CHAPTER 1

Understanding Functional and Dysfunctional Human Performance: The Integrative Model of Human Performance

It can probably be stated that experts rule the world. At the very least, they typically garner high levels of respect, make forward-thinking decisions, have valued opinions, and gain praise for their admirable achievements. Indeed, everyone cannot achieve this honorable status. Just one step below the expert lie numerous talented individuals who act as the expert's support system, carrying out those activities that allow the expert to maintain peak success. But why do so many people plateau just below the expert level, striving to become true experts but only warranting terms such as *talented, great,* a *go-getter,* and *valuable*? Is there really such a difference in the technical skills and abilities of the expert and the *valuable* coworker, teammate, or associate?

As a complex human activity, multiple factors—both internal and external—are intricately tied to understanding, predicting, and enhancing human performance. As such, it is not reasonable to focus on any one activity, mechanism, or variable as being responsible for all the internal and external concerns that enhance or impede human performance. This chapter and the intervention protocol that follows seek to better understand and, in turn, ultimately influence human performance through understanding how internal processes interact with external demands.

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Naturally, many factors determine the effectiveness of human performance. The myriad of factors contributing to functional as well as dysfunctional human performance can be summarized as follows:

- **Instrumental competencies:** These include an individual's specific physical/sensorimotor and/or cognitive skills and abilities.
- **Environmental stimuli and performance demands:** These include the work, competitive, interpersonal, situational, and organizational circumstances, issues, and challenges that the performer must face.
- **Dispositional characteristics:** These include intrapersonal (i.e., within-person) characteristics such as coping styles (approach/avoidance), and cognitive-affective schemas, which are the psychological templates by which the performer perceives, interprets, and responds to explicit and implicit performance stimuli and demands.
- **Behavioral self-regulation:** This includes interconnected cognitive, affective, physiological, and behavioral processes that are the foundation of goal-directed behavior within any performance domain.

When these four components are appropriately aligned, what results is an ideal performance state (Hardy, Jones, & Gould, 1996). Several authors have discussed the concept of an ideal performance state using varying terminology. Csikszentmihalyi (1975) described this state, characterized by automatic, effortless attention to task, as "flow," while Gould and Udry (1994), in their description of necessary factors for creating an ideal performance state, used the term "recipe of emotions." Finally, Hanin (1980) used the phrase "zone of optimal functioning" to describe the idiographic arousal state necessary for optimal performance. All of these terms suggest that underlying elite levels of human performance is an optimal biopsychosocial state that promotes and sustains automated, task-focused, goal-directed behavior. In essence, the right combination of cognitive, affective, and physiological conditions allows well-learned skills to occur in a seemingly effortless and automatic manner. This chapter focuses on how this occurs and on what processes promote or interfere with optimal performance.

The model of functional and dysfunctional human performance presented here involves three broad yet interactive phases. When we originally created the model, we called it the Integrative Model of Athletic Performance (IMAP), because it was first designed to highlight the processes by which athletes attain and maintain optimal performance states. The model has since been expanded to aid in the understanding of other high

performance domains as well. Thus, we altered the term from IMAP to the Integrative Model of Human Performance (IMHP). Nonetheless, the three interactive phases remain the same. First, the *preperformance phase* involves internal and external demands and processes that promote readiness for competitive or performance-related behavior and, as such, involves factors that are present prior to actual performance. The *performance phase* involves the interaction of cognitive, affective, physiological, and behavioral processes during performance, including skill execution. The *postperformance response phase* involves responses to performance outcomes, and is present following competitive performance.

PREPERFORMANCE PHASE

Regardless of the performance area, performers of all types possess an array of specific skills and personal abilities, and these skills and abilities are likely to differ based on age, competitive/work level, and type of activity. Yet an individual's level of performance is not simply based on whether the individual possesses the right combination of traits, physical capacity, and skill sets. If that were the case, many more people would be considered experts, and the term *expert* would not evoke such respect and admiration. In addition to physical skills and personal abilities, the performer is also impacted by internal dispositional characteristics, environmental stimuli, and performance demands.

Dispositional Characteristics

Dispositional characteristics are the template for the assimilation and accommodation of environmental stimuli. In this regard, the professional literature in both clinical and cognitive psychology suggests that individuals develop an interactive pattern of self and other mental schemas (internal rule systems) as cognitive representations of the self and its relation to the world based on repeated life experiences (Safran & Segal, 1990). These internal representations are implicit cognitive structures that influence the performer's allocation of attention to stimuli that are perceived as either physically or psychologically dangerous. Schemas serve as a basis for understanding the world, controlling emotional responses, and maintaining interpersonal relatedness. In essence, schemas serve as personal radar from which an individual scans for possible (psychological) threat, which results in learned patterns of cognitive, affective, and behavioral responses to the world.

