Self-confidence (SC) is one of the most cited factors thought to affect athletic performance. SC is said to play a critical role in athletes' success; in contrast, lack of SC seems to be closely associated with athletic failure. Thus, confidence is an important factor that distinguishes successful athletes from unsuccessful ones in terms of both their mental states as well as their performances. However, the precise nature of SC was quite unclear until the publication of Feltz's seminal chapter on this issue.

The term self-confidence refers to one's belief that he or she can successfully execute a desired behavior (i.e., 'I'll get the job done'). Feltz argued that the exact relationships of SC and performance in sport have not been scientifically clarified in a satisfactory manner. To promote our understanding of the precise nature of these relationships, she first presented several definitions of SC and briefly discussed them with reference to some related terms, such as perceived ability, self-concept, self-esteem, and performance expectancies. Feltz presented three of the major theoretical approaches available at that time for studying these relationships: Bandura's self-efficacy theory, Harter's perceived competence model, and Vealey's concept of sport confidence. She not only described the theoretical approaches but also provided extensive research evidence in sport and reviewed some relevant criticisms. Feltz summarized and compared these three approaches and derived some important conclusions referring to the (at that time) updated scientific status of the relationships between SC and sport performance.

This seminal chapter did not, of course, completely resolve the riddle of SC in sport. However, Feltz organized and presented the theoretical knowledge relevant to SC in sport at that time and undoubtedly had a profound influence on many researchers in this area, which is theoretically intriguing and has a substantial practical importance for those actively involved in sport.

Introduction

The cognitive approach to the study of achievement motivation assumes that strivings for achievement are mediated through several cognitive mechanisms. A growing body of evidence suggests that one's perception of ability or self-confidence is the central mediating construct of those achievement strivings [1, 13, 45, 72]. In sport, self-confidence is one of the most frequently cited psychological factors thought to affect athletic achievements. "Self-confidence," as the term is used here, is the belief that one can successfully execute a specific activity rather than a global trait that accounts for overall performance optimism. For example, one may have a high degree of self-confidence in one's driving ability in golf but a low degree of self-confidence in putting.

Although self-confidence is thought to affect athletic performance, its relationship with performance has not been clear in much of the sport science research. Self-confidence has been shown to be significantly correlated with skillful sport performance, but whether there is a causal relationship, and what the direction of that relationship is, cannot be determined from the correlational designs of the studies [33, 41, 50, 66].

This chapter focuses on the nature of the relationship between self-confidence and sport performance. First, definitions of self-confidence and related concepts are given. Second, the major theoretical approaches to studying this relationship are briefly described, research evidence from sport is provided, and general criticisms are reviewed. Third, a summary and comparison of the approaches are provided and the status of the relationship of confidence to sport performance is summarized. Finally, a conclusion is presented with suggestions for future research.

Definitions of Self-Confidence and Related Concepts

Various terms such as "self-confidence," "self-efficacy," "perceived ability," and "perceived competence" have been used to describe one's perceived capability to accomplish a certain level of performance. Bandura [1] uses the term "self-efficacy" to describe the conviction one has to execute successfully the behavior (e.g., a sports performance) required to produce a certain outcome (e.g., a trophy or self-satisfaction) and, thus, can be considered as a situationally specific self-confidence. In addition, as Bandura [5] notes, self-efficacy is not concerned with the skills an individual has but with the judgments of what an individual can do with the skills he or she possesses. He also distinguishes between perceived self-efficacy and self-confidence. Self-confidence, for him, refers to the strength of the belief or conviction but does not specify the level of perceived competence. Bandura prefers to use the term "self-efficacy" to specify the level of perceived competence and the strength of that belief.

"Perceived competence" and "perceived ability" are terms that have been limited in use to the achievement
Self-Efficacy

Bandura's [1] theory of self-efficacy has been the most extensively used theory for investigating self-confidence in sport and motor performance. Bandura originally proposed the theory to account for the different results achieved by the diverse methods used in clinical psychology for treating anxiety. It has since been expanded [3] and applied to other domains of psychological functioning, including motivation [8], achievement behavior [9, 80], career choice and development [11, 44], and health behavior [73], in addition to sport behavior.

This theory, developed within the framework of a social cognitive theory [5], poses self-efficacy as a common cognitive mechanism for mediating people's motivation and behavior. People's judgment of their capability to perform at given levels affects their behavior (i.e., choice of activities, effort expenditure, persistence), their thought patterns, and their emotional reactions in demanding or anxiety-provoking situations. Self-efficacy is a major determinant of behavior, however, only when proper incentives and the necessary skills are present.

Source of Information. According to Bandura's theory, expectations of personal efficacy are derived from four principal sources of information: performance accomplishments, vicarious experiences, verbal persuasion, and physiological arousal. These four categories of efficacy information are not mutually exclusive in terms of the information they provide, though some are more influential than others. For instance, performance accomplishments provide the most dependable source of efficacy information because they are based on personal mastery experiences. Bandura [1, p. 194] emphasized that the relationship between efficacy expectations and performance is reciprocal: "Mastery expectations influence performance and are, in turn, altered by the cumulative effects of one's efforts."

Performance accomplishments. As stated previously, performance accomplishments provide the most dependable source of information upon which to base self-efficacy judgments because they are based on one's mastery experiences. These experiences affect self-efficacy judgments through cognitive processing of such information. If these experiences have been repeatedly perceived as successes, they will raise efficacy expectations; if they have been perceived as failures, they will lower expectations. The influence that performance experiences have on perceived efficacy also depends on the perceived difficulty of the task, the effort expended, the amount of physical guidance received, and the temporal patterns of success and failure [3]. Performance accomplishments on difficult tasks, tasks independently attempted, and tasks accomplished early in learning with only occasional failures carry greater efficacy.
value than easy tasks, tasks accomplished with external aids, or tasks in which repeated failures are experienced early in the learning process.

**Vicarious experiences.** Efficacy information can also be obtained through observing or imagining others engaging in a task that observers themselves have never performed. Although vicarious sources of efficacy information are generally weaker than performance accomplishments, their influence on self-efficacy can be enhanced by a number of factors. The less experience one has had with a task or situation, the more one will rely on others to judge one’s own capabilities. Similarities to the model in terms of performance or personal characteristics have been shown to enhance the effectiveness of modeling procedures on subjects’ self-efficacy and performance [40].

**Persuasion.** Persuasive techniques are widely used by teachers, coaches, and peers in attempting to influence the learner’s behavior. These techniques can include verbal persuasion and/or bogus performance feedback. Efficacy expectations based on this type of information are also likely to be weaker than those based on one’s own accomplishments. In addition, persuasive techniques are effective only if heightened appraisal is within realistic bounds. The extent of persuasive influence on self-efficacy also depends on the credibility, prestige, trustworthiness, and expertise of the persuader.

