level, these dimensions have not been shown to predict
athletic success.

**Emotional Control**

Another factor found to influence athletic performance is *emotional control* (Jones et al., 2001). Hanin (2003) performed a qualitative analysis of how performance relates to emotional states in sport. Using structured and in-depth interviews and open-ended questionnaires, Hanin was able to identify emotional content and quality as being fundamentally important. Through an analysis of the information he gathered through these means, Hanin developed an emotional profiling system he called Individualized Emotion Profiling (IEP). “The IEP method determines subjectively meaningful positive and negative emotions based on the analysis of individual’s past performance history and significant emotional experiences.” (Hanin, p. 11). Hanin uses this method to work with athletes to identify optimal emotional expression for successful athletic performance. By working with each individual athlete in analyzing past performances, he helps them identify both positive and negative emotions that contribute to success or to a reduction in performance. This profile can then be used by the athlete to create emotional experiences prior to a sporting event that might lead to better performance.

Hanin also developed a method to qualitatively and quantitatively identify optimal emotional states of athletic functioning with his introduction of the Individualized Zones of Optimal Functioning (IZOF) model (Hanin, 1999). The IZOF model focuses on emotions, feelings, mood, and affect as four factors to assist in describing, predicting, and explaining psychobiological influences to athletic performance.

The IZOF model has been used by Harmison (2006) in a single-case study to evaluate the effectiveness of this model. The IZOF model provides each athlete with a
range of emotional states (e.g., low to high anxiety) identifying specific areas of peak performance functionality. The athlete identifies emotional states that are beneficial, as well as emotions that may hinder performance. Harmison’s participant was a 27-year-old winter sport athlete ranked in the top 25 in the world. The participant was having trouble coping with the pressure of performing at the international level. After using the IZOF model to identify the athlete’s ideal performance profile, a behavioral and cognitive plan was developed to facilitate that ideal performance state. Over the course of three seasons during which the athlete’s profile was reassessed each year, the participant reached her goal of placing in the top 10 internationally. Harmison (2006) concluded that Hanin’s IZOF model was an effective method to assess the ideal state for peak performance. However, each individual must be assessed for his or her own peak performance profile to develop an individualized plan to maximize the effect of emotions on performance. Furthermore, this study was only for a single case, so generalizing the results would be problematic.

External Support

Another factor identified by Jones, et al. (2001) that was found to affect athletic performance is external support. Shinke and da Costa (2001) conducted a literature review that targeted the relationship between support-infrastructure and athletic performance. Support-infrastructure included parents, coaches, national sport organization, teammates, and mission staff. The authors examined the effects of these support-infrastructures on the confidence, motivation, and results of elite athletes through prior studies. They concluded that persistence is learned from supportive parent-child relationships or coach-athlete relationships. Schinke and da Costa also concluded that
increases in personal aid (e.g., drivers, assistants, etc.), volunteers, and media demands can decrease elite athletes’ autonomy, which could lead to a decrease in their self-efficacy. This suggests that support-infrastructure must be moderated to prevent any potential decrease in the athlete’s level of self-efficacy.

**Self-efficacy and Athletic Performance**

The four general factors affecting athletic performance self-appraisal, or the sources of self-efficacy, are the focus of this study. Since Bandura introduced the concept of self-efficacy in 1977, many studies have been done to assess this quality in athletes. Most of these studies have examined self-efficacy in a specific sport. Illustrating the vast research that investigated self-efficacy and sport performance was a meta-analysis conducted by Moritz, Feltz, Fahrbach, and Mack (2000). The 45 studies examined in the meta-analysis included participants ranging from children to professional athletes, which is indicative of the generalizability of the importance of self-efficacy at all ages and skill levels. The authors of this study showed an average correlation between self-efficacy and sport performance of .38, which is indicative of self-efficacy contributing to approximately 16% of the variance. This finding is striking when all aspects that can affect an athlete’s performance are considered.

Illustrating the relationship between performance and self-efficacy was Feltz and colleagues’ (Feltz, 1982; Feltz, Chow, & Hepler, 2006; Feltz & Mugno, 1983;) examinations of self-efficacy levels in divers performing a high-avoidance task (i.e., a modified back dive). The resulting data supported Bandura’s theory that higher levels of self-efficacy related significantly to performance. The athletes’ level of self-efficacy prior to their first dive significantly predicted their performance. However, after the first trial
as the divers continued to attempt the assigned dive, their past performance was a better predictor of performance than their levels of self-efficacy. Feltz and colleagues also found that the divers’ perceived level of physiological arousal was predictive of future performance. These findings support the idea of producing a general scale of self-appraisal due to the apparent predictability of past performance and physiological cues on future performance.

More studies linking athletic performance and self-efficacy were conducted by Weinberg and his colleagues on athletes’ self-efficacy levels in competitive situations (Weinberg, 1985; Weinberg, Gould, & Jackson, 1979; Weinberg, Gould, Yukelson, & Jackson, 1981; Weinberg, Yukelson, & Jackson, 1980). The primary focus of these studies was to evaluate how different levels of self-efficacy (i.e., high levels and low levels) were associated with muscle endurance in competitive situations. Participants were placed in different condition groups depending on their pre-existing levels of self-efficacy. The authors found that participants with higher levels of self-efficacy performed significantly better than participants with low levels of self-efficacy.

*Collective Efficacy and Sport Performance*

While most of these studies have only examined self-efficacy in a specific sport, Feltz and Lirgg (1998) conducted a study to evaluate both team and individual efficacy beliefs across an entire season. Their study focused on hockey because every player on a team participates in any given hockey game. Additionally, they had a fairly large sample of 180 players, and the longitudinal approach compensated for limitations in previous research that captured team efficacy in a snapshot of time. They found that aggregated team efficacy predicted team performance better than aggregated player efficacy. An
influential factor in team efficacy was past team performance, with better performance resulting in higher team efficacy beliefs.

Another study on collective efficacy focused specifically on women’s ice hockey (Myers, Payment, & Feltz, 2004). In this study, 12 teams provided data over five weekends through questionnaires completed within 24 hours before each game. The authors found that collective efficacy was statistically influential on Saturday game performances; suggesting coaches can expect that his or her team’s efficacy will have an effect on individual performance.

**Clinical Psychology and Self-Efficacy**

In the clinical psychology field many theorists believe that determining faulty belief systems (e.g., cognitive distortions) is of utmost importance for emotional and behavioral change (Leahy & Holland, 2000). Also, the importance of strength-based treatments has been a relatively recent clinical treatment approach that emphasized the clients’ strengths to facilitate emotional and behavioral change (Smith, 2006). Therefore, with self-efficacy, self-appraisal constructs, and the influence of belief systems and strength-based approaches on psychological well-being all in mind, a scale has been developed to measure athletic self-appraisal without a focus on domain specificity. The proposed measure follows most of Bandura’s guidelines for the development of a scale in accordance to the constructs of self-appraisal within the theory of self-efficacy (i.e., scale specificity to athletics, gradations of challenge, face validity, sport-related item phrasing, and minimizing social evaluative concerns). This measure will attempt to provide an outline of an athlete’s strengths and weaknesses with regard to sport self-appraisal. This outline, in turn, can provide sport psychologists, coaches, and athletes with a profile to
effectively determine self-appraisal strengths, and where to focus attention to better
overcome self-appraisal weaknesses. It is hypothesized that an instrument such as this
will serve to identify strengths and weaknesses with regard to athletic self-appraisal,
allowing for a clear path toward the athlete’s self-efficacy development, and thus,
increased performance. The current study is a fundamental step toward that goal.

