

Self and Adaptation: Defining the Healthy Self

Daniel Rodriguez
Widener University, USA

A literature review was undertaken to clarify the nature of the self and its functions, with the specific intent of defining a healthy self. To accomplish this task, literature from a variety of theoretical perspectives including philosophy, psychoanalysis, analytic psychology, humanistic psychology, social cognitive theory, social information processing theory, psychopharmacology, psychophysiology, and academic psychology was reviewed. Based on the results of this process, a model of psycho-adaptation was proposed, along with a list of characteristics representing a healthy self. To facilitate research on self-health, the Healthy Self-Survey (HSS) was constructed. Preliminary analysis of the construct validity of the HSS is underway. Implications for mental and physical health are discussed, and alternative research methodologies for the assessment of self-processes are proposed.

This paper is the product of a long process that began with a reading of Herman Hesse's classic novel about self-discovery, *Narcissus and Goldmund*, in 1982, and continues today as I harvest the theoretical and research knowledge sown through countless hours of careful study. I have long been interested in why some achieve happiness, regardless of environmental circumstances, while others suffer dearly at the hands of powerful psychological forces, like anxiety and depression, even in the midst of apparent tranquility, and how such forces prevent the realization of dreams. In this paper, I present my first efforts at answering such questions, focusing on the central concept of the self and its processes. Yet unlike Hesse and other writers, philosophers, and some clinicians tackling this evasive concept, I attempt to ground the lofty notions encountered in much literature on the self, operationalizing esoteric terms like "oceanic feeling," "real self," and "transcendent function" where possible. While these expressions evoke profound emotional responses in many, they are difficult to study scientifically. Therefore, my goal in writing this paper is to synthesize a definition of self-health, based on the literature, and generate a useful survey for research purposes.

The concept of self-health is not new. It would be unethical to pretend I have discovered something so fundamental. Every person on earth, regardless of education, has likely wished for psychological wellbeing at some point, and has probably generated a definition of a healthy self, suitable for their purposes; I do not claim to know more than these people. However, I have read the literature and prepared a list of characteristics, extracted from those proposed by a selection of writers in clinical and research psychology as indicative of a healthy self. I then operationalized these characteristics and generated a set of 60 items to form a survey I call the Healthy Self Survey (HSS). In this article I describe the theory and research that lead to the HSS, provide a definition of self and its functions, and discuss potential physiologic correlates of healthy self-functioning, in the context of a model I refer to as psycho-adaptation. It is my hope that this paper can generate interest in novel methodologies to further knowledge of self-processes.

Self: Some Basic Questions

The self is a natural concept. It is the product of aggressive competition with others for the control of scarce resources (Cooley, 1902/1983). The self is a concept because it is a cognitive construction with shared meaning among members of a given culture (Wood & Wood, 1999). Everyone knows what it is: myself, yourself, and ourselves, are just some of the personal pronouns used to communicate self. Yet no two individuals share exactly the same conception, as self is a product of one's unique life circumstances. Self is a natural concept precisely because it is understood through experience struggling for control of valued resources (e.g., a toy or mother's love during childhood, or a colleague's praise as an adult). Just as a child learns the concepts "bird," "car," and "squirrel" interacting with the environment, the concept "self" is attained through social interaction. A struggle for possession of a favorite doll brings about cries of "it's mine!" and "I want to play with the doll now!" Therefore, self is a natural consequence of social existence, living in an unyielding environment where supply does not always equal demand. No one can exist socially without achieving self, as life without self in a world of selves would be sheer chaos.

The purpose of the self is to provide the beholder a sense of continuity, order, and determination. Yet because this powerful cognitive construction has no physical presence, it cannot be understood by common scientific means. Therefore, instead of atomic weights and moles of molecules, attempts to measure self are made by less reliable and valid methods like surveys and case studies, each of which engenders a considerable amount of subjectivity. While the products of our labors have provided psychology with tremendous advances into the enigmatic waters of the self, many questions remain unanswered, two of which are "what is its true nature" and "what are the characteristics of a healthy self?" I begin by defining the self, reviewing literature pertaining to its structure and functions.

The Structure of Self

William James (1892/1961), an American pragmatist philosopher, believed that the self is divided in two parts, the “I” and “Me” selves. He defined the “I” self as the “knower,” the sum total of our consciousness at a given time. According to James, the “I” self is responsible for one’s sense of self-continuity (e.g., being the same person upon waking in the morning as just prior to losing consciousness to sleep); it is the subject that observes the “Me” self. In contrast, James defined the “Me” self as that which is known about the self. The “Me” self is self-concept.