**Physiological states.** The level and quality of physiological arousal also provide an indication of self-efficacy. Although other theorists [14, 28, 98] postulate that reduction in physiological arousal directly changes behavior through reinforcement, Bandura [1] states that arousal affects behavior through the cognitive appraisal (efficacy expectations) of the information conveyed by arousal. For example, some individuals may interpret increases in their physiological arousal as a fear that they cannot perform the skill successfully, whereas others may interpret this state as being psyched up and ready for performance. Bandura [5] also notes that physiological sources of self-efficacy are not limited to autonomic arousal. People use their levels of fatigue, fitness, and pain in strength and endurance activities as indicants of physical ineffectiveness [34, 82].

Anxiety or autonomic arousal is viewed not only as a source of efficacy information by Bandura [1] but also as a co-effect of behavior. This suggests another reciprocal relationship in self-efficacy theory: one between self-efficacy and physiological arousal.

**Efficacy/behavior relationship.** As mentioned previously, Bandura [1] states that self-efficacy is a major determinant of behavior only when people have sufficient incentives to act on their self-percepts of efficacy and when they possess the requisite subskills. He predicts that efficacy expectations will exceed actual performance when there is little incentive to perform the activity or when physical or social constraints are imposed on performance. An individual may have the necessary skill and high self-efficacy but no incentive to perform. Discrepancies will also occur when tasks or circumstances are ambiguous or when one has little information on which to base efficacy expectations.

How individuals cognitively process efficacy information will also influence the relationship between self-efficacy and behavior [1]. For instance, successes and failures may be perceived or distorted in importance. People who overweight their failures will have lower levels of self-efficacy than those with the same performance levels who do not.

**Measurement of Self-Efficacy.** Bandura [1] advocates a microanalytic approach for testing propositions about the origins and functions of perceived self-efficacy. This requires a detailed assessment of the level, strength, and generality of perceived self-efficacy. “Level of self-efficacy” refers to people’s expected performance attainments. “Strength” refers to the strength of people’s beliefs that they can attain different levels of performance. “Generality” indicates the number of domains of functioning in which people judge themselves to be efficacious. Self-efficacy instruments are typically constructed by listing a series of tasks, usually varying in difficulty, complexity, or stressfulness. People are asked to designate the tasks they believe they can perform (efficacy level). For each task designated, they rate their degree of certainty (efficacy strength) that they can execute it on a 100-point probability scale ranging from high uncertainty to complete certainty.

According to Bandura [5], this method permits a microanalysis of the degree of congruence between self-efficacy and action at the level of individual tasks. However, this method also requires that one conduct a conceptual analysis of the subskills needed to perform a task and a contextual analysis of the level of situational demands. Bandura [5] uses the example of driving self-efficacy to show how the strength of perceived self-efficacy may vary for navigating through residential areas, arterial roads, congested city traffic, onrushing freeway traffic, and twisting mountain roads. In gymnastics, the subskills needed to perform competitively could be categorized by event (vault, beam, bars, floor exercise) and by the context of stunts within each event that vary in degree of difficulty.

In the sport literature, self-efficacy researchers have typically correlated aggregate self-efficacy scores with aggregate performance scores rather than examining the congruence between self-efficacy and performance at the level of individual tasks [102]. Perhaps this is due to the nature of the tasks used in sport. In most sports studies, subjects’ efficacy expectations and performance have not been assessed in terms of the approach/avoidance to a series of tasks that increase in difficulty. Rather, subjects are asked about their confidence beliefs concerning a single task in terms of how long or at what height they can perform and then are asked to attempt that task in two or more trials.
Ryckman and his colleagues [77] developed the Physical Self-Efficacy Scale to provide an omnibus measure of perceived physical self-efficacy. The scale has two factors: a perceived physical ability factor and a physical self-presentation confidence factor that reflects confidence in the display of physical skills. The authors found significant correlations between total physical self-efficacy scores, perceived physical ability scores, and performance on a reaction-time task and a motor coordination task. Gayton and his colleagues [37] also found predictive validity for the scale with competitive marathon running performance. However, McAuley and Gill [70] found a task-specific measure of self-efficacy that measured expectations in the areas of vault, beam, bars, and floor exercise to be a much better predictor of gymnastics performance than the global measure of physical self-efficacy. This supports a growing body of evidence that particularized measures of self-efficacy have greater explanatory and predictive power than global measures [see 5, 6].

**Research in Sport and Physical Activity.** Much of the self-efficacy research in sport and motor performance has focused on examining (a) the effects of various methods used to create athletic competence in self-efficacy and performance and (b) the relationship between self-efficacy and performance. The various treatment techniques examined in these studies were based on one or more of the four major sources of efficacy information outlined by Bandura [1].

Sport and exercise research has examined the influence of techniques based on performance accomplishment and has shown them to be effective in enhancing both self-efficacy and performance [27, 33, 51, 54, 68, 89, 90, 91]. Studies have also supported the superiority of performance-based information over other sources of efficacy information [23, 33, 35, 68, 91]. For instance, participant modeling, which involves a model's demonstration plus guided participation of the learner, has been shown to produce superior diving performance and stronger expectations of personal efficacy than either live modeling or videotaped modeling techniques [33].

Information gained through vicarious experiences has been shown to increase perceived efficacy in muscular endurance tasks [34, 40], gymnastic performance [68], exercise activity [20], and competitive persistence [89]. These techniques have included modeling [20, 40], imagery [34], and information acquired about a competitor's competence [89]. Weinberg and his colleagues [89] manipulated subjects' efficacy expectations about competing on a muscular endurance task by having them observe their competitor (a confederate), who either performed poorly on a related strength task and was said to have a knee injury (high self-efficacy) or who performed well and was said to be a varsity track athlete (low self-efficacy). Results indicated that the higher the induced self-efficacy, the greater the muscular endurance. Subjects who competed against an injured competitor endured longer than those who competed against a varsity athlete.

The few studies that have investigated persuasive techniques such as positive self-talk [88, 97] and reinterpretation of arousal [103] as a source of efficacy information report mixed results. Wilkes and Summers [97] were the only ones who found self-efficacy techniques (positive self-talk) to influence performance. However, efficacy-related cognitions did not seem to mediate the effect.

Few sport studies have investigated the influence of physiological or emotional states on self-efficacy [29, 35, 55]. In my work on diving [29, 35], I found that although actual physiological arousal did not predict self-efficacy expectancies, perceived autonomic arousal was a significant predictor, but not as strong a predictor as previous performance accomplishments. Kavanagh and Hausfeld [55], however, found that induced moods (happiness/sadness), as measured by self-report, did not alter efficacy expectations in any consistent manner using strength tasks.

In these studies that have examined non-performance-based sources of efficacy information, lack of effects may have been due to confounding with actual performance where multiple performance trials were used. Because personal experiences are so powerful, subjects' perceptions of their performance experience may overshadow any influence that the treatment variable may have on self-efficacy.

A number of studies have examined the relationship between self-efficacy and athletic and exercise performance [10, 29, 31, 33–35, 37, 40, 54, 55, 65, 68, 70, 77, 89, 91, 92, 99]. As Wurtele [102] noted, the results of these studies show a significant relationship between self-efficacy and performance across a number of sport tasks and physical activities. These correlational results do not necessarily demonstrate a causal relationship between self-efficacy and performance.