Limitations of Previous Research

Although Bandura (2006) recommends that each scale be sport specific, this is
one of the shortcomings of the generalizability of the literature reviewed above. Bandura
(2006) stated that a measure developed to assess self-efficacy should always be domain
specific. However, measuring one athletic type or team at a time does not illustrate the
entire picture. Hays, Maynard, Thomas, and Bawden (2007) have published results from
a general measure of sports confidence across several different sports. The analysis
identified nine dimensions of sport confidence: preparation, performance
accomplishment, coaching, social support, innate factors, experience, competitive
advantage, trust, and self-awareness. Although informative, this study was limited by a
very small sample size (14 participants) and addressed confidence, which is only a
portion of self-efficacy.

To date, no all-purpose measure of sports self-appraisal exists that addresses
Bandura’s (1997) four sources of self-efficacy: past experiences, vicarious learning,
verbal persuasion, and physiological cues.

Athletic self-efficacy measures have been developed in the past and, although
effective, have focused solely on items phrased in the context of each particular sport as
separate domains. However, many cross training exercises (e.g. weight training, running,
core training, etc.) have been shown to improve athletic strength, agility, endurance, acceleration, and reduced incident of athletic injury (Anderson, 2007; Foster, Hector, Welsh, Schrager, Green, & Snyder, 1995; Tanaka, 1994). Also, previous research has also shown that self-appraisal constructs are influential, if not more influential, with regard to athletic performance (Feltz, Short, & Sullivan, 2008). Consequently, a level of analysis that is not specific to an individual sport and investigates general athletic self-appraisal is called for.

**Present Study**

Because of the lack of an assessment of the sources of general sport self-efficacy (i.e., self-appraisal), this study assessed and analyzed general athletic self-appraisal with Division I, Division II, and Division III college athletes across the United States. The researchers refined and further developed the General Sports Self-Appraisal Scale (Crampton & Davis, 2008) for use in this study. For increased clarity and accuracy the scale was renamed the Athletic Self-appraisal Scale. It was hypothesized that the current scale would correlate significantly with the other scales included in the study (i.e., General Self-Efficacy Scale, Trait Sports Self-Confidence Scale, and Locus of Control).

It was also hypothesized that with the use of factor analysis, the scale will produce four factors within the context of the four self-appraisal domains. Also due to the differentiating divisions within the NCAA it was hypothesized that athletes competing for Division I collegiate teams would have higher ratings of sports self-appraisal than athletes from Division II and Division III teams. It was also hypothesized that athletes competing for Division II athletic teams would have higher sport self-appraisal ratings than Division III athletes. Athlete participants in the present study were asked to rate their
own perceived abilities within their given sport on a scale of 0-10. It was hypothesized that the athletes’ perceived ability would be significantly related to their levels of sport self-appraisal.
METHODS

Participants

Participants were 501 student-athletes from Division I, Division II, and Division III colleges and universities around the United States representing the NCAA. Two of the participants were removed for all analyses except for factor analysis as a result of being age outliers. Frequencies of sports represented in the study are presented in Table 1 and frequencies of NCAA divisions represented in the study are presented in Table 2.

Table 1. Sport Frequencies

<table>
<thead>
<tr>
<th>Sport</th>
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<tbody>
<tr>
<td>Softball</td>
<td>38</td>
<td>7.6</td>
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<tr>
<td>Gymnastics</td>
<td>11</td>
<td>2.2</td>
</tr>
<tr>
<td>Golf</td>
<td>13</td>
<td>2.6</td>
</tr>
<tr>
<td>Swimming</td>
<td>97</td>
<td>19.4</td>
</tr>
<tr>
<td>Baseball</td>
<td>29</td>
<td>5.8</td>
</tr>
<tr>
<td>Soccer</td>
<td>48</td>
<td>9.6</td>
</tr>
<tr>
<td>Track and Field/Cross Country</td>
<td>88</td>
<td>17.6</td>
</tr>
<tr>
<td>Volleyball</td>
<td>42</td>
<td>8.4</td>
</tr>
<tr>
<td>Field Hockey</td>
<td>20</td>
<td>4.0</td>
</tr>
<tr>
<td>Basketball</td>
<td>29</td>
<td>5.8</td>
</tr>
<tr>
<td>Tennis</td>
<td>9</td>
<td>1.8</td>
</tr>
<tr>
<td>Football</td>
<td>18</td>
<td>3.6</td>
</tr>
<tr>
<td>Rowing</td>
<td>12</td>
<td>2.4</td>
</tr>
<tr>
<td>Activity</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>---------------------</td>
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<td>----</td>
</tr>
<tr>
<td>Ice Hockey</td>
<td>13</td>
<td>2.6</td>
</tr>
<tr>
<td>Cheerleading</td>
<td>5</td>
<td>1.0</td>
</tr>
<tr>
<td>Wrestling</td>
<td>3</td>
<td>0.6</td>
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<tr>
<td>Dual Sport Athletes</td>
<td>19</td>
<td>3.8</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>1.0</td>
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Table 2. NCAA Division Frequencies

<table>
<thead>
<tr>
<th>Division</th>
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<tbody>
<tr>
<td>Division I</td>
<td>151</td>
<td>30.3</td>
</tr>
<tr>
<td>Division II</td>
<td>157</td>
<td>31.5</td>
</tr>
<tr>
<td>Division III</td>
<td>191</td>
<td>38.3</td>
</tr>
</tbody>
</table>

Within each NCAA division several athletic conferences exist (i.e., Big 12, Central Atlantic Collegiate Conference, Northwest Conference). Of the 99 all-sport conferences (i.e., Big Ten) and 23 single-sport conferences (East Coast Athletic Conference – Hockey) making up the NCAA’s athletic divisions, 54 were represented in this study.

Both male and female student-athletes were represented in this sample (males = 26.3%; females = 73.7%). The students were freshmen (28.5%), sophomores (30.7%), juniors (21.4%), seniors (16.4%), and fifth year (2.4%) undergraduates with ages ranging from 18 to 31 ($M = 19.75, SD = 1.48$). Participants identified as Caucasian (87.0%), Asian (4.6%), Hispanic (2.8%), African American (2.6), Biracial (1.8%), and Other (1.2%). Student-athletes from all sports competing at these levels were invited to participate in
the study. Participation was entirely voluntary and no compensation or incentives were offered to the participants. Further, the researchers did not anticipate any benefits or risks to the participants as a result of engaging in the study.

**Procedure**

Students were recruited via e-mail to participate in the present study (Appendix A). Within the e-mail recruitment message was a hyperlink to the online study website. Upon entering the study website, participants first encountered a statement of informed consent detailing the nature of the study (Appendix B). Upon agreeing to participate in the study, student participants were presented with and asked to complete a demographic questionnaire with questions including age, gender, ethnicity, spousal arrangements (e.g., married, single, domestic partnership, etc.), level of education, current grade point average (GPA), current team membership, current NCAA division, current NCAA conference, athletic awards, and academic awards (Appendix C). Also, included in the demographic questionnaire the participants were asked to subjectively rate their perceived athletic ability, and the perception others may hold when considering the participants athletic ability.