James believed that self-concept is composed of three hierarchically organized parts: the bodily self (i.e., material possessions including the body and its functions), social-self, and spiritual self. Of the social self, James wrote with characteristic eloquence, “We are not only gregarious animals, liking to be in sight of our fellows, but we have an innate propensity to get ourselves noticed, and noticed favorably, by our kind.” (p. 46) The spiritual self was defined as the entirety of one’s psychic capacities, states of consciousness, and dispositions. These three divisions, according to James, were organized such that the bodily self rests on the base with the spiritual self on top. In between he placed the non-bodily material self, and the social self.

James’s hierarchical organization is strikingly similar to Plato’s tripartite definition of the soul (Lavine, 1984). Plato proposed a soul in which the instinctual desires (e.g., hunger, thirst, and lust) rested at the base, and speech and reason at the summit, with spirited-soul (e.g., courage and ambition) in between. Like contemporary self-theorists, Plato believed the soul (I equate soul with self here) plays a unique role in the achievement of happiness and virtue (perhaps a forerunner to a definition of healthy self). Plato believed that in order to achieve happiness, one must balance the three dimensions of the soul, with reason in charge of desire, and spirit as its ally. Virtue, Plato believed, was achieved by a maximization of the relations amongst the three, and was reflected by temperance, courage, and wisdom. This definition foreshadows contemporary definitions of healthy ego functioning (see Loevinger, 1976).

Like James, George Herbert Meade (1934/1962) believed the self is divided into a subject and object. He believed that the unique quality of humanness is self-consciousness. While many animals are capable of receiving and perceiving sensations from their environments (i.e., consciousness), only humans (as far as we know) are capable of reflection upon their actions in such a way that they become the objects of their own observation (i.e., self-consciousness). In order to facilitate his explanation of the self, Meade (1934/1962) hypothesized a “generalized other.” By “generalized other,” Meade had in mind the incorporated attitudes of others that allow individuals to observe themselves as outsiders. Meade used the example of a baseball game to clarify his concept. In baseball, each team player must be aware of the roles of other team members. Therefore, in the situation in which a grounder is hit to the shortstop, the first baseman must be aware of the response required of the shortstop, and prepare to receive the

ball in turn. It is in this manner (i.e., through games and play), according to Meade, that individuals learn to function as members of a complex society by incorporating the attitudes of others, and learning to anticipate responses in coordinated action toward socially valued goals. The ability to anticipate responses of others is characteristic of empathy, a key feature of strong social relationships (Cotrell Jr., 1978). Success in one’s social roles is likely to impact self-esteem, and is a key factor in healthy self-functioning.

Albert Bandura views the self from a social-cognitive perspective. According to Bandura (1989), the unique capabilities that distinguish human beings from other animals go beyond self-consciousness. The distinguishing capabilities of humanness are forethought, self-reflection, symbolic representation, vicarious learning, and self-regulation. Self-concept is discussed under self-reflective capability, and for Bandura takes the form of situation specific self-confidence, or self-efficacy beliefs (Bandura, 1977, 1989, 1997). Self-efficacy is defined as the belief that one can perform a certain behavior to attain a specific outcome. (p. 193, Bandura, 1977) Self-efficacy is measured in magnitude (i.e., the difficulty of the event), generality (i.e., the ability of expectations to generalize to other events), and the strength of one’s expectation. According to Bandura, the most important sources of self-efficacy beliefs are performance accomplishment, vicarious experience, verbal persuasion, and emotional arousal, in that order. His research with phobic subjects has supported this hierarchy (see Bandura, 1977). Further, Bandura (1989) proposed that self-efficacy beliefs and other personal factors (both physical and psychological) interact with behavioral outcomes and environmental influences in a reciprocal fashion. It is the results of this reciprocal interaction that Bandura proposed influence the course of self-development. Thus, according to Bandura, self is dynamic, structured by its reciprocal interaction with behavior and the environment, with self-efficacy beliefs as its core.