A few studies in the sport and motor performance area have been conducted to investigate the causal relationships in Bandura's theory [29, 31, 35, 68]. Using path analysis techniques, these studies found that although self-efficacy was indeed a major determinant of performance, direct effects of treatment on performance [68] and indirect effects of past performance on future performance [29, 31, 35] were also present. These results indicate that performance-based treatments affect behavior through other mechanisms as well as perceived self-efficacy.

I conducted a study [29] that compared the influence of self-efficacy as a common cognitive mechanism with an alternative anxiety-based model [28] in the approach/avoidance behavior of college females attempting a modified back dive. The self-efficacy model in this study predicted that self-efficacy was the major predictor of performance and that a reciprocal relationship existed between self-efficacy and back-diving performance. The anxiety-based model included related performance experience, self-reported anxiety, and physiological arousal as causal...
influences on back-diving performance. Self-efficacy was hypothesized as merely an effect.

The results provided little support for the complete network of relationships in either model. Self-efficacy was neither just an effect nor the only significant predictor of performance, although it was the major predictor of performance on the first of four diving attempts. Physiological arousal and past related accomplishments also predicted approach/avoidance behavior on the first trial. After trial 1, however, performance on a previous trial was the major predictor of performance on the next trial. In other words, regardless of what subjects thought they were capable of performing after the first diving attempt, once they stepped to the end of the diving board, their next attempt or avoidance of the dive was determined more by what they did on the previous trial. In accord with Bandura's theory, I found a reciprocal relationship between self-efficacy and performance, although they were not equally reciprocal. As subjects progressed over trials, performance became a stronger influence on self-efficacy than self-efficacy became on performance.

Because I found little support for the complete network of relationships in either the self-efficacy or the anxiety-based model, I proposed a revised model that included both self-efficacy and previous performance as direct predictors of back-diving performance. This revised model was later tested with two different sample populations and found to be supported in terms of its major predictions [31, 35].

McAuley [68] also examined the self-efficacy and anxiety-based models of the relationship of anxiety, self-efficacy, and performance on a gymnastics task and found similar results. Neither model fit the data, though the self-efficacy model provided a better fit than the anxiety-based model. Although these findings, together with mine, suggest that self-efficacy, as a common cognitive mechanism, cannot account for all behavioral change in motor performance, self-efficacy has been found consistently to be an important and necessary cognitive mechanism in explaining motor performance, especially in an initial performance attempt. Furthermore, as Bandura [5-7] notes, commonality of mechanism does not imply exclusivity of mechanism; other mechanisms may also influence behavior. He would conclude, therefore, that McAuley's and my results are not at odds with self-efficacy theory.

Perhaps self-efficacy may have more of an effect on performance under more variable conditions than those used in the preceding studies. Predicting repetitive performance under the invariant conditions of these studies may not be the most informative paradigm for testing the relative contributions of self-efficacy, anxiety, and performance. In most real-life sport situations, people perform with some variation in circumstances (e.g., different meets, different settings) and temporal intervals. Under such conditions, there may be greater leeway for efficacy judgments to exert an effect on subsequent trial attempts. However, there are also occasions in sport where short-term trials under relatively invariant conditions do exist (e.g., archery) and are important to examine in relation to self-efficacy.

Weinberg's research [89, 90, 92] has also attempted to demonstrate the causal influence of self-efficacy on motor performance through experimental manipulation of self-efficacy. However, Biglan [12] has criticized this approach as leading to an arbitrary interpretation of self-efficacy's relationship to performance. He points out that when environmental variables are manipulated in order to manipulate self-efficacy ratings, performance behavior or other factors are also affected. Environmental manipulations may influence some other variable (e.g., anxiety) that influences self-efficacy and performance without any causal role for self-efficacy. "Third variable" causes must be considered. Regression and path analysis have been used to control for the contribution of other possible factors, including anxiety [29, 68].

**Recovery and adherence efficacy.** More recently, researchers have begun to study the significance of self-efficacy in explaining success of recovery from myocardial infarction and adherence to exercise regimens [23, 25, 27, 54, 82]. In the area of cardiac rehabilitation, Ewart and his colleagues [27] showed that perceived physical efficacy in patients with coronary artery disease was strengthened by having them master increasing exercise intensities on the treadmill and using persuasive medical counseling. Self-efficacy was found to be a good predictor of patients' activity levels after they returned to their home environment. In a subsequent study [25], perceived physical efficacy was used to identify successfully, in advance, coronary artery disease patients who overexerted by exercising at intensities above the prescribed heart rate range, thereby putting themselves at risk. In addition, Taylor and his colleagues [82] demonstrated the importance of raising the spouse's efficacy level regarding the patient's capabilities. Spouses who believed that their partners had a robust heart were more likely to encourage them to resume an active life than those who believed that their partner's cardiac capability was severely reduced.

Researchers have also begun to investigate the influence of self-efficacy in predicting adherence to exercise regimens. Kaplan and his colleagues [54] found that perceived self-efficacy mediated exercise compliance in patients with chronic obstructive pulmonary disease. Desharnais and his colleagues [23] examined the ability of self-efficacy and outcome expectancy (potential benefits from regular exercise) to predict adherence to exercise in an 11-week physical fitness program. Although both efficacy and outcome expectations were significant predictors of exercise adherence, self-efficacy best distinguished adherers from dropouts. Potential dropouts displayed less certainty than adherers about their capacity to attend the program regularly at the outset and expected more benefits from their participation. Efficacy research in this area is just beginning, but it appears to show consistent results in
self-efficacy as a predictor of cardiac recovery and adherence to exercise.

**Criticisms of Self-Efficacy Theory.** Self-efficacy theory has been criticized for being so heavily based on self-report measures because of the demand and suggestion problems that may occur [14, 56]. However, Bandura [5] has presented evidence that in situations where individuals have no reason to distort their reports, self-reports can be quite representative of cognitions. Thus, efficacy judgments are best made when recorded privately. Weinberg et al. [92] compared public with private efficacy-expectation groups and found no differences between the two in terms of expectations or performance. Critics have suggested, however, that just making an efficacy statement, even privately, creates a demand or goal to match the performance with the efficacy judgment [12, 14]. Contrary to this presumption, Telch et al. [83] have shown that variation in social demand has little or no effect on congruence between self-efficacy and performance. If anything, social demand may encourage conservation and thus reduce the congruence between self-efficacy and performance.

Kazdin [56] has also criticized Bandura’s measure of self-efficacy for being so closely related to the actual performance task that it ensured high correlations. But one can also be assured of finding low correlations if there is little similarity between the efficacy measure and what people are asked to perform [2]. Moreover, Kazdin was concerned about the possible reactivity occurring when the self-efficacy measure and the behavior test are administered so closely in time. Again, Bandura [2] points out that if the interval between efficacy judgments and performance is too great, efficacy expectations may be changed in the interim.