Upon completing the demographic questionnaire, participants completed the Athletic Self-appraisal Scale (ASAS), the General Self-efficacy Scale, the Trait-sports Self Confidence Inventory (TSCI), and the Locus of Control Scale (LOC). A brief description of each is presented in the *materials* section below.

Once all survey instruments were completed, the student-athletes were informed that their participation was complete and were thanked for their time.
Materials

*Athletic Self-appraisal Scale* (Appendix D). This 30-question measure, developed by the investigators within the present study, is designed to assess an athlete’s level of athletic self-appraisal.

*General Self-efficacy Scale* (Appendix E). This scale has been used to assess general self-efficacy. The scale, originally developed by Sherer and colleagues (1982) is a 12-item version of a measure constructed by Bosscher and Smit (1998).

*Trait-sport Self Confidence Inventory* (Appendix F). This 13-item measure, developed by Vealey (1986) is designed to measure a general level of sport self confidence.

*Locus of Control* (Appendix G). This is a 13-item questionnaire developed by Rotter (1966). It measures generalized expectancies for internal versus external control of reinforcement. People with an internal locus of control believe that their own actions determine the rewards that they obtain, while those with an external locus of control believe that their own behavior does not matter much and that rewards in life are generally outside of their control. A low score indicates an internal control while a high score indicates feelings of external control.
RESULTS

Means and standard deviations for groups for all measures are presented in Table 3.

Table 3. Individual and Team Means and Standard Deviations of Scale Scores

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Athletic Self-Appraisal Scale (ASAS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>119.13</td>
<td>11.27</td>
<td>.74</td>
</tr>
<tr>
<td>Team</td>
<td>125.85</td>
<td>12.01</td>
<td>.74</td>
</tr>
<tr>
<td>2. General Self-Efficacy (GSE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>46.58</td>
<td>6.63</td>
<td>.45</td>
</tr>
<tr>
<td>Team</td>
<td>48.71</td>
<td>6.20</td>
<td>.40</td>
</tr>
<tr>
<td>3. Trait-Sport Self Confidence Inventory (TSCI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>83.83</td>
<td>14.74</td>
<td>1.00</td>
</tr>
<tr>
<td>Team</td>
<td>89.66</td>
<td>14.76</td>
<td>.94</td>
</tr>
<tr>
<td>4. Locus of Control (LOC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>5.25</td>
<td>2.12</td>
<td>.15</td>
</tr>
<tr>
<td>Team</td>
<td>5.26</td>
<td>2.35</td>
<td>.15</td>
</tr>
</tbody>
</table>

ANOVA analyses indicated significant differences between individual and team-based athletes for the ASAS, $F(1, 494) = 40.83, p < .001$. In particular, the team sport athletes ($M = 125.85$) were found to score higher on the ASAS than did individual sport athletes ($M = 119.13$). Significant differences between individual and team-based sports were also indicated for the GSE, $F(1, 459) = 12.66, p < .001$. Team sport athletes ($M = 48.71$) scored significantly higher on the GSE than did individual sport athletes ($M = 46.58$). Finally, significant differences were indicated between individual and team-based athletes for the TSCI, $F(1, 464) = 18.08, p < .001$. Particularly, team sport athletes ($M = 89.66$) were found to score significantly higher on the TSCI than individual sport athletes ($M = 83.83$). No significant differences were found between groups on the Locus of
Control Scale.

**Hypotheses**

Table 4. Means and Standard Deviations of Division ASAS Scores

<table>
<thead>
<tr>
<th>Division</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division I</td>
<td>123.70</td>
<td>11.74</td>
<td>.96</td>
</tr>
<tr>
<td>Division II</td>
<td>124.53</td>
<td>12.36</td>
<td>.99</td>
</tr>
<tr>
<td>Division III</td>
<td>120.42</td>
<td>11.88</td>
<td>.86</td>
</tr>
</tbody>
</table>

To determine if significant differences existed between Division I, Division II, and Division III athletes on each study measure, a One-Way ANOVA was conducted. As expected, significant differences were found between each NCAA Division for the ASAS ($F (2, 498) = 5.80, p = .003$). A Tukey’s post hoc test was run to identify pair-wise differences between each NCAA Division. Specifically, the Tukey HSD test identified significant differences between Division I and Division III (HSD = 3.28, $p < .05$) and between Division II and Division III (HSD = 4.11, $p < .05$). No other significant differences were found.

To determine if significant differences existed between male and female athletes on any study measures, a series of independent samples t-tests were conducted. As expected, no differences were found between male and female athletes for the ASAS ($t (497) = .50$, n.s.), the measure of GSE ($t (461) = -1.01$, n.s.), or the Locus of Control measure ($t (451) = .57$, n.s.). However, male athletes ($M = 90.42$) scored significantly higher than female athletes ($M = 85.70$) on the TSCI ($t (466) = 3.02, p < .05$). Therefore, all remaining analyses are conducted without consideration of gender on the ASAS, GSE,
or LOC. Mean scores and standard deviations by gender for each of the study measures are presented in Table 5.

Table 5. Mean Scale Scores by Gender

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean (Male)</th>
<th>SD</th>
<th>Mean (Female)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Athletic Self-Appraisal</td>
<td>123.16</td>
<td>12.48</td>
<td>122.54</td>
<td>11.99</td>
</tr>
<tr>
<td>2. General Self-Efficacy</td>
<td>47.22</td>
<td>6.16</td>
<td>47.92</td>
<td>6.60</td>
</tr>
<tr>
<td>3. Trait-Sport Self Confidence Inventory</td>
<td>90.42</td>
<td>14.01</td>
<td>85.70</td>
<td>15.13</td>
</tr>
<tr>
<td>4. Locus of Control</td>
<td>5.18</td>
<td>2.42</td>
<td>5.32</td>
<td>2.21</td>
</tr>
</tbody>
</table>

Likewise, to determine if significant differences existed between ethnicities in mean level of ASAS, an ANOVA procedure was conducted. As expected, no differences were found between ethnicities on any of the study measures. Means on the ASAS and all other study measures by ethnicity are presented in Table 6.

Table 6. Mean Scale Scores by Ethnicity

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Athletic Self-Appraisal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>129.92</td>
<td>10.70</td>
<td>2.97</td>
</tr>
<tr>
<td>Hispanic</td>
<td>126.07</td>
<td>12.19</td>
<td>3.26</td>
</tr>
<tr>
<td>Caucasian</td>
<td>122.48</td>
<td>12.14</td>
<td>.58</td>
</tr>
<tr>
<td>Asian</td>
<td>121.52</td>
<td>12.72</td>
<td>2.65</td>
</tr>
<tr>
<td>Biracial</td>
<td>118.22</td>
<td>8.74</td>
<td>2.91</td>
</tr>
<tr>
<td>Other</td>
<td>126.50</td>
<td>10.45</td>
<td>4.26</td>
</tr>
<tr>
<td>2. General Self-Efficacy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>50.00</td>
<td>6.95</td>
<td>2.01</td>
</tr>
<tr>
<td>Hispanic</td>
<td>48.31</td>
<td>5.30</td>
<td>1.47</td>
</tr>
<tr>
<td>Caucasian</td>
<td>47.76</td>
<td>6.54</td>
<td>.33</td>
</tr>
<tr>
<td>Asian</td>
<td>46.30</td>
<td>5.69</td>
<td>1.19</td>
</tr>
<tr>
<td>Biracial</td>
<td>44.88</td>
<td>7.49</td>
<td>2.65</td>
</tr>
</tbody>
</table>
Additionally, an ANOVA was utilized to determine if significant differences exist between college education level and ASAS. No significant differences were found when comparing ASAS scores across education level. Likewise, no significances were found when comparing level of education on any other scale scores (i.e., GSE, TCSI, or LOC).