Of course, all individuals develop some verbal/linguistic representations based on their personal learning histories. The development of such

rule systems and ways of viewing the world greatly helps people organize information and make sense of new material and experiences. In this regard, schemas can be quite necessary and adaptive. On the other hand, some individuals develop more strongly held and problematic schematic representations due to more challenging or chronic learning histories. For such persons, behavior will frequently be guided more by these relatively inflexible verbal networks than by environmental realities and the contingencies in their world. As a result, and again based largely on the individual's previous learning experiences, attentional biases related to these schemas develop as the individual misclassifies innocuous stimuli in the environment (Teachman & Woody, 2004). This leads such individuals to act in ways that are inconsistent with the demands of their environment, and such persons may even act against their chosen values and goals. Simply put, in these circumstances, behavior is directed more by the individual's internal processes (cognitions, affect, and physiological sensations) than by environmental needs and consequences. For instance, the individual may choose behaviors aimed at reducing how bad one feels, rather than choosing to engage in more functional behaviors that promote the individual's overall best interest.

Rigid behavioral patterns associated with these internal processes are often referred to as *rule-governed behaviors*. In such circumstances, behavior is governed by rigid internal rules rather than by the needs and necessities of the environment. Self-defeating response patterns may result, as the psychological self-protective function (i.e., avoidance of emotional discomfort) of these schemas often occurs at the expense of more functional behavior, such as acting in the service of one's goals and values. As a more complex example, consider an individual who would like to develop intimate relationships with others but, because of a difficult personal history, has developed a rule system suggesting that relationships are likely to result in pain. This individual is likely to manifest a behavioral pattern of interpersonal avoidance and thus not easily achieve the valued goal of being in a rewarding relationship.

What does this have to do with expert performers or those seeking to attain consistent optimal performance levels? In the context of human performance, the personal meaning and importance the individual places on his or her own performance help form an organizing system by which he or she evaluates, interprets, and responds to the competitive world; and, clearly, how one perceives the environment and the behavioral choices made in response to such perceptions and interpretations significantly contribute to one's success. Of additional importance, if this personal organizing system is combined with a genetic/biological predisposition to experience emotion in a more or less intense manner (often termed *negative affect syndrome* or *neuroticism* by theorists (Barlow, Allen, & Choate,

2004), the result may be an even greater tendency to interpret threat and danger, and may subsequently lead to increased behavioral restriction and distance from perceived (or misperceived) threat.

Environmental Stimuli

Dispositional characteristics make up the essence of the individual and can therefore be viewed as setting the stage for how an individual interprets and responds to the external demands and environmental stimuli of one's competitive situation. We define environmental stimuli as those external factors that the performer confronts both in and out of competition. Personal and professional relationships, organizational/corporate realities and demands, physical and psychological aspects of training and competition (travel, time commitments, etc.), financial pressures, career stage, and physical strain and injury all have stimulus properties that a performer may respond to based on personal learning histories. These are but some of the factors that the high-level performer must successfully confront in order to consistently function at optimal levels.

Performance Demands

In addition to the vast array of environmental challenges and stressors that performers must face, successful individuals are also typically pressured to meet the performance demands and standards set by themselves and others. We define performance demands as the specific cues and general requirements necessary to perform under conditions in which the individual is challenged to achieve *at* or *above* an established standard. While established performance standards vary depending on level and domain (i.e., recreational, collegiate, Olympic, or professional athletes; type of business and type of position held), all levels within each performance domain explicitly and implicitly establish a number of required performance standards.

Why is understanding all of this so important? The interaction of performance-specific skills, dispositional characteristics, environmental stimuli, and performance demands are the precursors for active engagement in actual performance, and this interaction is the context for optimal behavior self-regulation *during* performance endeavors. It is in this context that one's early learning histories, the adaptive and maladaptive verbal rules (schemas) developing from these histories, and the behavioral patterns that follow from these rules can result in either functional performance based on an effective self-regulatory process or dysfunctional performance through the disruption of the self-regulatory process.