Self-efficacy, as a construct, has even been questioned as to its necessity in explaining behavior by those with strong behavioristic views [12, 14, 28, 98]. These theorists have argued that environmental events such as anxiety response “habit” were the direct cause of both self-efficacy expectations and behavioral change. Eysenck [28] considered efficacy expectations, as well as any other cognitive determinant of behavior, as merely a by-product of conditioned responses: In describing the role of self-efficacy in athletic performance, therefore, Bandura would argue that successful performance and reduced competitive anxiety are determined primarily by an athlete’s self-efficacy expectations; by contrast, Eysenck and others would argue that an athlete’s high degree of self-efficacy is merely an effect of reduced anxiety and that this reduced anxiety is the major determinant of successful performance and self-efficacy.

However, path analysis studies have indicated that self-efficacy is not merely a by-product of conditioned anxiety [29, 68]. Indeed, evidence also shows that perceived self-efficacy accounts for a substantial amount of variance in behavior when anticipatory anxiety is controlled, whereas the relationship between anticipatory anxiety and behavior essentially disappears when perceived self-efficacy is partialled out [6]. Furthermore, a large body of evidence exists on the failure of conditioned anxiety responses to predict avoidance behavior [see 5].

On a related concern, Kirsch [60] has criticized the concept of “self-efficacy” as being merely old wine with a new label. He contends that self-efficacy is no different from Rotter’s [76] concept of “expectancy for success.” However, as Bandura [6] has countered, the label “expectancy for success” indicates an outcome expectancy. “Because self-percepts of efficacy are formed through acts of self-appraisal based on multidimensional information, perceived self-efficacy is more closely allied to the field of human judgment than to the subject of expectancy, which refers to an anticipation that something is likely to happen” [6, p. 362].

In summary, while some criticisms have focused on the methods by which self-efficacy ratings are made [12, 56, 59, 61], research on self-efficacy in numerous sport and physical activity settings has shown a consistent significant relationship between self-efficacy and performance. The studies that have been conducted to investigate the causal relationships in Bandura’s theory of athletic activities [29, 31, 35, 68] have been consistent in showing that performance factors and perceived self-efficacy are both needed to explain performance.

**Perceived Competence.**

“Perceived competence” and “perceived ability” are terms that have been limited in use to the achievement and mastery motivation literature and indicate the sense that one has the ability to master a task resulting from cumulative interactions with the environment [45, 72]. Harter [45] and Nicholls [72] have developed theories of achievement motivation incorporating the construct of perceived competence (or ability). Although both theoretical models are very similar in their predictions of perceived competence in achievement contexts, Nicholls uses attribution theory (a theory of causal judgment) to explain the cognitions involved in developing a sense of competence, whereas Harter bases her model on socialization and affective processes within a drive-theory to explain the development of a child’s sense of competence and subsequent behavior. These theories are not as well tested within the sport and physical activity areas as is self-efficacy theory, and where they have been employed, they have been used to explain participation motivation rather than specific task performance. Because Roberts [74] has described Nicholls’ model in detail and has reviewed that literature in an earlier volume, I will provide only a brief overview of the model in this section. In addition, cognitive evaluation theory [22] includes perceived competence as a mediator of intrinsic motivation. However, this area was reviewed in the preceding volume of this series [85] and will not be reviewed here.

The concept of competence, as a psychological construct mediating achievement behavior, was first introduced by White [96]. White proposed “effectance” motivation (a
Children who feel responsible for the outcome of their behavior attempt to engage in mastery attempts. Individuals engage in mastery behaviors in order to have an effect on their environment. Being effective (or competent) results in a feeling of efficacy and intrinsic pleasure. White's model did not lend itself readily to empirical investigation, however, because of its global nature and lack of operational definitions. Harter [45], therefore, refined and extended White's model and also developed measurement procedures to test its components empirically.

Harter did not view perceived competence as a global trait or a unitary construct, but rather as a multidimensional motive, having specific domains in the areas of physical, social, and cognitive concerns. Cognitive competence emphasizes school or academic performance; social competence is defined in terms of popularity with one's peers; and physical competence reflects perceived ability at sports and outdoor games. This view of perceived confidence is more specific than the one overall trait view, but is still more global than Bandura's [1] microanalytic conception and is drive oriented rather than self-perception oriented. Harter also focused on the implications of failure as well as success; reconceptualized success as including a condition of "optimal degree of challenge"; considered the role of socializing agents in maintaining, enhancing, or attenuating competence motivation through reinforcement and modeling patterns; considered the effects of reinforcement history on the development of a self-reward system and the internalization of mastery goals; and addressed the relative influence of intrinsic and extrinsic motivation orientations.

According to Harter's [45] model, children's mastery attempts in specific domains result in successes or failures and are evaluated by significant others. If the successes are optimally challenging, this leads to perceived competence and intrinsic pleasure. Approval by significant others also leads to perceived competence, but the need for this approval diminishes with age. Perceived competence and intrinsic pleasure lead to increased motivation to be competent. A history of failure results in perceived lack of competence and anxiety in mastery situations, and decreases children's motivation to continue mastery attempts. In addition, the need for external approval persists developmentally, rather than diminishing.

Harter [45] suggested that perception of control, as well as significant others' approval or disapproval of mastery attempts, influences a child's perceived competence. Children who feel responsible for the outcome of their mastery attempts have a positive sense of competence. When children either do not know who is in control or view powerful others as responsible for their performance, they have a negative or lower sense of competence.

Harter's model is intuitively appealing to the study of motivation in youth sports. From this model, one would predict that young athletes who perceive themselves to be highly competent in a sport, who are oriented toward mastery in sport, and who identify themselves as primarily responsible for their performance persist longer at the sport and maintain interest in mastering the skills. In contrast, those who perceive themselves to have low competence in sport, who are oriented toward extrinsic mastery, and who believe that others are responsible for their performance do not maintain task performance and interest.

Competence motivation theory differs from self-efficacy theory on the origins of perceived efficacy or competence [5]. In Harter's framework, children's competence motives develop gradually through prolonged transactions with their surroundings and evaluative reinforcement of others. In Bandura's social cognitive framework, perceived efficacy is derived from diverse sources of information conveyed vicariously, as well as through social evaluation and direct experience. In addition, Harter has operationalized perceived competence based on a developmental approach; therefore, the measurement of perceived competence is valid only for children. Although Bandura [5] has provided an explanation of the developmental differences in perceived efficacy, its measurement has not been based on a developmental approach.

Nicholls' [72] theoretical model also relates perceived competence (ability) to effectance motivation. Like Bandura [1] and Harter [45], Nicholls believes that perceived competence is the critical mediator of performance and persistence. In addition, the basic assumption of Nicholls' theory is that people are motivated by a desire to demonstrate and/or develop high ability and avoid demonstrating low ability. Nicholls also conceptualizes two types of ability: ego-involved ability and task ability. Individuals may view competence relative to their peers or relative to their past performances or gains in knowledge. As Duda [24] explained, Harter's theory focuses on how much competence individuals perceive themselves to possess and the corresponding relationship to behavior, whereas Nicholls' theory considers the meaning of ability or how it is construed in relation to performance and persistence in achievement settings.