Means, standard deviations, and standard error values for education level and scale scores are provided in Table 7.

Table 7. Mean Scale Scores by Education Level

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Athletic Self-Appraisal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>123.74</td>
<td>12.98</td>
<td>1.09</td>
</tr>
<tr>
<td>Sophomore</td>
<td>121.82</td>
<td>12.28</td>
<td>.99</td>
</tr>
<tr>
<td>Junior</td>
<td>121.82</td>
<td>10.32</td>
<td>1.00</td>
</tr>
<tr>
<td>Senior</td>
<td>123.42</td>
<td>11.97</td>
<td>1.32</td>
</tr>
<tr>
<td>Fifth Year Senior</td>
<td>122.61</td>
<td>13.50</td>
<td>3.90</td>
</tr>
<tr>
<td>2. General Self-Efficacy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>47.70</td>
<td>6.72</td>
<td>.58</td>
</tr>
<tr>
<td>Sophomore</td>
<td>47.38</td>
<td>5.89</td>
<td>.50</td>
</tr>
<tr>
<td>Junior</td>
<td>47.60</td>
<td>6.81</td>
<td>.69</td>
</tr>
</tbody>
</table>
Furthermore, an ANOVA and post hoc tests were conducted to determine differences between sport type and ASAS scores. As expected, the ANOVA was indicative of significant differences between sport participation and ASAS scores ($F (17, 481) = 4.05, p < .001$).

A Tukey’s post hoc test was, therefore, conducted to identify pair-wise differences between each specific sport on ASAS scores. Specifically, the Tukey HSD test identified significant differences between softball players ASAS scores and swimmers ASAS scores ($HSD = 11.53, p < .001$), softball players’ ASAS scores and Track and field/cross country athletes’ ASAS scores ($HSD = 9.79, p = .002$), swimmers’ ASAS scores and baseball players’ ASAS scores ($HSD = -11.79, p < .001$), swimmers’ ASAS scores and basketball players’ ASAS scores ($HSD = -11.94, p < .001$), baseball players’ ASAS scores and track and field/cross country athletes’ ASAS scores ($HSD = 10.04, p = .007$), basketball players’ ASAS scores and track and field/cross country athletes’ ASAS scores ($HSD = 10.21, p = .005$). No other significant differences were
found. However, the Tukey HSD identified that swimmers’ ASAS scores and soccer players’ ASAS scores were approaching significance (HSD = -6.67, p = .09).

Table 8. Means and Standard Deviations of Specific Sport ASAS Scores

<table>
<thead>
<tr>
<th>Sport</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softball</td>
<td>129.24</td>
<td>12.05</td>
<td>1.95</td>
</tr>
<tr>
<td>Gymnastics</td>
<td>120.09</td>
<td>9.74</td>
<td>2.94</td>
</tr>
<tr>
<td>Golf</td>
<td>119.54</td>
<td>11.38</td>
<td>3.16</td>
</tr>
<tr>
<td>Swimming</td>
<td>117.71</td>
<td>12.08</td>
<td>1.23</td>
</tr>
<tr>
<td>Baseball</td>
<td>129.48</td>
<td>10.85</td>
<td>2.01</td>
</tr>
<tr>
<td>Soccer</td>
<td>124.40</td>
<td>12.23</td>
<td>1.77</td>
</tr>
<tr>
<td>Track/Cross Country</td>
<td>119.44</td>
<td>10.52</td>
<td>1.12</td>
</tr>
<tr>
<td>Dual</td>
<td>124.79</td>
<td>6.94</td>
<td>1.59</td>
</tr>
<tr>
<td>Volleyball</td>
<td>122.40</td>
<td>10.99</td>
<td>1.70</td>
</tr>
<tr>
<td>Field Hockey</td>
<td>125.05</td>
<td>10.48</td>
<td>2.34</td>
</tr>
<tr>
<td>Basketball</td>
<td>129.66</td>
<td>12.64</td>
<td>2.35</td>
</tr>
<tr>
<td>Tennis</td>
<td>123.56</td>
<td>9.99</td>
<td>3.33</td>
</tr>
<tr>
<td>Football</td>
<td>123.83</td>
<td>14.43</td>
<td>3.40</td>
</tr>
<tr>
<td>Rowing</td>
<td>124.67</td>
<td>12.11</td>
<td>3.50</td>
</tr>
<tr>
<td>Hockey</td>
<td>126.69</td>
<td>15.50</td>
<td>4.30</td>
</tr>
<tr>
<td>Cheerleading</td>
<td>113.40</td>
<td>9.79</td>
<td>4.38</td>
</tr>
<tr>
<td>Wrestling</td>
<td>115.33</td>
<td>7.37</td>
<td>4.26</td>
</tr>
<tr>
<td>Other</td>
<td>123.60</td>
<td>8.65</td>
<td>3.87</td>
</tr>
</tbody>
</table>
To test the hypothesis that athletes with higher self-ratings of athletic ability would have correspondingly higher ratings of athletic self-appraisal, a bivariate correlation procedure was conducted. As expected, a significant, positive correlation was found \( r(499) = .536, p < .001 \).

A correlation procedure was also employed to test the hypothesis that athletes’ perception of others’ beliefs in their athletic ability will have higher self-appraisal. A significant, positive correlation was found between others’ perception of the athlete’s ability and the athlete’s indication of their own athletic self-appraisal \( r(499) = .500, p < .001 \).

To determine if athletes who are performing on a true team sport (e.g., baseball, hockey) possess higher levels of athletic self-appraisal than those athletes who are performing for true individual sports (e.g., golf, swimming), an independent samples t-test procedure was conducted. It was found that individuals performing on a true team \( (M = 125.85) \) indicated higher levels of athletic self-appraisal than did those performing for individual-centered sports \( (M = 119.13) \) \( t(493) = -6.71, p < .001 \).

To test the hypothesis that student athletes who have received athletic awards will have higher ASAS scores than those that have not received athletic awards, an independent samples t-test was conducted. Athletes that received athletic awards \( (M = 126.03) \) reported higher levels of athletic self-appraisal than athletes who had not received athletic awards \( (M = 121.56) \) \( t(495) = 3.60, p < .001 \). An independent samples t-test was also conducted to determine if student athletes who have received athletic awards will have higher TSCI scores than those who had not received athletic awards. The results indicated that athletes who achieved athletic awards \( (M = 92.35) \) had
significantly higher TSCI scores than those athletes with no record of being rewarded athletic awards ($M = 85.11$) ($t (464) = 4.59, p < .001$). No other scale indicated significant differences between athletes with awards and athletes without awards. Means, standard deviations, and standard error values for athletes with awards and athletes without awards are provided in Table 9.