PERFORMANCE PHASE

With dispositional characteristics (developed from one's learning history), environmental stimuli, and performance demands in place, the individual performer will experience some degree of physiological arousal and cognitive activity related to his or her performance (and performance evaluation) when confronted with a performance situation. Optimally, individuals will metacognitively (automatically) attend to relevant aspects of their own behavior and systematically utilize reference points to evaluate and adjust their behavior to meet established standards. This process is often referred to as *discrepancy adjustment* (Carver & Scheier, 1988; Wells, 2000). This process of discrepancy adjustment is somewhat analogous to the cruise control mechanism in a motor vehicle. The vehicle notes changes in road conditions and adjusts the speed accordingly to maintain a predetermined desired speed. From a human performance perspective, an individual will note personal cues and cues in the environment and make performance adjustments to attain or maintain a predetermined performance standard.

Yet to engage in discrepancy adjustment during a performance-related task, the individual must self-monitor (attend to) his or her own behavior to determine how it conforms to these preset standards. In all areas of human performance—whether performing surgery, tackling an opponent, or performing in a recital—slight adjustments to one's behavior will occur even if the individual is not fully aware of the adjustment. Similar to the cruise control example, these relevant behaviors will be slightly adjusted in a seemingly automated, metacognitive manner, with the intent to meet preset performance standards (Carver & Scheier, 1988; Sbrocco & Barlow, 1996). Failure to correctly read the demands of the performance situation and appropriately evaluate one's current level of performance will result in failure to make necessary personal adjustments and maintain an effective performance state. Thus, the metacognitive process of self-monitoring, self-evaluation, and corrective action is central to effective behavioral self-regulation and, ultimately, task execution. Although this process may sound daunting, it typically occurs naturally and operates smoothly and automatically for most individuals, thereby leading to generally stable functional performance.

However, for many individuals, performance schemas and environmental disruptions confound this process by creating unreasonable standards or altering existing skill sets. For example, the perfectionist performer with unrelenting performance standards will compare her real or perceived performance with unrealistic and possibly unattainable standards and is thus unable to engage in adaptive discrepancy adjustment. If the presence of rigid preexisting schemas is added to the situation, the performer is unlikely

to be amenable to a logical analysis of her exaggerated standards. Similarly, a recently injured athlete whose skill level has temporarily been altered may be unable to make necessary corrective adjustments and may respond with a dysfunctional spiral. In each of these examples, as with all self-regulatory disruption (Sbrocco & Barlow, 1996), there is a deleterious shift from effective behavioral self-regulation based on subtle metacognitive and automatic processes, to a greater utilization of the controlled, effortful verbal-linguistic cognitive processes that often interrupt effective performance. In essence, when the process is automatic, the individual is able to remain essentially task-focused, and when the process becomes overly cognitive, the result is excessive self-focused attention.

Of particular importance is the degree to which the performer shifts from task-focused attention to self-focused attention. Of course, to engage in the naturally occurring self-adjustment process noted above, one *must* focus on the self to some degree. However, the performer exhibiting functional performance experiences a nonjudging, metacognitive mindful absorption in the task, whereas an individual experiencing dysfunctional performance typically focuses on inflexible rule systems (i.e., thoughts about what he or she can or cannot do, should or should not do, etc.), perceived deficits, self-doubts, efforts to control thoughts and emotions, and ramifications of possible failure. During these periods, less attention is placed on the environment (task-focused attention), and attention is placed instead on internal processes such as thoughts and emotions. The concept of *metacognition* used here is congruent with the definition of what has been referred to as *mindfulness*. Mindfulness, a core feature of this text, has been defined as "paying attention in a particular way: on purpose, in the present moment, and non-judgmentally" (Kabat-Zinn, 1994, p. 4). The concept of mindful (present-moment, nonjudging) task absorption as a foundation of functional performance is an extension of similar descriptions of flow or peak experiences as described by Csikszentmihalyi (1990) and our previous work (Gardner & Moore, 2004a).

The accumulated empirical evidence has led to similar findings in studies across many forms of human performance (Barlow, 2002). For example, research in academic test performance suggests that most individuals experience similar physiological arousal during an academic test. However, when equating for academic preparation, those with self-doubts and an attentional focus on task-irrelevant cues during the exam perform most poorly (Rich & Woolever, 1988). This finding is similar to past research in athletic performance that suggested that athletes who interpret somatic arousal as facilitative maintain task-relevant focus and perform adequately, while those who interpret arousal as debilitative focus more on internal processes, which subsequently interfere with

competitive performance (Jones, Hanton, & Swain, 1994; Jones, Swain, & Hardy, 1993; Swain & Jones, 1996). The literature on human sexual performance has described similar findings. Individuals who engage in functional sexual performance focus on task-relevant erotic cues, while those experiencing sexual dysfunction focus on task-irrelevant cues such as self-doubts, sexual inadequacies, and exaggerated self-implications regarding performance failures (Jones, Bruce, & Barlow, 1986).