In sport, an athlete's goal would be to maximize the subjective probability of attributing high ability to the self and minimize the subjective probability of attributing low ability to the self. As long as the athlete is able to make high ability attributions to the self in a sport situation, participation will continue. In contrast, the athlete who makes low ability attributions will discontinue participation in that sport to avoid the unpleasant affect associated with feelings of failure.

Both Harter's [45] and Nicholls' [72] models provide the same explanation for children's discontinuation of an activity such as a sport. Nicholls proposes that athletes who realize that they do not possess enough ability to be successful will drop out. Harter also proposes that when athletes have a low perceived physical competence they will withdraw because this perception produces feelings of failure, anxiety, and sadness.
Measurement of Perceived Competence and Perceived Ability. Harter [45] developed the Perceived Competence Scale for Children to measure perceived competence in children from grades 3 through 9. Harter and Pike [49] later extended this scale to pictorial versions appropriate for preschool-kindergarten and first-second grades. The original scale consists of 28 items, 7 in each of the three specific domains (cognitive, social, physical) and 7 that assess a child's general sense of self-worth. The structured alternative questionnaire format involves first asking the child to choose between one of two statements that was most descriptive of him or her as compared to other children of the same age. For instance, if the child must choose between "Some kids do very well at all kinds of sports, but others don't feel that they are very good when it comes to sports," After choosing one of the two statements, the child is asked whether the statement is "sort of" or "really" true for him or her. This questionnaire format was designed to reduce social desirability effects. Both responses are worded so that they are perceived as socially legitimate. Each item is scored on a four-point scale, with 4 indicating the highest degree of perceived competence and 1 indicating the lowest. The scores are typically summed and then averaged for each subscale. Harter [46] found that girls consistently rated themselves as less competent than boys in the sports domain. However, if subjects are instructed to use same-sex children as their comparison peer group, these differences are eliminated [95].

Harter [48] has recently developed the Self Perception Profile for Children, which is a revision of the Perceived Competence Scale for Children. The revised scale contains two additional subscales: physical appearance and behavioral conduct. These new subscales assess self-efficacy rather than perceived competence in the form of actual skills. Several items from the original subscales also underwent revision.

In the sport literature, the physical subscale of Harter's Perceived Competence Scale for Children has been predominantly employed [32, 36, 52, 75, 95], and a few studies have employed sport-specific modifications [15, 32, 53, 84, 95]. In one study [32], I modified Harter's perceived physical competence subscale to apply to soccer in order to compare players' more specific perceived soccer competence with their perceived physical competence in predicting players' actual soccer ability. The results indicated that the perceived soccer competence subscale had higher internal consistency and was slightly more predictive of soccer ability than perceived physical competence. However, these sport-specific assessments are more representative of perceived general capacity in a particular sport than of self-efficacy as assessed by the microanalytic approach advocated by Bandura [1].

Harter has also developed scales to measure the construct of perceived control [Multidimensional Measure of Children's Perceptions of Control, 17] and the construct of intrinsic versus extrinsic motivational orientations [Intrinsic Versus Extrinsic Orientation in the Classroom, 47]. Harter's motivational orientations scale pertains only to classroom motivation; a modified version has been adapted for sports [94].

Nicholls [72] has not addressed the issue of how to measure perceived ability. Researchers have typically used a one-item Likert-type scale in which subjects are asked to rate their own ability for a particular task [16]. This type of assessment appears to be more situationally specific than Harter's assessment tool.

Research in Sport and Physical Activity. Despite the intuitive appeal of competence motivation theory to youth sports, relatively little research has been conducted to test Harter's model in sport and physical activity settings. The studies that have been conducted have examined (a) the relationship between perceived physical competence and participation in organized sports, (b) the sources of competence information and significant others' feedback, and (c) the relationship of perceived competence to actual competence, in addition to scale construction efforts [32, 84, 94].

Based on Harter's model, individuals who perceive themselves to be competent in sports should be more likely to participate, while those low in perceived physical competence should be more likely not to participate or to discontinue participation. A few studies in the area of youth sports have examined this hypothesis in terms of participant status [36, 63, 64, 75, 84]. These investigators found that older youth sport participants (9- to 11-year-olds) were higher in perceived physical competence than same-age nonparticipants [75] but not higher than younger participants [5- to 9-year-olds] [84]. Interschool sport participants [36] and youth wrestlers [16] were found to be higher in perceived physical competence than dropouts, but elite young gymnasts did not differ in perceived physical competence compared to former gymnasts in the same program [63]. The fact that the former elite gymnasts had all experienced some degree of success may explain these contradictory findings. If former and current elite gymnasts are comparing perceptions of their own competence to those of other same-aged children in general, the scale is probably not sensitive enough to discern any differences.

As Klint and Weiss [64] have noted, the investigations just reported were based on the assumption that children participate in sports to demonstrate physical competence. However, children who have low perceptions of their physical competence may still participate in sports for affiliative reasons or to demonstrate social competence [84]. Klint and Weiss examined the relationship between perceptions of competence and particular motives for sport participation and found support for this assumption. Children high in perceived physical competence were more motivated to participate for affiliative reasons, whereas those high in perceived social competence were more motivated to participate for the affiliative reasons. These results suggest that researchers should not assume that participation in
an activity is due to a certain type of competence motivation or achievement goal.

Harter’s model also suggests that the more experience a child has with a sport, the more opportunity that child has to develop a sense of perceived physical competence. Of course, mere participation in sports does not guarantee that a child will have a high sense of physical competence. The degree to which a child has been successful over the sport experience will have a greater influence on his or her perceived competence than will length of involvement. However, the longer a child has been involved in a sport, the more likely he or she has had more successful mastery experiences. Continual failures usually lead to discouragement.

Sport research has not supported this contention, however [32, 36, 75]. Only low [32, 36] or nonsignificant [75] relationships were found between years of playing experience and perceived physical competence. Roberts and his colleagues [75] suggested that the experience of sport participation may not influence children’s perceptions of competence; rather, children with a higher perception of competence may select a sport as an activity to demonstrate their abilities. An alternative explanation for the low relationship found may lie in the questionnaire format used to measure perceived competence. Harter’s questionnaire is constructed to measure perceived competence relative to one’s peers rather than relative to one’s own past performances. As children become older and gain more playing experience, their comparison peers change. Thus, they may not view themselves as becoming more competent in comparison to their peers as they gain playing experience, or more competent in absolute terms, because their peers are gaining competence, too. In fact, Ulrich [84] found that as children’s age increased, perceived physical competence decreased while actual motor competence increased.

Harter [45] has not specified the sources of information available to children for making judgments about their competence to the same extent as Bandura [1]. Positive reinforcement or approval for independent mastery attempts from adults and optimal challenge plus success are the only two sources specified in the model. Horn and Hasbrook [53] examined what sources of competence information that children use in sport. They found younger children (8–11 years) tended to rate evaluative feedback from parents and game outcome (winning/losing) as more important sources of information about their competence than did older children (12–14 years), who rated social comparison sources as more important. However, adult feedback, especially from coaches, has been shown to be still influential in adolescent athletes’ perceived physical competence [52].

