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There is a growing body of evidence that children and adolescents in the United States, and perhaps worldwide, are not engaging in sufficient amounts of physical activity (Caspersen, Pereira, & Curran, 2000; Grunbaum et al., 2002; Kimm et al., 2002), and their level of sedentary behavior is likely associated with increased relative risks of preventable diseases (e.g., Type II diabetes, obesity, and depression). Such problems underscore the importance of cross-sectional, prospective, and experimental examinations of variables that influence physical activity behavior in youth (Sallis, Prochaska, & Taylor, 2000). The examination of such variables is important for designing interventions and programs in schools and communities that are more likely to be associated with an actual change in physical activity (Baranowski, Anderson, & Carmack, 1998; Lewis, Marcus, Pate, & Dunn, 2002). Unfortunately, the study of physical activity behavior in youth generally lacks a sufficient theoretical foundation for examining variables that influence that behavior. This is a major limitation because theory guides the search for determinants of behavior and the subsequent interplay between research findings and application. Theory offers a systematically organized body of knowledge that is applicable in a relatively wide variety of circumstances. This body of knowledge provides assumptions, accepted principles, and rules that provide a blueprint for analyzing, predicting, or explaining behavior. Hence, theory is essential for well-formulated examinations of physical activity behavior.

This chapter describes two well-established theories for understanding physical activity behavior, namely, social cognitive theory and self-determination theory. The description provides an overview of major or primary tenets of the two theories; full elaborations of social cognitive theory and self-determination theory have been provided, for example, by Bandura (1986, 1997) and Deci and Ryan (1985, 2000), respectively.
Social Cognitive Theory

Social cognitive theory (Bandura, 1986, 1997) has been one of the most prominent frameworks adopted for understanding health promotion behaviors, including physical activity (McAuley & Blissmer, 2000). Social cognitive theory is based on four primary assumptions: that behavior is purposeful or goal directed, that individuals are self-reflective, that people are capable of self-regulation, and that triadic reciprocal determinism is held central to the theory. With regard to the fourth, triadic reciprocal determinism involves presumed bidirectional influences of the environment, person, and behavior upon one another (Bandura, 1986, 1997). It, for example, proposes that behavior depends on the independent and mediated influences of environmental and personal variables. Environmental variables that influence behavior include components of one’s physical and social surroundings. The personal variables that influence behavior include cognitive processes such as self-efficacy, outcome expectancies, enjoyment, and self-regulation strategies (e.g., planning, organizing, and managing). Importantly, environmental variables such as social support can indirectly influence behavior through an effect mediated by personal variables, and vice versa, and behavior can, in turn, influence environmental and personal variables. Clearly, triadic reciprocal determinism, as a central feature of social cognitive theory, provides a broad basis for examinations of antecedents and consequences of behavior.

One central element of social cognitive theory is that behavior is regulated antecedently through cognitive processes (Bandura, 1986, 1997). The self-efficacy component of social cognitive theory is considered to be the most powerful and proximal cognitive predictor of behavior (Bandura, 1986, 1997), including physical activity (McAuley & Blissmer, 2000; Sallis et al., 2000). Self-efficacy represents the belief that an individual can successfully undertake a behavior or action required to produce a given outcome and is theorized to influence the activities that individuals approach, the effort expended on those activities, and the degree of persistence in the face of failure or adversity (Bandura, 1997).

Of central importance, self-efficacy is influenced by four primary sources of information: performance accomplishment, vicarious experience, verbal persuasion, and physiological/emotional arousal (Bandura, 1986, 1997). Performance accomplishment is the most powerful source of efficacy information because it is based on mastery experiences; repeated success of undertaking a behavior clearly raises one’s self-efficacy. Vicarious experience is a less powerful source of efficacy information and involves observing similar others successfully perform behaviors without adverse consequences (i.e., social modeling). Essentially, people persuade themselves that if others can undertake a behavior, they too should be able to execute the same behavior. Verbal persuasion involves leading people through suggestion into believing in their ability to execute a given behavior. The final source of efficacy information involves the interpretation of physiological and emotional states, which might have informative efficacy information depending on the situation. Physiological and emotional states provide a constituent source of efficacy information because such information provides a personal method for making a judgment about the individual’s vulnerability during the given course of action or behavior. The sources of efficacy information serve as points of focus for interventions that target a change in behavior through a manipulation of self-efficacy.
There is an emerging notion that the effect of self-efficacy on behavior can be either direct or indirect (i.e., mediated). As previously noted, self-efficacy directly influences the undertaking of activities, the effort expended on those activities, and persistence in the face of failure or adversity (Bandura, 1997). By comparison, self-efficacy might indirectly influence behavior through mediating or intervening variables that are facilitators and barriers. Some of the mediating variables include outcome expectations (i.e., perceived benefits of physical activity); actual and perceived barriers; and cognitive strategies or processes including behavioral prompts and cues, self-monitoring, and goal setting.