As can be seen in numerous areas of human performance, performers enter into situations—even situations requiring elite activity—with markedly different expectations about their performance, and these expectations typically become the driving force for their performance-relevant behavioral responses (Barlow, 1986; Vealey, 1986). Due to a combination of dispositional characteristics and personal performance histories, functional performers typically expect positive performance outcomes, and dysfunctional performers typically expect negative performance outcomes. Over time, these beliefs become strongly held and difficult to change. In addition, these belief sets can become self-fulfilling because they affect how the performer interprets challenge or threat in performance situations (Sbrocco & Barlow, 1996). For example, in studies comparing sexually dysfunctional and functional individuals, sexually functional participants who were told that they were ingesting a pill (placebo) that would negatively affect sexual arousal responded to this experimental condition as a challenge and demonstrated *greater* sexual arousal. Conversely, sexually dysfunctional individuals interpreted this same condition as a threat and responded with significantly *lower* levels of sexual arousal (Cranston-Cuebas, Barlow, Mitchell, & Athanasiou, 1993). In a study yielding a similar result, sexually functional individuals demonstrated no increase in arousal when presented with a "performance enhancement" pill (which was a placebo) because they believed their performance did not need enhancement and had little expectation that the pill would enhance their performance. Conversely, sexually dysfunctional individuals responded with greater arousal, because they expected enhanced sexual performance from use of the pill (Cranston-Cuebas & Barlow, 1995).

In each of these studies, outcome expectancies mediated performance demands and impacted performance outcomes by leading to different performance behaviors among participants. These results are consistent with the findings of Gould, Weiss, and Weinberg (1981), who found that confidence was the most stable and consistent factor differentiating highly successful from less successful athletes. Performers who believe that their skills and abilities match performance demands are likely to perform better, and performers who question their skills and experience and are overly concerned with outcome are likely to perform more poorly.

POSTPERFORMANCE RESPONSE PHASE

The postperformance response phase typically follows one of three paths. The performer (1) sustains involvement in his or her competitive performance; (2) reengages as required following a brief dysfunctional period; or (3) disengages from the activity covertly (mental disengagement through worry or distraction) or overtly (physical disengagement by feigning illness, skipping practice, or full termination).

When human performance follows a functional trajectory, the performer's ongoing and future performance behavior remains committed, approach-oriented, and directly linked to personal values. That is, the performer tolerates short-term discomfort related to any given poor performance and continues to approach performance cues and demands with committed preparation, training, and practice. Approach behavior may include additional practice or preparation time, additional work with coaches and managers on technical or tactical development, and additional conditioning and learning. With functional performers, motivation remains strong (because goal-directed behavior is reinforced at a relatively high rate), and positive outcome expectations evolve and strengthen. Appropriate focus on performance cues intensifies, which further promotes ongoing skill development. Positive performance outcomes then reinforce the earlier components of the self-regulatory process (such as appropriate discrepancy adjustment) and increase the likelihood of future successful behavior.

Of course, many people would like to think that elite performers have reached that level because they have never experienced adversity, have never had to struggle to learn a skill, or have been handed their elite status. The fact is that, whether performing at elite or subelite levels, *all* performers experience adversity. Yet, even when faced with performance adversity, the individual with a positive learning history of performance who does not hold extreme maladaptive performance schemas, who has maintained reasonably positive outcome expectations, and who is generally experientially accepting is not likely to overinterpret the personal meaning or future ramifications of any specific negative performance or become unwilling to experience short-term discomfort in the pursuit of his or her goals and values. This performer thus reengages in the performance task as the cues and demands of the competitive situation dictate, even when experiencing less-than-optimal performance. In this situation, negative performance is typically viewed as an isolated episode and does not interfere with adaptive coping (approach) behaviors. This type of individual effectively problem solves and focuses on skill development or on enhancing technical and tactical aspects of performance with a minimum of negative affect.

Some performers, however, respond much differently to negative performances, and a chronic or debilitating performance trajectory may occur. In some performers, discrepancy adjustment difficulties can negatively affect performance, but the performers quickly recover because of adaptive dispositional characteristics; a high trait level of experiential acceptance (i.e., willingness to experience internal events); and/or positive outcome expectancies that isolate the temporary dysfunction as situational, nonthreatening, and tolerable. However, for other performers, changing external circumstances such as a higher level of competition or a new, possibly less supportive organization can trigger preexisting performance schemas, problematic levels of experiential avoidance (i.e., avoidance of the experience of negative internal processes such as thoughts, feelings, and sensations), and skill disruption. Such individuals often respond with persistent performance dysfunction that may be temporary (a slump) or chronic and pervasive.