Actual sports competence or sports achievement should likewise be a source of competence information, and studies have found significant relationships between perceived physical (or sport-specific) competence and actual skill [32, 52, 84, 95]. Weiss and her colleagues [95] predicted, however, that perceived competence was causally predominant over sports achievement and tested this assumption using causal modeling techniques. They also examined the interrelationships among Harter’s constructs of perceived competence, perceived control, and motivational orientation. The results showed that perceptions of competence in sport causally influenced sports achievement and motivational orientation. Perceived control also influenced achievement and motivational orientation, as predicted.

These results do not mean that other competing models may not also fit the data equally well. Whether sports achievement causally influences perceived competence or whether there is a reciprocal relationship, as Bandura [1] would contend, must await additional research. This study was an important step, however, in determining the causal relationships among the constructs of perceived competence, perceived controls, motivational orientation, and actual achievement in the sport domain.

**Criticalisms of Competence Motivation.** As with self-efficacy assessments, perceived competence is based on self-report and thus could suffer from demand and suggestion problems. Harter’s [45] structured alternative format has reduced the likelihood of social desirability effects, however, and is regarded as a great advance in the measurement of children’s self-confidence [62]. Nevertheless, as previously stated, the trait nature of the measurement reduces its predictive accuracy in relation to performance [5–7]. Sport researchers have used sport-specific measures to try to increase the predictive power of their tests [15, 53, 95], but some have still found this type of modification not to be specific enough [15].

The measurement of perceived competence has also been criticized for not taking the contextual factors of performance situations into account [5, 24]. For instance, children’s perceived competence in a sport may change depending on the environmental pressure to compete, the competitiveness of the sport organization, or the peers with which children are comparing themselves [63]. Duda [24], therefore, has advocated more examination of children’s perceived competence in actual sport and physical activity situations. The measurement of self-efficacy, on the other hand, involves a relational judgment between perceived capabilities and different task demands (e.g., can one jump 3 ft, 6 ft, 9 ft?) and thus builds contextual factors into the measurement format.

Bandura [5] has also criticized competence motivation conceptually as being difficult to verify because the motive is inferred from the mastery behavior it supposedly causes. One cannot tell, as Bandura points out, whether individuals engage in mastery behavior because of a competence motive to do so or for any number of other reasons without an independent measure of motive strength.

In summary, Harter’s theory is developmentally oriented and thus well suited for studying children’s competence motivation in sport. It is also trait oriented in its conception,
even though the perceived competence construct is viewed as a multidimensional motive rather than as a global trait or unitary construct. Unfortunately, because perceived competence has been measured as a trait, the contextual factors of performance situations have not been considered and the research on perceived competence in youth sports has not been as consistent as the research on self-efficacy.

Sport Confidence

Vealey [87] was dissatisfied with the way self-efficacy and self-confidence had been operationalized in countless ways for every sport situation studied and noted that Harter’s model of perceived competence was limited to children. Therefore, she developed a model and instrumentation for sport confidence (the belief in one’s ability to be successful in sport) in an attempt to provide a parsimonious operationalization of self-confidence in sport situations. According to Vealey, this model and instrumentation allow for more consistent predictions of behaviors across different sport situations. Borrowing heavily from Nicholls’ and Bandura’s theories, she developed an interactional, sport-specific model of self-confidence in which sport confidence is conceptualized into trait (SC-trait) and state (SC-state) components, and also includes a competitive orientation construct to account for individual differences in defining success in sport.

SC-trait represents the perceptions that individuals usually possess about their ability to be successful in sport; SC-state represents the perceptions individuals have at a particular moment about their ability to be successful in sport. However, based on Nicholls’ belief that success means different things to different individuals, Vealey recognized a need to include in her model a construct, competitive orientation, as a way to operationalize success. Competitive orientation is a dispositional construct that indicates one’s tendency to strive toward achieving a certain type of goal in sport that will demonstrate competence and success. Vealey selected (a) performing well and (b) winning as the goals upon which competitive orientations are based. Performing well is similar in conceptualization to Nicholls’ task ability orientation, and winning is similar to his ego-involved ability concept. Even though athletes may pursue both of these goals, through successive sport experiences they may become performance oriented or outcome oriented [87].

Although competitive orientation is not considered a primary construct in the model, both SC-trait and competitive orientation are predicted to influence how athletes perceive factors within an objective sport situation and how they respond with certain SC-state levels. Specifically, SC-state is hypothesized to be positively related to SC-trait and performance orientation and negatively related to outcome orientation. SC-state, in turn, is predicted to be the most important mediator of behavior.

SC-trait and competitive orientation are predicted to influence and be influenced by subjective outcomes. Vealey [87] has used causal attributions for performance, perceived past success, perceived performance rating, and performance satisfaction as measures of subjective outcomes. Performance satisfaction would be what Bandura [5] considers an outcome expectation. SC-trait and performance orientation are hypothesized to be positively related to internal attributions for performance, performance rating, performance satisfaction, and perceived success.

Measurement of Sport Confidence. Vealey [87] developed three instruments to test the relationships represented in her conceptual model: (a) the Trait Sport-Confidence Inventory (TSCI), (b) the State Sport-Confidence Inventory (SSCI), and (c) the Competitive Orientation Inventory (COI). Both the TSCI and SSCI use a five-point Likert scale for respondents to compare their own self-confidence with the most self-confident athlete they know. Similarly to Bandura [5], Vealey considered the conceptual areas of competence deemed important to sport performance in developing the TSCI and SSCI instruments. Besides physical ability, she noted [86] that abilities such as performing under pressure and being able to make critical decisions were also necessary competencies for success in sport. However, unlike Bandura’s measurement of self-efficacy, Vealey considered the competency areas of sport in general in measuring sport confidence rather than conducting a conceptual analysis of each sport under investigation.

One might argue that because one of the dimensions of self-efficacy is generality, some measure of sport, athletic, or exercise self-confidence is warranted to assess how efficacy cognitions can be predictive of action across similar athletic activities. Bandura [6] points out, however, that the use of domain-linked efficacy scales does not mean that one cannot assess generality of perceived capability. He states that “one can derive the degree of generality from multidomain scales, but one cannot extract the patterning of perceived self-efficacy from conglomerate omnibus tests” [6, p. 372].

Researchers interested in sport confidence have also used the Competitive State Anxiety Inventory-2 (CSAI-2) [67] to measure self-confidence in sport situations. In the CSAI-2, self-confidence is viewed as a separate subcomponent of anxiety in addition to cognitive and perceived somatic anxiety. Specifically, self-confidence is thought of as the conceptual opposite of cognitive anxiety. This is in opposition to Bandura’s [4] view of self-efficacy, which does not include anxiety in either the definition or the measuring devices. Just because three factors were found in a factor analysis does not mean that confidence is a subcomponent of anxiety or that anxiety is a subcomponent of confidence.