The primary tenets of social cognitive theory for understanding physical activity have been increasingly supported in research using children and adolescents. For example, elements of the physical environment (e.g., access to facilities and neighborhood safety), social environment (e.g., social support from family and friends), and person (e.g., self-efficacy, outcome expectancies, enjoyment) have all been linked with physical activity in multiple studies (Sallis et al., 2000). There has been additional evidence that the influence of the social environment (i.e., social support) on physical activity is mediated by the personal variable of self-efficacy (Motl, Dishman, Saunders, Dowda, & Pate, 2007; Saunders, Motl, Dowda, Dishman, & Pate, 2004); this is likely the case for the relationship between the physical environment and physical activity (Motl et al., 2005, 2007). One recent study reported that self-management strategies operated as an intervening variable in the relationship between self-efficacy and physical activity in adolescent girls (Dishman et al., 2005). There is even evidence that self-efficacy mediated the effect of a school-based intervention on physical activity behavior in adolescent girls (Dishman et al., 2004). Hence, there is consistent support for the application of social cognitive theory in examinations of physical activity behavior among children and adolescents.

**Self-Determination Theory**

Deci and Ryan’s self-determination theory has been another prominent framework adopted for understanding human behavior (Deci & Ryan, 1985, 2000), including more recent applications for the study of physical activity in youth (e.g., Standage, Duda, & Ntoumanis, 2003, 2005; Standage & Treasure, 2002). This theory has its origins in self-evaluating theory and a focus on the influences of intrinsic interest and extrinsic rewards on behavior in humans. Self-determination theory is considered an organismic-dialectic framework of motivation whereby humans are actively seeking new experiences and optimal challenges to master and integrate (Deci & Ryan, 1985, 2000). Self-determination theory includes both a psychological needs and a multidimensional motivation orientation for understanding affective, cognitive, and behavioral processes. That is, individuals are assumed to have three basic innate needs, and the satisfaction of those needs through social contexts presumably influences motivation and ultimately behavior, performance, well-being, and personal development.

The psychological needs of a human (i.e., innate psychological nutriments that are essential for ongoing psychological growth, integrity, and well-being; Deci & Ryan, 2000; Maslow, 1943) include innate feelings of autonomy, competence, and
relatedness, and those needs are satisfied through social factors and contexts (Deci & Ryan, 1985, 2000). Autonomy is described as the desire for self-initiation in the regulation of personal behavior (e.g., volitional control), and autonomy is a facilitator of intrinsic motivation. Competence involves the desire of individuals to effectively interact with one’s environment and accrue wanted outcomes, and it too is a facilitator of intrinsic motivation. Finally, relatedness, another facilitator of intrinsic motivation, can be described as the need to feel connected and accepted by salient or significant others (e.g., parents, teachers, and peers). Overall, the satisfaction of psychological needs is necessary for facilitation of self-determined motivation, which in turn influences behavior, performance, psychological growth, and well-being.

The multidimensional motivation orientation encompasses three global types of motivation—intrinsic motivation, extrinsic motivation, and amotivation—that operate on a self-determination continuum (Deci & Ryan, 1985, 2000). Along this continuum, intrinsic motivation resides on the extreme of greatest self-determination, whereas amotivation resides on the extreme of lowest, and perhaps absent, self-determination, with varying levels of extrinsic motivation residing along the continuum between the extremes.

Intrinsic motivation is the most self-determined type of motivation, and involves participation in activities for the pure sake of enjoyment, pleasure, and satisfaction that result directly from participation itself. Intrinsic motivation can be considered a multidimensional construct (Li, 1999) that has been postulated to include components of learning (pleasure of doing activity to learn something new about the activity), accomplishment, and stimulation (experience of pleasant sensations from the activity itself). When intrinsically motivated, individuals are fully self-regulated, engage in activities for the sake of interest, have volitional control, and operate without the aid of external rewards and constraints. For example, an intrinsically motivated student would be involved in physical education purely based on the fun, enjoyment, pleasure, and satisfaction that derive directly from activities in the curriculum itself (Standage et al., 2005). Intrinsic motivation is an ideal condition for the promotion of behavior, performance, psychological growth, and well-being, and it can be developed in students through physical education activities and conditions that allow satisfaction of human needs of autonomy, competence, and connectedness. For example, need satisfaction has been correlated with intrinsic motivation in a sample of 950 British students in secondary schools (Standage et al., 2005), and task orientation (i.e., perception that ability is self-referenced and based on developing new skills, personal improvement, and exerting maximum effort) has been associated with intrinsic motivation in a sample of 318 American middle school children (Standage & Treasure, 2002).

By comparison, extrinsic motivation involves multiple regulatory styles, ranging from external regulation through integrated regulation, with an underlying continuum of self-determination (Deci & Ryan, 1985, 2000). An important distinction between intrinsic and extrinsic motivation is that the individual’s motivation for undertaking an activity is directed by a separable outcome, in other words, reward or punishment (Deci & Ryan, 1985, 2000). Indeed, the different types or regulatory styles of extrinsic motivation are characterized by undertaking an activity for a separable consequence such as a reward or punishment; this contrasts with the innate nature of intrinsic motivation.
External regulation is a form of extrinsic motivation whereby a person engages in a behavior or action for the sole purpose of receiving a reward or avoiding punishment. External regulation involves minimal autonomy and self-determination. An externally regulated student would be involved in physical education to receive praise from the teacher or avoid getting into trouble with the teacher for not being involved in activities (Standage et al., 2005).