Table 9. Means and Standard Deviations of Scale Scores and Awards

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Athletic Self-Appraisal Scale (ASAS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Awards: Yes</td>
<td>126.03</td>
<td>11.95</td>
<td>1.09</td>
</tr>
<tr>
<td>Awards: No</td>
<td>121.56</td>
<td>11.94</td>
<td>.62</td>
</tr>
<tr>
<td>3. Trait-Sport Self Confidence Inventory (TSCI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Awards: Yes</td>
<td>92.35</td>
<td>13.73</td>
<td>1.28</td>
</tr>
<tr>
<td>Awards: No</td>
<td>89.66</td>
<td>15.00</td>
<td>.80</td>
</tr>
</tbody>
</table>

**Assessment of Psychometric Properties of the ASAS**

Additional analyses were conducted to determine the psychometric properties of ASAS. In that the ASAS is intended as a measure of general athletic self-appraisal, only study participants who indicated that they were affiliated with a college-level athletic team ($n = 499$) were included in the following analyses.

**Validity**

Convergent validity and discriminant validity were investigated to determine the construct validity of the ASAS. Correlations between scales of measurement that are theoretically related to athletic self-appraisal (i.e., TSCI, GSE) and between a scale of measurement that theoretically is not related to general athletic self-appraisal (i.e., LOC) were conducted. The resulting correlations are presented in Table 10.
Table 10. Correlations among Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Athletic Self-Appraisal</td>
<td>--</td>
<td>.50*</td>
<td>.64*</td>
<td>-.14*</td>
</tr>
<tr>
<td>2. General Self-Efficacy</td>
<td>--</td>
<td>.42*</td>
<td>-.26*</td>
<td></td>
</tr>
<tr>
<td>3. Trait-Sport Self Confidence</td>
<td>--</td>
<td></td>
<td>-.22*</td>
<td></td>
</tr>
<tr>
<td>4. Locus of Control</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .005

Evidence for convergent validity was found in the significant correlation between scores on the ASAS and the TSCI \( r (468) = .64, p < .001 \), and between the ASAS and the GSE \( r (463) = .50, p < .001 \). Evidence for discriminant validity was indicated in the significant, however weak correlation between the ASAS and the LOC measure \( r (453) = -.14, p < 0.01 \).

Reliability

To assess the internal consistency of the ASAS measure, correlations between all 30 items on the scale were examined. The resulting Cronbach’s alpha when examining items across the entire measure indicated good internal consistency, \( \alpha = .772 \).

Factor Analysis

Factor analysis was conducted to determine what, if any, underlying structure exists on the entire ASAS measure. Velicer’s MAP test was conducted utilizing a varimax rotation. The analysis retained two components. Eigenvalue and scree plot analyses were used to determine the appropriate number of components retained. When considering eigenvalues, those components with eigenvalues greater than one were retained. With regard to scree plot analysis, components were retained within the sharp
decent and the number of individuals was 501 and commonalities were greater than .30.

In all, 27 of the 30 scale items used were retained. Component loading for the two factors are presented in Table 11.

Table 11. Component Loadings

<table>
<thead>
<tr>
<th>Scale</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 1: Athletic Success</td>
<td></td>
</tr>
<tr>
<td>Item 3: Often I find that a motivating talk before my competitive event helps with my performance.</td>
<td>.48</td>
</tr>
<tr>
<td>Item 6: I like to watch athletic films that portray athletic success.</td>
<td>.39</td>
</tr>
<tr>
<td>Item 9: When I achieve my goals I feel more able to achieve new goals.</td>
<td>.48</td>
</tr>
<tr>
<td>Item 10: I enjoy watching professional sports.</td>
<td>.33</td>
</tr>
<tr>
<td>Item 11: When I practice, encouragement from my coach motivates me to do better.</td>
<td>.50</td>
</tr>
<tr>
<td>Item 14: Often when my teammates do well I am inspired to perform at a higher level.</td>
<td>.60</td>
</tr>
<tr>
<td>Item 15: When I perform well in practice my performance in competition increases.</td>
<td>.57</td>
</tr>
<tr>
<td>Item 16: In a practice setting, encouragement from my teammates allows me to perform at a higher level.</td>
<td>.56</td>
</tr>
<tr>
<td>Item 17: When I train very intensely I feel more able to achieve my goals.</td>
<td>.55</td>
</tr>
<tr>
<td>Item 18: I feel that being successful in my sport is the most important factor that increases my future performance.</td>
<td>.47</td>
</tr>
<tr>
<td>Item 19: I find that working under a coach that has been successful athletically in the past increases my performance.</td>
<td>.37</td>
</tr>
<tr>
<td>Item 22: When I win, I feel confident in my future performance.</td>
<td>.53</td>
</tr>
<tr>
<td>Item 23: When someone close to me is successful, my goals are set higher.</td>
<td>.52</td>
</tr>
<tr>
<td>Item 24: When my coach yells at me for performing at an unacceptable level I am driven to work harder.</td>
<td>.40</td>
</tr>
<tr>
<td>Item 27: I feel that my team’s success increases my performance.</td>
<td>.59</td>
</tr>
<tr>
<td>Item 28: I feel that compliments regarding my past success drive me to perform at a higher level.</td>
<td>.54</td>
</tr>
</tbody>
</table>

Component 2: Athletic Adversity

| Item 4: When I compete I find that when I become anxious I perform poorly. | .55 |
| Item 5: I find that when I fail there is often a decrease in my future | |
performance.  
Item 7: I find a “pep talk” causes me to feel too much pressure.  
Item 8: When I compete I find that when I become anxious and my performance improves.  
Item 12: When I experience an injury I find it very difficult to train towards my goals.  
Item 13: Often when I reach athletic plateau I find it hard to work past it.  
Item 20: I find that verbal negativity from my coach decreases my athletic performance.  
Item 21: When I am fatigued I find that my performance suffers.  
Item 26: I don’t let failure influence my future performance.  
Item 29: When I feel tense I don’t perform well.  
Item 30: When I fail, I feel like a failure.

Following the factor analysis, described in detail above, three items were dropped from the scale. Therefore, internal consistency was examined once again. The resulting Cronbach’s alpha when examining the 27 remaining items exhibited no significant change, $\alpha = .771$. 

DISCUSSION

The present study represents the continued development of the measure of athletic self-appraisal. The construction of this measure fills a long standing gap in the literature addressing the traits and characteristics of successful athletic performance. The measure of focus within the present study adheres to the conceptualization of self-appraisal within the context of self-efficacy sources. Specifically, the ASAS approaches the concept of self-appraisal in a manner that determines what contributes to athletes’ self-efficacy rather than measuring self-efficacy. By determining the sources of self-efficacy in the assessment of self-appraisal, the researchers strive to determine the root cause of athletes’ perceived ability to complete tasks in the domain of sports. Establishing the potential causes and sources of self-efficacy will evoke awareness. This awareness, in turn, will likely influence positive change in athletic success given that self-efficacy has been shown to significantly influence athletic performance (Feltz et al., 2008).