No consistent pattern of results has emerged from using the CSAI-2 measure of self-confidence to predict performance [39, 67, 69]. Gould and his colleagues [38] used an intrapersonal analysis in an attempt to correct for the previous inconsistent findings and still did not find
the predicted positive relationship between self-confidence and performance. These findings are in accord with a growing body of evidence that the convenience gained by trait approaches is at the cost of explanatory and predictive power [5, 6].

**Research on the Sport Confidence Model.** The only published research on the sport confidence model has been Vealey’s own preliminary investigation and instrument development [87]. Her validation procedures included five phases of data collection involving 666 high school, college, and adult athletes. The TSCI, SSCI, and COI instruments demonstrated adequate item discrimination, internal consistency, test-retest reliability, content validity, and concurrent validity.

Vealey tested the construct validity of her model using 48 elite gymnasts who were participating in a national meet. The only results that supported her model were that SC-trait and competitive orientation were significant predictors of SC-state as well as of several subjective outcomes. Contrary to her model, precompetition SC-state did not predict performance, nor did a significant correlation emerge between performance and SC-trait. However, performance did predict postcompetition SC-state.

The explanations Vealey provided for SC-state’s inability to predict performance were the elite nature of the sample, the importance of this particular competition, and the structure of the competition, which lasted for 2 days. The elite sample, as one might suspect, was very homogeneous and high in reported self-confidence. Vealey proposed that these athletes would not admit to feelings of diffidence. However, using a small and homogeneous sample, whether high or low in ability, makes it difficult to find any predictive relationships. A more heterogeneous group would have provided a better sample with which to test the hypothesized relationships within the model of sport confidence. The facts that the competition lasted for 2 days, and that sport confidence could not be assessed immediately prior to and throughout the competition, also made it difficult to get accurate assessments of SC-state.

Vealey [86] also suggested that perhaps sport performance is too complex to be predicted by SC-state. This is a very important point that sport psychology researchers sometimes fail to recognize in their attempts to explain sport performance solely by psychological variables [30]. In addition, as mentioned earlier, Bandura [1] contends that self-efficacy or confidence affects the choice of activities, effort expenditure, persistence in a given activity, and vulnerability to stress and depression. Competitive sport performance, however, includes more than approach/avoidance behavior, effort expenditure, and persistence; it also includes skills. Those researchers in sport and exercise who have measured self-confidence in terms of how it has influenced the performance behaviors outlined by Bandura have found significant relationships [23, 25–27, 29, 34, 65, 89, 90].

**Criticisms of Sport Confidence.** Vealey’s measurement confidence represents an improvement over the physical self-efficacy scale [77] and Harter’s physical subscale in that it assesses the generative capabilities necessary for successful performance in most sport situations. However, it does not consider specific sport contexts or assessments of those contexts in the microanalytic approach that will produce the most predictive power. For instance, in ice hockey, an important area of self-confidence is one’s perceived ability in making power plays (scoring when the opponents are short-handed). Power play behavior can be assessed directly, which provides a measure that is especially relevant to the behavior being analyzed. As stated previously, measures that are tailored to the domain of functioning being studied have greater predictive power than general trait measures.

Also, in regard to the measurement of sport confidence, Vealey does not provide a rationale for instructing respondents to compare their self-confidence to that of the most self-confident athlete they know. Since people differ in terms of the athletes they know, such a rating procedure can create considerable unsystematic variance. Subjects could appear high or low in confidence, depending on whom they happen to select for comparison. Should the comparison athlete be one the respondent knows personally or a professional that the respondent reads about in the newspaper? Perhaps less variable results would occur if respondents were instructed to make comparisons to an age- and gender-appropriate athlete in terms of sport confidence.

The necessity for including SC-trait in the sport confidence model could be questioned, since the only variable it predicts is SC-state and is therefore redundant. Determining the important sources of SC-state may be more fruitful than assessing athletes’ dispositional self-confidence.

In addition, inclusion of the concept of competitive orientation could be called into question. Vealey included the construct of competitive orientation in the model as a way to operationalize individual perceptions of success. However, how one perceives success in one situation may be different from how one perceives it in another. The definition of success may be situationally specific. In using the self-efficacy measurement approach, the questions can be structured to assess comparative confidence (how confident are you that you can beat your opponent?) and/or individual performance-oriented confidence (how confident are you that you can improve your last performance?). A dispositional competitive orientation is not needed.

To test fully the network of relationships hypothesized in the sport confidence model, a path analysis or causal modeling should have been conducted; however, this would have necessitated a larger sample. This type of analysis would better test the necessity for including SC-trait and competitive orientation in the model. In addition, even without a path analysis, a larger sample size is needed for any multivariate analysis.
Movement Confidence

Another model specific to sport and motor performance, one concerning movement confidence, was developed by Griffin and Keogh [42] to describe the feeling of adequacy in a movement situation as both a personal consequence and a mediator in that situation. This model is similar to the models previously reviewed. Griffin and Keogh claim, however, that their model expands these models to include evaluations that an individual makes of sensory experiences directly related to moving. Movement confidence is viewed as a consequence of this evaluation process, which then in turn mediates participation in a movement situation.

Movement confidence, as a consequence, involves the evaluation of a two-factor personal assessment: movement competence (MOVCOMP) and movement sense (MOVSENSE). MOVCOMP is an individual's perception of personal skill in relation to task demands, and MOVSENSE is an individual's personal expectations of sensory experiences related to moving. These sensory experiences can include muscle aches, breathing hard, sensing of speed, pain of injury, etc. Griffin and Keogh categorize these sensory experiences into two components: personal enjoyment of expected moving sensations and perceived potential for physical harm. Perceived movement competence and perceived movement sense thus interact to produce a sense or state of movement confidence.

Movement confidence as a mediator functions to influence participation choice, participation performance, and participation persistence in a fashion similar to that proposed by Bandura [1]. Participation, in turn, provides information that is added to an individual's experiences for future use in the personal evaluation process.

Measurement of Movement Confidence. Griffin and Keogh recognized that the difficulty of measuring movement confidence would be in measuring perceived movement competence, personal enjoyment of expected moving sensations, and perceived potential for physical harm as entities separate from each other and separate from movement confidence. They developed a Movement Confidence Inventory [43] in an attempt to identify these components as separate entities and as varying in their contribution to perceived levels of movement confidence. The inventory requires three different ratings to be made for any movement task: level of experience, level of confidence in performing the task, and extent to which each of 22 paired descriptor words (e.g., “safe/dangerous”) contributes to one's perceived level of movement confidence. The descriptor words were organized into the three confidence components of competence, enjoyment, and physical harm. Unfortunately, factor analysis of the descriptor words did not reveal three factors organized around the three confidence components, rather, there were simply items loading on one factor, with the partner or opposite word loading on the second factor (e.g., “difficult/easy”) [43].