A study by Klinger, Barta, and Glas (1981) provides some support for this conceptualization of functional and dysfunctional performance. Utilizing thought sampling with college basketball players, their study suggested that, in response to decrements in team performance or a strong challenge from the opposing team, athletes often shift attention from game-related contextual (external) cues and demands to excessive self-focus on both behavior and internal experiences. It can be hypothesized that athletes who hold generally positive outcome expectancies maintain a committed, approach-oriented coping style when faced with performance adversity; continue to engage in the athletic task; and eventually find their way back to functional performance through effective problem solving or coaching. This approach-based coping strategy is likely to result only in brief, time-limited performance decrements.

Chronic performance dysfunction, however, is much more likely to be associated with an avoidant coping style. This style may be overlearned from childhood or develop gradually in response to the repeated failure of more adaptive efforts toward successful performance reengagement. These may be true negative experiences in which poor outcomes occurred, or they may be negative experiences in which premature cessation or termination of performance occurred due to an unwillingness to experience the increase in negative thoughts, emotions, or physiological sensations associated with performance situations. Consistent with social-cognitive models of motivation and goal seeking behavior (Carver & Scheier, 1988), individuals typically remain task-engaged as long as they reasonably believe that positive outcomes are likely, and they disengage when negative outcomes (broadly defined) are consistently anticipated. From this perspective, the performer experiencing chronic or persistent

performance dysfunction is likely to respond with either behavioral or cognitive avoidance.

Behavioral Avoidance

To fully understand behavioral avoidance, we must understand the function of this strategy. Inherent in our conceptualization of performance dysfunction and consistent with recent research on behavior disorders (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996) is the idea that experiential avoidance functions to provide the individual experiencing heightened negative affect a means of short-term emotion regulation. Although experiential avoidance does not fulfill long-term goals and values, it does immediately reduce negative emotion and, as such, is strongly (negatively) reinforced. The individual often learns and generalizes this reinforced pattern across numerous life situations, but the pattern can also develop specifically in the competitive performance context. Behavioral avoidance strategies can be overt in the form of complete disengagement from the performance context (such as quitting a job or retiring from sport) or can be covert and less obvious (such as finding reasons to not come to work). For example, an individual is required to have a quarterly accounts meeting with his manager, yet each time the meeting approaches, he finds a reason to postpone the meeting due to his increasing anxiety. While the strategy does nothing to improve his sales performance or enhance his relationship with his manager, it does serve the immediate function of reducing the anxiety and is thus negatively reinforced.

When performance dysfunction becomes more long-term and chronic, however, task disengagement may become more obvious and complete. Repeated failure to perform at expected standards can extinguish approach behaviors and negatively reinforces avoidant behaviors such as complete withdrawal from the activity in question. As Smith (1986) suggested, the balance between reinforcement and the aversive consequences of continued participation in a given activity becomes such that dissatisfaction and negative affect predominate. The cost-benefit analysis of continued participation in the given activity often leads to complete disengagement from active participation. This phenomenon has been termed *burnout* (Hardy et al., 1996; Smith, 1986).

Cognitive Avoidance

Cognitive avoidance can take the form of processes such as worry and rumination, which are naturally occurring processes that, at nonpathological levels, serve an important problem-solving function. At nonpathological levels, they adaptively prepare individuals to confront challenge or threat.

Yet when excessive, these cognitive processes are linked to anxiety and deleterious performance ramifications. In this regard, Borkovec (1994) presented a theoretical formulation describing the process and function of both extreme (clinical) and nonpathological worry. In his formulation, worry is a covert verbal-linguistic (also known as verbal-semantic) activity that allows individuals to *avoid* the complete experience of negative affect or affect-provoking stimuli. Driven by initial signs of arousal, the verbal-linguistic process of worry occupies one's attentional focus and effectively suppresses the full experience of anxiety (Barlow, 2002) or other affective responses such as sadness, guilt, or anger (Gardner & Moore, in press). Importantly, Borkovec also noted that, unlike anxiety (which is associated with increased physiological arousal), worry has a distinctive physiological process of sympathetic arousal *restriction,* which has been viewed as evidence of the inability of individuals engaged in worry to fully experience the physiological components of anxiety. Worry essentially inhibits the affective-physiological arousal components of anxiety and is thus negatively reinforced for the individual. Therefore, while at nonpathological levels cognitive processes such as worry and rumination are coping strategies that can aid in problem solving, at more pathological levels they are avoidance strategies that subsequently disengage the performer from necessary task-focused attention and lead to ineffective behavioral choices.