In addition, this measure corresponds to the scale development recommendations provided by Bandura (1997). Specifically, the content of each item is presented in a more active, temporally relevant “can do” format that is less subject to speculation than the frequently used “will do” format.

The researchers of the present study found a significant relationship between high perceived athletic ability and high perceived athletic self-appraisal. This finding, similar to the preliminary study by Crampton and Davis (2008), supports Bandura’s theory and reflects similar findings of the relationship between high sport performance and high athletic self-appraisal, which contributes to high athletic self-efficacy. Furthermore, the researchers found a significant relationship between athletes who indicated they have
been given athletically-related awards (e.g., All-American) and high levels of athletic self-appraisal. In contrast, athletes who reported having no history of being given athletic awards had significantly lower levels of athletic self-appraisal.

The present study also highlights the role of collective efficacy and the influence a group dynamic has on individual efficacy and appraisal beliefs. This finding shows that athletes who participate within the context of an influential group dynamic (i.e., true-team sport athletes) will have significantly higher perceived athletic self-appraisal than athletes whose performance is solely reliant on their individual efforts. As in the Crampton and Davis (2008) investigation, evidence is provided in the present study reflecting high levels of athletic self-appraisal in all participants. However, the true-individual sport athletes had significantly lower levels of athletic self-appraisal due to the lack of collective influence on their performance. For example, soccer players will likely have higher levels of self-appraisal than golfers due to the influence and contributions their teammates have on their psychological state.

Also, the results indicate significant differences between ASAS scores for athletes competing for NCAA Division I and Division III, and between Division II and Division III. Specifically, Division I athletes had significantly higher ASAS scores than Division III athletes and Division II athletes scored significantly higher on the ASAS than Division III athletes. Two factors might be involved in the lack of differences found between Division I and Division II athletes. First, there is potentially no significant difference between Division I and Division II since both divisions are financially well-compensated, whereas Division III schools receive less funding for their athletic programs. Second, as Division I schools are better funded than Division II schools, this
increased compensation might actually have a hindering affect on the self appraisal evaluations of their student-athletes. It has been shown in previous studies that increased compensation and external support infrastructure can externalize the motivation for performance (Schinke, R., & da Costa, J., 2001). This speculative justification paired with the idea presented by La Vaque (2008) that Division II teams must perform with less external support may suggest why no significant difference existed between Division I and Division II athlete ASAS scores.

Within the present study, no significances were found between ASAS score and gender, ASAS scores and ethnicity, ASAS scores and educational level, ASAS scores and marital status, and ASAS scores and age. Based on these results, gender, ethnicity, educational level, marital status, and age play little to no role in an athlete’s level of athletic self-appraisal.

**Discussion of the Psychometric Properties**

Due to the fact that the measure used in this study was previously developed, researched, and analyzed with a small sample size by Crampton and Davis (2008), investigation of validity and reliability were of utmost importance. The results of this study confirm the validity and reliability analyses of the Athletic Self-Appraisal Scale previously conducted by Crampton and Davis (2008). The validity findings indicate that the ASAS scale significantly measures the source domains of self-efficacy known as self-appraisal. Significant positive correlations between the GSE and TSCI were found, thus demonstrating convergent validity. That is to say, ASAS is significantly related to other measures that are theoretically similar. On the other hand, discriminant validity was demonstrated through the weak relationship found between ASAS and LOC scores.
To examine the reliability of the ASAS, internal consistency was investigated. Internal consistency was used to determine if the individual scale items on the ASAS measure the same construct. Internal consistency investigation indicated good reliability of the entire measure.

The use of parallel analysis and Velicer’s MAP test both provided evidence of two factors within the scale. The two factors extracted were identified as athletic success and athletic adversity. Items that loaded on athletic success included those portraying Bandura’s self-appraisal domains of past experience, vicarious learning, and verbal persuasion. Items that loaded on athletic adversity were those within Bandura’s self-appraisal domains of past experience, verbal persuasion, and physiological cues. All proposed domains of self-appraisal were represented within the athletic success and athletic adversity.

The present investigation addressed many of the limitations and recommendation for future research mentioned in the pilot study conducted by Crampton and Davis (2008). With regard to the limitations of the previous study, the examiners addressed the issue of sample size of the preliminary study by increasing the sample size from 34 participants to 499. The significant change in sample size allowed for increased power to detect effects and for the use of factor analysis. Therefore, a more comprehensive examination of the psychometric properties of the ASAS was possible. Finally, the issue of geographic limitations was addressed by the utilization of a nation-wide sample of college and university athletes participating in the NCAA where more than half of the conferences from all three divisions were represented.
Limitations

The examination of ASAS validity and reliability provides extensive potential for future research, but the concept of predictability has not yet been adequately addressed. The independent samples t-tests used to determine that athletes who achieved athletic awards had significantly higher ASAS scores than those who did not is a strong indicator that the scale offers the ability to differentiate between athletic ability. However, the fact that the documentation of athletic awards is based on self-report and that athletic awards differ in gradation, the validity of this finding is limited. Therefore, the use of pre- and post-season performance statistics will likely better address the potential use of the ASAS as a predictor of athletic performance.

Future Research

Future research could benefit in a number of ways. Now that evidence of validity and reliability for the ASAS is maintained and strengthened from Crampton and Davis’ pilot study (2008), analysis of pre- and post-testing can begin. ASAS can potentially be used as a predictive measure of future athletic performance. To determine the predictability of the ASAS, regression analyses must be performed on data collected pre- and post-season of any particular athletic group (e.g., college athletes, professional athletes, high school athletes). Also, due to the observed difference between true-team sport athletes and individual sport athletes, it would be worthwhile to determine if any differences exist in athletic performance predictability of the ASAS between team and individual sport athletes.

Furthermore, if the ASAS is found to be a good predictor of future athletic performance, it can be used to provide a self-appraisal strength and weakness profile for
each athlete. Since the ASAS has been shown to have two clear factors, athletic success and athletic adversity, areas of strength and weakness can be determined within each of these factors. In addition, strengths and weaknesses of item content (i.e., self-appraisal domains) can be determined. With an ASAS strength and weakness profile a coach, trainer, and/or athlete can develop awareness of an athletic self-appraisal profile to increase future performance. For example, if a baseball player shows strength in athletic success, past experience, and verbal persuasion and relative weakness in athletic adversity and physiological cues, this measure will provide vital information to improve performance.

Additionally, if the ASAS becomes a good predictor of athletic performance, the ASAS profiles can be effectively combined with appropriate cognitive-behavioral therapy (CBT) and strength-based techniques. For example, if an athlete’s ASAS profile determines athletic adversity and physiological cues as relative weaknesses, the athlete can develop positive self-talk with cognitive restructuring and utilize relaxation techniques to increase their athletic self-appraisal and, thus, their athletic performance.

However, weaknesses will not be the sole focus of increasing future performance. The athletes strengths, as determined by the ASAS, will be worked into the “treatment” of an athlete’s current performance. For example, if an athlete shows strengths in athletic success and vicarious learning they would likely benefit from utilizing video clips that portray athletic success prior to competing. These are only two of many examples of profiles combined with CBT and strength-based techniques. To determine the effectiveness of these techniques in collaboration with the proposed ASAS profile, pre- and post-season performance statistics will need to be obtained and compared to a control
group that receives no treatment adhering to their ASAS profile.