The Movement Confidence Inventory does not provide an external criterion of movement confidence, which Griffin and Keogh [42] indicate is a difficult matter to resolve. One possibility they suggested is to identify observable behavioral manifestations of movement confidence. However, using behavior to measure self-beliefs would entangle one in hopeless circularity. Still, Keogh et al. [58] attempted to develop such an observational measure and appeared to end up measuring behavioral manifestations of fear rather than confidence. For instance, they identified behaviors such as shuffling feet, hesitation, reaching for support, and looking excessively at the instructor. Behavioral indicators of positive levels of movement confidence were much more difficult to observe. Bandura [1] would conceptualize these behavioral manifestations as anxiety or fear co-effects of avoidance behavior resulting from perceived inefficacy. Thus, there would be no fixed relationship between anxiety and actions. In fact, Keogh and his colleagues [58] found that some of the subjects who displayed these anxious behaviors were still able to perform adequately.

Criticisms of Movement Confidence. The only research conducted on movement confidence has been in instrumentation development. No research support for the model has been provided. The one study that tried to identify movement competence, personal enjoyment of expected moving sensations, and perceived potential for physical harm as separate entities failed to do so [43].

On conceptual grounds, I see no need for this model in studying self-confidence in movement situations that could not be studied within Bandura’s [1] theoretical framework of self-efficacy. Griffin and Keogh [42] believe that movement sense is the unique component that differentiates their model from other conceptions of self-confidence. However, in Bandura’s model, expected sensory experiences are implied as a source of confidence information via physiological states. The personal enjoyment of such sensations appears to have more to do with having the incentive to perform the task than it does with having confidence. An increase in enjoyment may increase approach behavior and persistence, but not confidence in one’s ability to perform the task more proficiently. In addition, perceived potential for physical harm may be viewed as part of the perceived task demands or task difficulty within Bandura’s framework.

Summary and Comparison of Approaches

Self-efficacy theory [1], competence motivation theory [45], and the models of sport confidence [87] and movement confidence [42] have been reviewed in this chapter. All of these models view self-confidence as a critical mediator of motivation and behavior but differ on the origins of self-confidence and how it is measured.

Bandura [1] views self-confidence as specific to particular domains of functioning and as being derived from the cognitive appraisal of diverse sources of information,
including enactive and vicarious experiences, social influences, and physiological information. A microanalytic procedure requiring a conceptual analysis of the required generative competencies for a given performance task is used and offers the most predictive power in explaining behavior. On the other hand, in Harter's [45] developmental framework, which is confined to children, self-confidence develops gradually through prolonged transactions with one's surroundings and evaluation reinforcement of others, and is considered to have a multidimensional trait orientation. Harter's measurement of the construct is psychometrically sound and derived from developmental theory, but it does not consider contextual factors within specific performance situations. Her measure also forces the child to assess self-confidence in relation to peers when, according to Nicholls [72] and evidence from sport research [53], the process by which children judge their capabilities changes with age.

Given Bandura's situationally specific model and Harter's developmental model, the models of sport confidence [87] and movement confidence [42] seem unwarranted for studying self-confidence in sport. Vealey's [87] constructs of trait sport confidence and competitive orientation, from which situational sport confidence is derived, do not add any new conceptual dimensions. Furthermore, the comparison "to the most confident athlete you know," used in the measurement of sport confidence, creates considerable unsystematic variance and thus does not provide the parsimonious operationalization of self-confidence that was intended. Regardless of the countless ways that self-confidence (or self-efficacy) has been operationalized for every sport situation studied, the results have been very consistent in finding situationally specific self-confidence to be significantly related to performance.

The research from the sport literature provides clear evidence that a significant relationship exists between self-confidence and performance. This evidence spans different tasks, measures of self-confidence, and major theoretical paradigms [1, 45]. In terms of causal interactions between self-confidence and performance, evidence from sport shows that self-confidence is both an effect and a cause in relation to performance [29, 31, 35, 68]. However, in the athletic domain, other factors, such as prior performance and behavior [29, 32, 35, 68], are also instrumental in influencing performance. Self-confidence, if considered as a common mechanism mediating behavior, should not be expected to fully explain human behavior [4], particularly the complex behavior of sport performance [86].

**Conclusion**

This chapter has compared the major theoretical frameworks used to examine self-confidence in sport and physical activity settings. Both Bandura's model and Harter's model (for studying motivational behavior in youth sports) appear to be viable theoretical frameworks in which to study self-confidence in sport, even though modifications will be required to explain the complex nature of sport performance. Variables such as previous performance, affective self-evaluation, goal setting, and physiological states (e.g., mood or fitness) may exert a direct influence on sport performance. In studying competence motivation in children, situational variables may need to be given greater consideration. The inclusion of these additional determinants should increase the amount of variance in athletic performance that can be explained as, was the case in my model on diving performance [29, 31, 35].

Much of the sport research has examined self-confidence in relation to actual sport performance in terms of skill rather than in terms of the motivational behavior actually specified by the theories, such as persistence or mastery attempts, choice of activities or skills, and effort expended. These behaviors are certainly contributors to skillful performance and should be given more attention in the study of self-confidence in sport.

Other areas that deserve attention in Bandura's model are the generalizability of self-confidence in terms of the number of domains of functioning within a sport (e.g., types of shots in golf) or within exercise, the nonmovement domains of confidence required in exercise and sport (e.g., psychological skills), how people process multidimensional confidence information, the study of self-confidence across a number of situations (e.g., over the course of a season), and the study of team confidence in relation to self-confidence. In terms of the generality of self-confidence, examination of the relative contributions of generality, level, and strength to overall performance would help determine where to focus intervention studies. In the nonmovement aspects of self-confidence, belief in control over one's intrusive thoughts, for instance, may be an important confidence component in the area of exercise behavior and sport performance. Bandura [5] proposes that self-confidence influences thought patterns, as well as behavior, and research has demonstrated its applicability in anxiety-provoking situations [57].

Scant research has been conducted on how people process multidimensional confidence information [5]. The importance of different types of information may vary across different types of activities and situations. In some sport and exercise situations, physiological information may be a more pertinent source of confidence information than previous performance. In processing multidimensional information, people may misjudge or ignore relevant information in trying to integrate it [5]. Results from this research may also have implications for the type and amount of confidence information provided to sport performers and exercise patients.

As mentioned earlier in this chapter, in many real-life sport situations, people perform with some variation in circumstances (e.g., different competitions) and temporal intervals. Studying confidence judgments across a number of competitions or situations may be the most informative para-
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...digm for testing the relative contribution of self-confidence, performance, and other possible mediating variables.

All of the studies cited in this chapter have examined self-confidence in relation to individual athletic or exercise performance. In team sports, however, many of the challenges and difficulties athletes face reflect team problems requiring sustained team efforts to produce successful performance. Drawing from Bandura's [5] concept of collective efficacy, perceived team confidence should influence what athletes choose to do as a team, how much effort they put into it, and their staying power when team efforts fail to produce results. Confidence in one's team to be able to produce the required performance may be just as important as confidence in oneself. Similarly, coaches' perceived efficacy may have an important impact on team performance. Evidence that managerial self-efficacy affects organizational performance is especially relevant to this issue [100, 101].

Finally, in Harter's model, attention should be directed to examining children's self-confidence in actual sport and physical activity situations [24]. Bandura's concept of situationally specific self-confidence could be examined in relation to children's perceived physical competence. This interactional strategy may provide more power in explaining children's sport competence motivation.

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