Some of the studies supporting Borkovec's formulation are particularly relevant to performance psychology. Studies of both pathological and nonpathological worry suggest that individuals who worry report more thoughts than images during the worry process (Borkovec, 1994; Borkovec & Inz, 1990; Freeston, Dugas, & Ladouceur, 1996). In a study in which participants were instructed to worry while engaging in tasks that were primarily either verbal or visuospatial, worry interfered with only the verbal tasks, thus demonstrating its verbal-linguistic nature (Rapee, 1993). Bergman and Craske (1994) found that individuals preparing for public speaking shifted from visualizing a neutral scene to verbal-linguistic activity as they began to worry about the imminent task. In another study, individuals engaged in a worry task demonstrated increased frontal cortical activation in the left hemisphere, thus indicating increased verbal-linguistic activation (Carter, Johnson, & Borkovec, 1986). This finding is particularly important in the context of an additional study by Crews and Landers (1993), which found that highly skilled golfers engaging in a competitive putting task demonstrated a significant increase in left hemispheric alpha activity indicative of reduced verbal-linguistic processes. To clarify this important finding, the golfers who performed better experienced less cognitive activity (thought less) than those who performed more poorly. This study provides some evidence for an inverse relationship between

internal verbal processes and athletic performance. Similar results have been found in additional studies of elite marksmen and archers (Hatfield, Landers, & Ray, 1984; Janelle, Hillman, Apparies, et al., 2000; Janelle, Hillman, & Hatfield, 2000; Salazar, Landers, Petruzzello, & Han, 1990). From this empirical base, it seems reasonable to conclude that worry—a process associated with *increased* cognitive activity—may particularly impede optimal athletic performance, because optimal performance seems to require *reduced* cognitive activity (i.e., a quiet mind).

Borkovec's (1994) empirically informed conceptualization of worry may also explain the conflicting and inconsistent findings in the sport and performance psychology literature examining the relationship between competitive anxiety and athletic performance (McNally, 2002). The multidimensional theory of competitive trait anxiety (Martens, Burton, Vealey, Bump, & Smith, 1990) and the cusp-catastrophe model of the anxiety-performance relationship both utilize the concept of cognitive anxiety, defining it as fear of failure and negative expectations about performance (Hardy et al., 1996). Woodman and Hardy (2001) referred to cognitive anxiety and worry as synonymous terms. At present, despite the empirical data suggesting otherwise, the sport psychology literature does not clearly distinguish worry and anxiety. It is important to note that, while worry is a fundamental component of all types of anxiety (Barlow, 2002), recent evidence confirms that worry is a functional process that is more than just a symptom of anxiety. The inconsistencies in the sport science research relating to the relative impact of cognitive or somatic anxiety on competitive performance (McNally, 2002) may be explained by the fact that the most frequently used theoretical models describing the relationship between anxiety and performance do not consider and incorporate the construct of worry and its effects on performance independently of its contribution to the negative affective state of anxiety. In fact, clinical scientists have suggested that worry and anxiety are partially independent constructs (Craske, 1999; Davey, Hampton, Farrell, & Davidson, 1992).

One may wonder why noting the distinction between worry and anxiety is so important for a performance psychology text. Our goal is for the protocol presented in this text to allow the performer to overcome his or her obstacles and reach the highest level of performance attainable based on personal skills and abilities. With that said, while mild worry serves an adaptive function by aiding in the process of planning for possible negative events and reducing the seemingly unpredictable and uncontrollable nature of these events, we believe that maladaptive, covert expressions of experiential avoidance (such as worry) hinder the performer's ability to reach valued long-term goals and only serve to immediately reduce discomfort. But everyone experiences discomfort—it is *natural*—and, while

worry may successfully remove immediate discomfort in the short term, it does not help develop the skills necessary for optimal performance. Particularly problematic, worry also can become highly automated and resistant to change. The performer utilizing worry as a covert avoidance strategy in response to performance decrements tends to sustain his or her performance difficulties by disrupting the automated execution of skills as worry loops back and negatively influences self-regulation in the preperformance, performance, or postperformance response phases. In the latter phase, the overuse of task-avoidant worry is likely to interfere with both effective problem solving (leading to decreased practice, poor training intensity, and self-care considerations) and skill modification and development in response to short-term performance difficulties.