The second type of extrinsic motivation is introjected regulation. Introjected regulation involves undertaking a behavior for the avoidance of guilt and anxiety as well as the enhancement of pride and ego. With introjected regulation, the focus of regulation is not accepted completely as one’s own. An example of introjected regulation would be a student who is involved in physical education because of wanting the teacher to have positive appraisals of the student or other students to see the individual as skillful (Standage et al., 2005).

The next-most autonomous, or self-determined, form of extrinsic motivation is identified regulation. This is described as a conscious valuing of a behavioral goal, whereby action regulation is accepted as personally important. An example of identified regulation would be a student who is involved in physical education based on wanting to learn and improve sport skills or accrue health benefits (Standage et al., 2005).

The final and most self-determined form of extrinsic motivation is integrated regulation. Integration occurs under conditions in which identified regulations are fully assimilated with the self; that is, valuing of behavioral goals and actions has become congruent with one’s values and needs (Deci & Ryan, 1985, 2000). Integrated regulation has many shared qualities with intrinsic motivation, but the actions are still done for the goal of separable outcomes rather than inherent pleasure, interest, and accomplishment (Deci & Ryan, 1985, 2000). By example, under conditions of integrated regulation an individual undertakes an action or behavior for a valued and separable outcome, whereas an intrinsically motivated individual undertakes an action or behavior for its own sake (i.e., pure fun and enjoyment of learning new sports skills or simply participating in physical education class).

Amotivation involves a lack of intention and absence of motivation. An amotivated individual does not perceive contingencies between actions and outcomes or consequences (Deci & Ryan, 1985, 2000). Amotivation originates from lack of competence, perceived unimportance of an activity, or separation of the perceived contingencies between behavior and desired outcome. Amotivated individuals are neither intrinsically nor extrinsically motivated and, by extension, are unwilling to exert effort toward an uncontrollable outcome. The lack of willingness is, in large part, attributable to the belief that success is unlikely or unachievable; there is a definite lack of volitional control and corresponding absence of autonomy and self-determination.

Some of the primary tenets of self-determination theory for understanding physical activity have been supported in research using children and adolescents (Ntoumanis, 2001; Standage et al., 2003, 2005; Standage & Treasure, 2002). For example, the construct of need satisfaction positively predicted intrinsic motivation and introjected regulation and negatively predicted external regulation and amotivation; intrinsic motivation, in turn, predicted adaptive physical education–related outcomes of concentration, positive affect, task challenge, and happiness (Standage et al., 2005).
There has been an interest in extending the tenets of self-determination theory into the prediction of intention and physical activity based on Ajzen’s (1991) theory of planned behavior (Chatzisarantis, Biddle, & Meek, 1997; Hagger, Chatzisarantis, & Biddle, 2002). Such research supported the notion that autonomous and controlling forms of behavioral regulation were associated with both intention and physical activity (Chatzisarantis et al., 1997), and this effect might be mediated by attitude and perceived behavioral control (Hagger et al., 2002). Overall, there is emerging, but still limited, support for the application of self-determination theory for understanding physical activity among children and adolescents. This underscores the importance of continued research on the tenets of self-determination theory for explaining physical activity behavior in youth.

**Prelude: Connecting the Theories with Subsequent Chapters**

This section of the chapter serves as a prelude to the links between the two theories described herein and the studies described in Chapters 3 through 6. In Chapter 3, the researchers examine aspects of motor competence and fitness as correlates of physical activity under the assumption that motor competence and fitness represent proxies of performance accomplishment as sources of efficacy information within a social cognitive perspective. Chapter 4 involves a mixed-methodological approach for examining social-environmental factors as facilitators, enablers, and impediments of physical activity and that chapter also has its roots in social cognitive theory. The intent of Chapter 5 involves the adoption of qualitative and quantitative approaches for understanding correlations between motives and personal competence for informing applications of self-determination theory for understanding physical activity in children. The study described in Chapter 6 involves an examination of environmental factors as correlates of personal characteristics and physical activity behavior, in part, consistent with the notion of triadic reciprocal determinism in social cognitive theory. As a whole, the chapters provide insight into diverse approaches for using social cognitive theory and self-determination theory for understanding aspects of physical activity in children.

**Summary**

This chapter described the primary tenets of social cognitive theory and self-determination theory for understanding behavior, and the empirical extension of the theories into the study of physical activity behavior in children and adolescents. The concluding point of this chapter is that generating a better understanding of theory will ultimately yield better-informed cross-sectional, prospective, and experimental examinations of variables that influence physical activity behavior in children and adolescents (Baranowski et al., 1998; Lewis et al., 2002; Sallis et al., 2000). This will be necessary as we begin to focus on strategies for blunting the ever-increasing rates of inactivity and sedentarism among youth (Caspersen et al., 2000; Grunbaum et al., 2002; Kimm et al., 2002) and the likely associated relative risks of preventable diseases.
References