Psychiatrist J. Masterson (1985) hypothesized several key dimensions of the self in his book, *Real Self*. According to Masterson, self-image, the first of these dimensions, is the image a person has of himself at a particular time or in a particular situation. Self-image includes both one’s body image and mental states. Self-representation, the second of Masterson’s dimensions, is defined as the representation an individual constructs of himself based on the totality of the self-images, distorted or accurate, he has had at different times, some of which he may not be consciously aware of. The super-ordinate self-organization, the third of Masterson’s dimensions of self, is the unifying principle that organizes experience into a cohesive self. It is the super-ordinate self-organization that allows for the continuity that is characteristic of the self. The total self then, from Masterson’s perspective, is the whole person, body and psychic organization. It is the being that is opposed to other persons and objects beyond the boundary of the self. Masterson’s definition is structural in that he proposed a hierarchical organization to self.

Academic researchers have also been interested in the structure of self. Beginning in the middle of the 1970s, and

particularly in the 1980s, researchers designed surveys to assess the structure of self, focusing on self-concept across different facets of experience, such as academic or physical, and the relation of these facets to more global dimensions like self-esteem. Susan Harter and her colleagues (e.g., Harter, 1982), focused on a self-concept as a taxonomy. In taxonomies, different self-concept facets are hypothesized to rest side by side as correlated constructs, with global self-worth as one such facet. While assessing constructs at different dimensions of the self, specific and general, these researchers did not test for the possibility of hierarchical factor structures. In contrast, other researchers (e.g., Marsh & Shavelson, 1985; Shavelson, Hubner, and Stanton, 1976) focused on self-concept as a hierarchy with more global facets (e.g., academic self-concept) representing the covariance among more specific facets (e.g., math self-concept and reading self-concept).

In these hierarchical structures, several levels have been proposed. First-order factors (representing correlated constructs on the first level) are those latent variables that are proposed to account for the covariance in measured variables (i.e., survey items), whereas second-order factors (representing more global constructs) are those latent variables proposed to represent the covariance among first-order factors. Although not as common, third-order factors (representing even more global constructs) are those latent variables proposed to represent the covariance among the second-order factors (Marsh, 1987). This hierarchical organization is consistent with that of Masterson, but differs from the structure proposed by James and Plato, the latter structures being qualitative in nature.

Another important contribution made by these researchers is the virtual limitlessness of specificity in self-concept facets. Today, surveys exist to assess self-conceptions as broad as self-esteem, and as specific as math and tennis self-concept. However, researchers disagree about the specificity of self-concept assessed by surveys. For instance, Harter (1998) questioned the utility of surveys that measure facets more specific than academic or athletic self-concept (e.g., math self-concept, endurance self-concept), feeling that such surveys would have little predictive utility. However, Marsh and his colleagues (see Marsh, 1990a, 1996; Marsh & Sutherland-Redmayne, 1994) have designed surveys measuring specific facets such as endurance and strength self-concept. Research findings associated with these and other surveys assessing specific facets of self-concept and their relation to behavior and self-esteem have supported the utility of instruments with specific facets.

Research findings are supportive of both a hierarchical and taxonomic view of self-concept structure. Harter and her colleagues developed a set of self-perception profiles for children, adolescents, college students, and adults to assess the proposed structure of self-concept (Harter, 1982; 1985; 1986; Neeman & Harter, 1986; Messer & Harter, 1986). They chose perceived competence as the dimension of self-concept to study. Employing exploratory factor analysis, Harter and colleagues found that self-concept is differentiated across several facets (e.g., athletic competence,

school competence) including global self-worth. They also found that the number of these facets increases with age. For instance, in exploring the construct validity of the Self-Perception Profile for Children, Harter (1985) identified a total of five self-concept factors in children (i.e., scholastic competence, social acceptance, athletic competence, physical appearance, and behavioral conduct). With the Self-Perception Profile for Adolescents (Harter, 1986), three more self-concept factors were identified (i.e., romantic appeal, job competence, and close friendship). However, as previously noted, Harter and her colleagues failed to assess self-concept as a hierarchically organized construct, placing self-esteem and finer self-conceptions on the same dimension.