INTRODUCTION TO THE ACCEPTANCE-BASED APPROACH

Traditional models of human performance have often focused on negative emotions and distorted or dysfunctional content of one's thoughts (negative thoughts about performance) as central to understanding performance difficulties. Yet more recently, theorists, researchers, and practitioners have considered a more contemporary acceptance-based approach to understanding such psychological phenomena (Gardner & Moore, 2004a; Hayes, Strosahl, & Wilson, 1999; Orsillo & Roemer, 2005). Contrary to traditional models, we use an acceptance-based approach to suggest that, during the performance phase—which is the point of the self-regulatory process in which physiological arousal, cognitions relating to performance and performance evaluation, emotional reactivity, and self-awareness of these changes (self-focused attention) increase—it is the degree of *experiential acceptance* displayed by the performer that is critical to ultimate performance outcomes. In other words, performance outcomes depend on the degree to which the performer accepts his or her own internal experiences as normal and naturally occurring; is willing to persist on task despite these experiences; and maintains attentional focus on the environmental task at hand rather than on his or her internal thoughts, feelings, and physical sensations. Along these lines, it is not the presence or absence of negative thoughts, physiological arousal, or emotions such as anxiety or anger that predicts performance outcomes; rather, it is the degree to which the individual performer can accept these experiences and remain attentionally and behaviorally engaged in the performance task. When experiential acceptance occurs, attentional focus remains on the necessary aspects of the performance environment, and the performer will simply notice the cognitive, affective, and

physiological arousal without the need to control, escape, or avoid it. As such, the impact of these internal states on performance will be minimal. Conversely, in the context of low experiential acceptance, which is termed *experiential avoidance* (Hayes et al., 1999), the performer is likely to engage in a variety of control strategies designed to alter the content and intensity of these internal experiences and the rate at which they occur. Common control strategies include self-talk, thought suppression, distraction, and termination of performance effort. On occasion, these control strategies may briefly succeed by reducing one's immediate discomfort, but they are most often bound to fail and frequently lead to further increases in arousal. This is because a vicious cycle begins in which increased arousal, increased self-focused attention, and increased efforts at experiential control result in more behavioral disruption as the performer becomes preoccupied with reducing his or her unpleasant thoughts, feelings, and/or physiological sensations. In addition, the individual will also begin to scan the self for subtle signs of personal discomfort and negative thoughts, thereby reducing the amount of attention the individual can place on necessary performance tasks. These disruptions often begin by leading to mildly impaired competitive performance and, for some individuals, can eventually result in complete avoidance of performance situations.

How does the acceptance-based model fit with Hanin's (1980) individual zones of optimal performance model (IZOP), which suggests that optimal performance is directly related to individually determined optimal levels of emotion? The acceptance-based model of human performance presented herein can be seen as consistent with the IZOP model in the following way. From an acceptance-based theoretical perspective, Hanin's findings in support of the IZOP model may reflect the varying degrees of experiential acceptance and avoidance found across individuals. In this context, variations in performance may not be due to the absolute level of affect experienced, but rather to the degree to which an individual can tolerate (i.e., accept) the experience of that emotion. While this explanation is clearly an open empirical question, we suggest that experiential acceptance/avoidance may mediate the relationship between emotion and performance in the IZOP model.

Using the scientific literature on human performance, we summarize that the following sequence is directly involved in functional performance: (1) Functional performance involves a metacognitive (automated) process of self-monitoring, self-evaluation, and corrective action as needed and does not involve heightened cognitive activity to control or modify internal experiences. (2) The functional processes of effective discrepancy adjustment and experiential acceptance feed into the performer's positive performance expectations (self-efficacy), and

the performer interprets performance demands as challenging. (3) This results in further mindful task focus, appropriate levels of arousal and affect, automated motor skills, and, ultimately, in functional performance. Conversely, ineffective discrepancy adjustment leads to interpretations of performance cues and demands as threatening, and, with low levels of experiential acceptance, the individual may engage in a task-irrelevant focus and set of behaviors, become self-judging, scan the environment for signs of threat, and engage in self-focused attention. This set of responses is often associated with heightened negative affect, heightened arousal, reduced concentration, disruption of automated motor skills, and, ultimately, dysfunctional performance. Disruptions in self-regulated performance may occur in acute episodes or become a habitual (overlearned) pattern resulting in chronic performance dysfunction. Preexisting performance schemas and related psychological processes may strongly influence whether episodes of dysfunctional performance become chronic or remain situational.