The combination of the ASAS and therapeutic techniques adhering to athlete-specific ASAS profiles provides the opportunity to facilitate athletic performance. Psychological treatment for athletic performance is limited in the evidence-based field of psychology. The proposed approach provides individualized treatment programs for each athlete based on their ASAS profile. Much like an individualized physical, nutritional, and sleep regimen for every athlete performing at a high level, the ASAS profile combined with therapeutic techniques provides athletes the chance to improve the 16% of athletic performance attributed to self-efficacy (Feltz et al., 2008), representing their global self-appraisals. That is to say, that if 16% of athletic performance occurs as a result of an athlete’s self-appraisals, the ASAS profile approach offers each athlete a more holistic and complete physiological and mental regimen to increase their overall athletic performance. At this point, since no training option exists to adhere to almost 20% of athletic performance, athletes have the chance to better their performance significantly with the addition of an ASAS profile approach.

In my opinion, and as a former coach, no coach would encourage their athletes to sleep three hours per night, eat just fast food, or to utilize only 80% of what it takes to succeed. Therefore, the utilization of the ASAS profile may offer athletes and coaches alike the upper hand to their opponents. No one truly knows with certainty all the components that contribute to total athletic success. However, the ASAS appears to be a great step in the right direction to further the understanding of how athletic success can be achieved.
References


theory of self-efficacy and an anxiety-based model of avoidance


causal elements in Bandura’s theory of self-efficacy and the
influence of autonomic perception. *Journal of Sport Psychology, 5*,
263-277.


Appendix A

E-Mail Recruitment

Good morning.

My name is Alex Crampton and I am an Assistant Coach for the Pacific Swim Team currently working under Alec Webster and a Doctoral student within the School of Professional Psychology. I am writing to ask your help in a research project being conducted under the supervision of Dr. Shawn Davis, Associate Professor within the School of Professional Psychology here at Pacific University. This study is an examination of athletic self-appraisal (the sources of self-efficacy, known as an individual’s personal beliefs about their athletic effectiveness) and it’s relation to athletic performance, self-efficacy, self-confidence, and locus of control.

I know that your time is limited and valuable, but your assistance is vital to this study. If possible, could you distribute the message below to your student athletes? The responses to the online survey given by the students are strictly anonymous and will remain confidential. This study has received full approval from the Pacific University Institutional Review Board.

If you have any questions or comments, please contact either myself or Dr. Davis and we will be happy to respond.

Thank you.

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Appendix B

Informed Consent

PACIFIC UNIVERSITY
INFORMED CONSENT TO ACT AS A RESEARCH PARTICIPANT

________________________

General Sports Self-Appraisal: Measurement and Domain Relationships

Investigator(s) Contact Information

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1. Introduction and Background Information

You are invited to be in a research study of athletic self-appraisal. You were invited to participate because you are a student-athlete within the National Collegiate Athletic Association (NCAA). Please read this form carefully and ask any questions you may have before agreeing to be in this study.

The purpose of this study is to investigate athletic self-appraisal (the sources of self-efficacy which is known as an impression of capability in performing in a certain way, or to achieve set goals) in student-athletes, as well as investigate the relationships between general self-efficacy, locus of control (an individual’s perception about the underlying causes of events in his or her life), and Sport Self-Confidence.
2. **Study Location and Dates**

The study is expected to begin September, 2009, and be completed by May, 2010. The location of the study will be Pacific University in Forest Grove, Oregon.

3. **Procedures**

If you agree to be in this study, your participation will include completion of an online survey focusing on different areas of self-efficacy (athletic, academic, and general), and locus of control. This survey should take approximately 15 minutes to complete.

4. **Participants and Exclusion**

You are eligible to participate in this study because you are a college-level athlete competing in the NCAA and are at least 18 years of age. If you believe you do not meet one or more of these criteria, please exit this survey immediately.

5. **Risks and Benefits**

**Risks**

Your participation in this project involves no foreseeable risks. The surveys and materials presented should not cause you any discomfort, but if discomfort occurs, you can stop your participation and notify the researcher immediately and he will take steps to eliminate any discomfort. *You do not have to answer any question you do not wish to answer.*

**Benefits**

There are no direct benefits to you for your participation in this study. Your participation, however, will allow social scientists to gain a better understanding of the factors that influence and are involved in athletic self-efficacy.

6. **Alternatives Advantageous to Participants**

Not applicable.

7. **Participant Payment**

Not applicable.

8. **Promise of Privacy**
The records of this study will be kept private. Results from your participation will be available only to the experimenter and his thesis chair. If a publication or other educational use results from this study and case reports are presented, all identifying material will be substantially modified so that your identity will be safeguarded. Your participation in this project is strictly anonymous. If the results of this study are to be presented or published, we will not include any information that will make it possible to identify you as an individual.

Additionally, the results of this study will not be shared with any coaches at Pacific University nor will they be presented to any athletic department official.

9. Voluntary Nature of the Study

Your decision whether or not to participate will not affect your current or future relations with your college or college athletic team. There are no costs to you for your participation other than the time involved in completing the surveys. If you choose not to participate, you are free to withdraw at any time; withdrawal will not result in penalty. Participation in this project is voluntary and the only other alternative to this project is non-participation.

10. Compensation and Medical Care

Not applicable.

11. Contacts and Questions

The researcher will be happy to answer any questions you may have at any time during the course of the study. The principal investigator can be reached at (541) 497-3301 or via e-mail at jalexcrampton@pacificu.edu. If you are not satisfied with the answers you receive, please call Pacific University’s Institutional Review Board, at (503) 352 – 2215 to discuss your questions or concerns further. All concerns and questions will be kept in confidence.

12. Statement of Consent

I have read and understand the above. All my questions have been answered. *I am 18 years of age or over and agree to participate in the study.* I understand I can copy and print this form to keep for my records.

Since this is an on-line survey, signatures cannot be obtained. By clicking “NEXT” I understand I will be taken to the study and that my continued participation in the survey
denotes my consent. If I choose not to participate or to withdraw from participation, I can close the web page at anytime.
Appendix C

Demographic Questionnaire

Please respond to each of the following:

Age: ______

Gender: ______ Male ______ Female

Race (please select):

___ African American
___ Hispanic
___ Caucasian / White
___ Native American / Alaskan Native
___ Asian
___ Other / Please Explain ______________________________________

Marital Status:

___ Married
___ Single
___ Divorced / Separated
___ Widow / Widower
___ Cohabitating

Level of College Education:

___ Freshman
___ Sophomore
___ Junior
___ Senior
___ 5th Year

What is your current GPA (on a 4.0 scale)?

What college-level athletic team are you a member of?

________________________________________

Have you been rewarded for any athletic related achievements (All-American, All-Conference, etc)?

___ Yes
___ No

If so, list and describe award(s):
Have you been rewarded for any academic related achievements (Dean’s List, All-Conference Academic, etc)?

___ Yes
___ No

If so, list and describe award(s)?