Regarding self-concept as a hierarchical structure, researchers designed surveys and conducted factor analyses, both exploratory and confirmatory, to assess this hypothesis (e.g., Fox & Corbin, 1989; Marsh, 1990b; Marsh, Perry, Horsley, & Roche, 1995; Marsh, & Sutherland-Redmayne, 1994; McAuley & Gill, 1983; Rodriguez, 2000; Ryckman, Robbins, Thornton, & Cantrell, 1982; Shavelson et al., 1976). For instance, Marsh and Shavelson (1985) tested a revision of Shavelson and colleagues' (1976) model with a survey designed to assess self-concept across seven first-order facets (i.e., physical appearance, physical abilities, peer relations, parent relations, reading, mathematics, and school) in second to fifth grade children, and adolescents. They found that while a hierarchical factor structure fit their data well, the hierarchy was more complex than envisioned originally by Shavelson and his colleagues (1976), and that the hierarchy weakened with age. Instead of having one second-order academic factor representing the covariance among the first-order academic self-concept factors, as envisioned by Shavelson and colleagues (1976), the best fitting model had two second-order academic factors (i.e., mathematics and reading), and only one second-order non-academic factor representing the covariance in the non-academic factors. A model with one general self-concept factor fit the data least well.

The results of this research indicate that self-concept is as multifaceted as researchers are willing to assess with surveys. In other words, I could design surveys to assess facets as broad as academic self-concept, or as specific as bubble blowing self-concept. It also appears that the degree of differentiation of facets increases with age, related to an increase in life experience. However, as to the extent of facets, no one really knows, as it is easy to imagine a facet of self-concept for virtually any act, from the ability to blow bubbles to the ability to string a bow in archery.

It is also clear that self is hierarchically organized. However, the nature of the hierarchy is still under debate. Using statistical techniques, we can assign any name to a factor so long as it makes sense based on its indicators. What is clear, though, is that as the facets of self-concept increase, hierarchies become more complicated. As to who is right, Masterson, James, or Plato, regarding hierarchies, only research employing a diversity of methodologies can illuminate the answer. I turn now to the functions of the self.

The Functions of Self

In defining the self, Masterson differentiated between the self and the ego by calling the self "...the representational arm of the ego," and ego "...the executive arm of the self." (p. 22) The ego is that dimension of self assigned the task of carrying out self-functions. James (1892/1961) proposed that three functions are responsible for action relative to the self: general feelings about the self (including positive feelings like complacency and negative feelings like despair) and self-seeking and self-preservation instincts. For example, the self-seeking instincts (e.g., social self-seeking) impel individuals to seek verification from others, a major source of self-esteem.

Cooley (1902/1983) discussed the emotional nature of the self, and its development. According to Cooley, the self is identified in common speech by personal pronouns like "I," "me," "mine," and "myself." He believed people have an innate tendency to appropriate the material and non-material into the self. Cooley labeled this proclivity "self-feeling." It is this self-feeling that is hypothesized responsible in part for the genesis of self-conceptions, and is also thought responsible to a great degree for the regulation of human behavior.

Epstein (1973) introduced the notion of self-concept as self-theory, the vehicle by which people construe themselves and their experience. Epstein hypothesized three unique functions of the self-theory: The assimilation of experience, promotion of self-esteem, and maintenance of a positive pleasure/pain balance.

Regarding the maintenance of self-esteem, Harter and her colleagues (see Harter, 1998, for a review of their findings) have found significant relations between different facets of self-concept and global self-esteem across the life span. The two facets found as the most important correlates of self-esteem in their research are physical appearance, and social support, in that order. Harter and colleagues (see Harter, 1990a; 1998) reported the correlation between physical appearance and global self-worth ranges anywhere from .60 to .80, for subjects ranging in development from children to the adults. Other researchers have focused on the relations between specific self-concept facets (e.g., strength self-concept, endurance self-concept) and self-esteem (Fox & Corbin, 1989; Marsh, 1994; Marsh & Sonstroem, 1995; Sonstroem, Harlow, & Josephs, 1994). For instance, Fox and Corbin (1989) found endurance self-concept significantly correlated with self-esteem. Using Fox and Corbin's Physical Self Perception Profile, Marsh & Sonstroem (1995) found that the specific self-concept facets (e.g., sport competence and body attractiveness) significantly predicted self-esteem in a sample of adult female aerobic dancers. These findings clarify the importance of experience-based self-conceptions in the maintenance of self-esteem. Consistent with the function of maintaining a positive pleasure/pain balance, researchers have found that low self-esteem is associated with depression, negative affect, and suicidal ideation (Harter, 1990a, 1998; Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). We already discussed the assimilation of

experience in the previous section, as self-concept expands with age and experience (see also Harter, 1990b, for a review of literature on change in self-conceptions with age).