IMPLICATIONS

Numerous authors have noted the extreme pressures and environmental demands that elite performers must confront (Andersen, 2002; Baillie & Ogilvie, 2002). It has been suggested that competitive performance demands are more likely to tax an individual's personal and social resources than many other human endeavors. This is, of course, in addition to the normative demands of being a spouse, parent, child, friend, coworker, employee, or teammate and dealing with financial, educational, occupational, and living concerns. It is, therefore, crucial to consider all psychological issues, behavioral styles, and life stressors that covertly and overtly impair or delay one's functioning. A truly comprehensive practice model of performance psychology will do no less. Unfortunately, perusal of the theoretical and empirical literature related to traditional performance enhancement strategies suggests that psychological responses to transitional or developmental issues and dispositional psychological characteristics are a relatively unnecessary focus of intervention for enhancing performance (Rotella, 1990). In our opinion, this view is partially responsible for both the stunted growth of performance psychology and the development of ineffective practice models. In addition, the vast majority of the intervention strategies in performance psychology have not been developed to target the specific psychological *processes* involved in human performance and are typically focused on modifying *outcomes* without targeting the real issues. Psychological skills training procedures, the predominant intervention methodologies in applied sport

and performance psychology, tend to focus on performance outcomes with little clear connection to the empirically based processes involved in human performance. In contrast, the model of functional and dysfunctional performance described in this chapter clearly suggests that efforts to enhance human performance must be a comprehensive enterprise targeting those specific *processes* in need of development or remediation.

Unlike other performance models—especially those within the sport psychology domain—it is not reasonable to artificially separate performance demands, skills, dispositional variables, and self-regulatory skills in understanding human performance. The arbitrary separation of these constructs would only be possible if, during performance situations, performers could abandon their internal states, rid themselves of dispositional factors (such as personality), set aside life demands, and equalize talent and skill among other performers. Yet performers are not simply "performers," and like all humans, they take physical skills, dispositional variables, and self-regulatory processes with them as they engage in all of life's demands. And, like all humans, these intrapersonal and interpersonal factors can either enhance or impede their chosen endeavors. To utilize a model of human performance that does not fully respect and consider these processes would be futile and ineffectual. In fact, the suggestion that performance can be enhanced apart from this comprehensive understanding contradicts both theoretical and empirical data relating to human performance. Within the Integrative Model of Human Performance, addressing the skill, dispositional, environmental, and self-regulatory issues confronting the performer is both central and critical to promoting the client's performance *and* well-being. At its most fundamental level, the IMHP suggests a completely integrated relationship between these factors and human performance and has clear and logical intervention implications.

Alternative acceptance-based behavioral interventions such as mindfulness and metacognitive procedures for enhancing task-focused attention; acceptance and commitment procedures for behavioral activation and valued goal attainment; and interventions focusing on exposure and response prevention for anxiety and anger-related concerns are indicated for many individuals presenting with performance concerns or desiring an extra advantage or "edge." These interventions, often viewed as "therapeutic," are certainly, in and of themselves, performance-enhancement interventions. We think that the term *performance enhancement* is more appropriate as a statement of *outcome* rather than a definition of a particular intervention technique. Others have also suggested the performance effects of more therapeutic interventions; Giges (2000) stated that the removal of psychological barriers is "an effective method in helping athletes improve their performance" (p. 18).

CONCLUSION

The Integrative Model of Human Performance has been developed by carefully integrating the current literature in clinical and sport science to provide a theoretical understanding of the internal and external components of functional and dysfunctional human performance. This theoretical framework ultimately drives the assessment and intervention processes, which are intended to promote the psychosocial well-being and competitive performance of high-level performers. Using the IMHP as a guide to understanding the processes involved in functional and dysfunctional human performance, the professional can set out to consider the specific processes in need of targeting in the course of performance-enhancement efforts. This will lead to an intervention focus not on outcomes per se, but rather on the processes that underlie optimal performance. This allows for clearer case conceptualization and more rationally determined intervention foci.

This discussion has explained how interpersonal, intrapersonal, environmental, and self-regulatory processes affect both the performance and psychosocial functioning of individual performers. Certainly, performers do not function solely in the competitive domain, but function in many life domains that also require attention and occasional assistance. With the IMHP in mind, chapter 2 begins by discussing the empirical efficacy of traditional skills-based approaches to performance enhancement and introduces the Mindfulness-Acceptance-Commitment approach to performance enhancement, which will be the primary focus for the remainder of the text.