On the following scale (0 = I definitely can’t perform well, 10 = I definitely can perform well) please rate your athletic ability:

0 1 2 3 4 5 6 7 8 9 10
Athletic Self-Appraisal Scale

Please answer the following as accurately as possible where 1 = not at all like me, 2 = not really like me, 3 = I’m right in the middle, 4 = somewhat like me, 5 = very much like me.

1) I have often been successful in my sport.  1 2 3 4 5

2) I have seen one or both of my parents become successful in an athletic event in the past.  1 2 3 4 5

3) Often I find that a motivating talk before my competitive event helps with my performance.  1 2 3 4 5

4) When I compete I find that becoming anxious causes me to perform poorly.  1 2 3 4 5

5) I find that when I fail there is often a decrease in my future performance.  1 2 3 4 5

6) I like to watch films that portray athletic success.  1 2 3 4 5

7) I find a “pep talk” causes me to feel too much pressure.  1 2 3 4 5

8) When I compete I find that becoming anxious helps with my performance.  1 2 3 4 5

9) When I achieve my goals I feel motivated to strive towards a new goal.  1 2 3 4 5

10) I enjoy watching professional sports.  1 2 3 4 5

11) When I practice, I am motivated by encouragement
from my coach.  

12) When I have experienced an injury,  
   I find it very difficult to motivate myself  
   to train toward my goals.  

13) Often when I reach athletic plateau, I find it hard  
   to work past it.  

14) Often when my teammates do well I am inspired to  
   perform at a higher level.  

15) When I perform well in practice my performance in  
   competition increases.  

16) In a practice setting, encouragement from my  
   teammates allows me to perform at a higher  
   level.  

17) When I train very intensely I feel competent and  
   motivated to achieve my goals.  

18) I feel that being successful in my sport is the most  
   important factor that increases my  
   future performance.  

19) I find that working under a coach who has been  
   successful athletically in the past increases my  
   performance.  

20) I find that verbal negativity from my coach decreases  
   my athletic performance.
21) When I am fatigued I find that my performance suffers. 1 2 3 4 5

22) When I win, I feel motivated. 1 2 3 4 5

23) When someone close to me (friend, sibling, colleague, etc) is successful, my goals are set higher. 1 2 3 4 5

24) When my coach yells at me for performing at an unacceptable level I am driven to work harder. 1 2 3 4 5

25) If I don't get enough sleep each night my performance suffers. 1 2 3 4 5

26) When I fail, I feel motivated to do better next time. 1 2 3 4 5

27) I feel that my team's success increases my performance. 1 2 3 4 5

28) I feel that compliments regarding my past success drive me to perform at a higher level. 1 2 3 4 5

29) When I feel tense I don't perform well. 1 2 3 4 5

30) When I fail, I feel like a failure. 1 2 3 4 5
Appendix E

Trait-Sport Confidence Inventory, (Vealey, 1986)

Directions: Think about yourself as an athlete and the most self-confident student-athlete you know.

When compared with the most confident athlete you know, how confident are you in your ability to successfully do the following tasks?

(Please use the following scale to rate yourself)

1(low)  2(low)  3(low)  4(medium)  5(medium)  6(medium)  7(high)  8(high)  9(high)

1) Execute skills necessary to be successful.
2) Make critical decisions during competition.
3) Perform under pressure.
4) Execute successful strategy.
5) Concentrate well enough to be successful.
6) Adapt to different game situations and still be successful.
7) Achieve your competitive goals.
8) Be successful.
9) Consistently be successful.
10) Think and respond successfully during competition.
11) Meet the challenge of competition.
12) Be successful even when the odds are against you.
13) Bounce back after performing poorly and perform successfully.
Appendix F

Self-Efficacy Scale, (Sherer, et al., 1982)

Please use the following scale:  
1 – Completely Disagree
2 – Disagree Somewhat
3 – Neither Agree nor Disagree
4 – Agree Somewhat
5 – Agree Strongly

1) _____ If something looks too complicated, I will not even bother to try it.

2) _____ I avoid trying to learn new things when they look too difficult.

3) _____ When trying something new, I soon give up if I am not initially successful.

4) _____ When I make plans, I am certain I can make them work.

5) _____ If I can’t do a job the first time, I keep trying until I can

6) _____ When I have something unpleasant to do, I stick to it until I finish it.

7) _____ When I decide to do something, I go right to work on it.

8) _____ Failure just makes me try harder.

9) _____ When I set important goals for myself, I rarely achieve them.

10) _____ I do not seem to be capable of dealing with most problems that come up in my life.

11) _____ When unexpected problems occur, I don’t handle them very well.

12) _____ I feel insecure about my ability to do things.
Appendix G

Locus of Control Scale, (Rotter, 1966)

Please select which option you support for each item.

1. a. Children get into trouble because their parents punish them too much.
1. b. The trouble with most children nowadays is that their parents are too easy with them.

2. a. Many of the unhappy things in people's lives are partly due to bad luck.
2. b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
3. b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run people get the respect they deserve in this world.
4. b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. a. The idea that teachers are unfair to students is nonsense.
5. b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. a. Without the right breaks, one cannot be an effective leader.
6. b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter how hard you try, some people just don't like you.
7. b. People who can't get others to like them don't understand how to get along with others.
8. a. Heredity plays the major role in determining one's personality.

8. b. It is one's experiences in life which determine what they're like.

9. a. I have often found that what is going to happen will happen.

9. b. Trusting fate has never turned out as well for me as making a decision to take a definite course of action.

10. a. In the case of the well prepared student there is rarely, if ever, such a thing as an unfair test.

10. b. Many times, exam questions tend to be so unrelated to course work that studying in really useless.

11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.

11. b. Getting a good job depends mainly on being in the right place at the right time.

12. a. The average citizen can have an influence in government decisions.

12. b. This world is run by the few people in power, and there is not much the little guy can do about it.

13. a. When I make plans, I am almost certain that I can make them work.

13. b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. a. There are certain people who are just no good.

14. b. There is some good in everybody.

15. a. In my case getting what I want has little or nothing to do with luck.

15. b. Many times we might just as well decide what to do by flipping a coin.

16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
16. b. Getting people to do the right thing depends upon ability - luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

17. b. By taking an active part in political and social affairs the people can control world events.

18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.

18. b. There really is no such thing as "luck."

19. a. One should always be willing to admit mistakes.

19. b. It is usually best to cover up one's mistakes.

20. a. It is hard to know whether or not a person really likes you.

20. b. How many friends you have depends upon how nice a person you are.

21. a. In the long run the bad things that happen to us are balanced by the good ones.

21. b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort we can wipe out political corruption.

22. b. It is difficult for people to have much control over the things politicians do in office.

23. a. Sometimes I can't understand how teachers arrive at the grades they give.

23. b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do.

24. b. A good leader makes it clear to everybody what their jobs are.

25. a. Many times I feel that I have little influence over the things that happen to me.
25. b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.

26. b. There's not much use in trying too hard to please people, if they like you, they like you.

27. a. There is too much emphasis on athletics in high school.

27. b. Team sports are an excellent way to build character.

28. a. What happens to me is my own doing.

28. b. Sometimes I feel that I don’t have enough control over the direction my life is taking.

29. a. Most of the time I can’t understand why politicians behave the way they do.

29. b. In the long run the people are responsible for bad government on a national as well as on a local level.