Similar to the work of Epstein (1973), Hazel Markus and her colleagues (e.g., Markus, 1977; Markus, Cross, & Wurf, 1990; Markus & Wurf, 1987) conceptualized self-concept as an experience-linked construction. However, instead of a theory, they hypothesized the self as an intricate set of mental schemata. According to Markus and her colleagues, self-schemata have several functions; they summarize sets of abilities, help form one's sense of identity, and direct behavior (Markus, 1977; Markus & Wurf, 1987; Markus, Cross, & Wurf, 1990). Self-schemata result from a repetition of life experience. For instance, believing oneself conscientious results from past experience reflective of this trait, like regularly being on time for important meetings.

One of Markus and colleagues' unique contributions to the theory of self is the notion of the working self-concept (Markus & Nurius, 1986; Markus & Wurf, 1987). The working self-concept represents that dimension of self-concept, with all its related content, that is functioning at a given time. This working self-concept is triggered by a specific set of internal or external cues related to its content. Within this working self-concept exist not only schemata related to one's past and present experience, but also schematic representations of future possibilities in the form of possible selves (Markus & Nurius, 1986). It is these possible selves (both negative and positive) that regulate behavior by predicting desirable and undesirable outcomes of one's actions. Further, it is the existence of these working self-conceptions that allow, according to Markus and her colleagues (e.g., Markus & Herzog, 1991), self-concept to remain dynamic across the life span. Therefore, like Epstein (1973), Markus and colleagues hypothesized the role of self-concept in the regulation of cognition and behavior.

The Characteristics of a Healthy Self

Clearly, based on the literature reviewed so far, the self is a cognitive construction that serves to make sense of one's experience through organization. Further, this self, best studied through one's conception of self (self-concept), increases in complexity with experience, whilst maintaining its relation to the core of one's being, Masterson's super-ordinate self. Other functions include the assimilation of experience, the maintenance of a positive pleasure-pain balance and self-esteem, and the regulation of behavior through the exercise of forethought (i.e., the generation of possible selves). That having been stated, what is the healthy self? I will now outline my synthesis of theoretical perspectives about this rather vague concept.

In Brammer, Abrego, and Shostrom's (1993) classic text on counseling and psychotherapy, a working model of the structure of personality is hypothesized. The emphasis of this model was placed on the realization of a self-actualized personality, a concept articulated by Maslow (1970). Maslow conducted a rather informal study of individuals he considered having attained the highest level of personality

function, self-actualization. Reviewing biographical data from important historical figures, and interviewing selected subjects, he proposed the following characteristics of actualized people.

- ◆ Acceptance of themselves, others, and human nature
- ◆ Spontaneity (not merely unconventionality to be different)
- ◆ Problem centering – strongly focused on problems outside of themselves
- ◆ The need for privacy, and the ability to feel comfortable alone. In fact, according to Maslow, they often prefer to be alone.
- ◆ An autonomous self, independent of culture and the environment
- ◆ A continued freshness in appreciation of even the most common event, like a sunset
- ◆ Capable of experiencing “The Oceanic Experience,” a feeling of oneness with nature
- ◆ A genuine feeling of empathy and sympathy for their fellow human beings, regardless of their frailties of mind and body
- ◆ Actualized people have deeper interpersonal relationships than do other people. However, Maslow also noted that they are very selective of their friends, and they tend to have friends who are close to achieving actualization as well.
- ◆ They are very democratic in their relationships with others, ignoring such superficialities as race, gender, or SES
- ◆ They have a strong sense of morality, although not in the conventional sense.
- ◆ They clearly distinguish means from ends, focusing more on the latter than the former. However, they can appreciate the process as much as the end product.
- ◆ They have a philosophical/non-hostile sense of humor
- ◆ They are creative people
- ◆ They resist enculturation, but do not stand out for the sake of being different. In fact, according to Maslow, they are not bothered by being perceived as “one of the crowd,” it is only when there is a clear reason that violates their principles that they set themselves aside from others to defend their beliefs.

Returning to Brammer and colleagues’ (1993) actualizing model, personality was defined as a dynamic interaction among five distinct but hierarchically organized levels in service of actualizing behavior. These levels are, in order from outside inward: façade, actualizing, manipulative, character, and core. The façade level is the exterior an individual presents to others; it is the mask one wears in public. The façade level acts to protect one’s more vulnerable core-self from threat. In research conducted by Harter (1990b) to assess adolescent self-concept formation, participants identified the façade as a characteristic of the false self; a mask one wears to protect the real self from rejection. According to Brammer and his colleagues (1993), the façade level functions in service of the second outermost. The manipulative level functions to protect the person, manipulate others, and gain control of the environment. Manipulative acts serve to protect the self from experiencing

the ambivalent emotions characteristic of the self in relation to others. For instance, it is not uncommon for a person to love a good friend while hating him for some seemingly insensitive act, like forgetting her birthday. In allegiance with the façade level, the manipulative level seeks to control others so as to protect the vulnerable core self from the source of such ambivalent feelings, and the realization that others do not always see the world as we would like them to. Returning to the example of the angry friend, she may retaliate in a passive-aggressive fashion until her companion realizes something is wrong, and propitiates her. This course of action is easier, and certainly less painful, than the realizing that she is not as important to others as she once believed, and perhaps more importantly, if she wants someone to acknowledge her birthday, she has to let them know that it’s around the corner.

The character level is defined as a stylized pattern of behavior, or a unified system of habits (in William James’s vernacular), that function to achieve the specific aim of maintaining critical interpersonal relationships. Brammer and colleagues (1993) hypothesized that one function of the character level is to provide definition to the self. Because of the interaction of this function with that of stylizing behavior in service of interpersonal harmony, the character level is frequently misinterpreted as the real self. A good example of such misinterpretation is found in the clinical account of William C. (Coopersmith, 1997). According to Coopersmith, William C. believed that the effeminate, “big-teated,” boy he was in the presence of his family, is his real self. William C. was ashamed of that self. However, according to Coopersmith, that self was actually a defensive false self that served to protect William C. from experiencing his true self, which if exposed, could be rejected. Coopersmith proposed that the defensive false self arose from William C’s perceived need to please the father. It was only by conforming to his father’s conditions of worth (employing Rogerian terminology) did William C. believe he could achieve happiness. Therefore, by real self, Brammer and colleagues were referring to one level of the individual’s false self that emerges in the developmental process as the child, in need of parental protection and affection, attempts to maintain a loving relationship with his parents, what Bowlby (1988) referred to as secure attachment. Therefore, according to psychodynamic theorists, a child’s behavior is stylized in an attempt to meet the conditions of worth placed upon him by his parents.

At the center of Brammer and colleagues’ model is the core self. The core self is the point of intersection for all polar emotions. Some of these emotions are present at birth, such as the drive to reproduce and, perhaps, the drive to affect one’s environment (Cooley, 1902/1983; Harter, 1978; White, 1959). Others are learned variations on these and other innate dispositions (e.g., the drive for academic excellence or athletic success). Finally, there is the actualizing level. Although Brammer and colleagues (1993) place the actualizing level adjacent to the façade level, it is presented last here, as it is the goal of healthy self-development. The primary function of the actualizing level is to experience the self and others with clarity, absent of the paratactic baggage of the past. The actualizing level is similar to the psychoanalytic ego, in that

it acts as a filter of internal and external stimuli. It organizes experience to fit with one's past experience. This is a function similar to that attributed to the self by Epstein (1973). Recall that Epstein hypothesized that one of the functions of the self-theory is the assimilation of experience. The actualizing level also acts as an integrating force in that it attempts to rationalize conflicting feelings. According to Brammer and colleagues, when the actualizing level performs these functions, the individual is believed to possess a "strong actualizing system." Further, this person perceives "events as accurately as possible with his or her unique experience background. The person is aware of a feeling of competence to master both internal and external pressures and to reconcile polarities. The person is also aware of a feeling of value and individuality, which is the goal of the actualizing process." (p. 70) Two additional functions of the actualizing level are action and the expression of feelings. Actualizing behaviors are expressed in interpersonal relationships, and feelings put in service of actualizing goals.

Brammer and colleagues' (1993) actualizing model of personality is a hierarchical organization designed to defend the core self (i.e., one's true humanness) while at the same time providing for adaptation through the appropriate expression of feeling and the regulation of behavior. I would like to return briefly to the issue of the defensive false self, the character level in Brammer and colleagues' model. The defensive false self is hypothesized to result from a lack of unconditional support from parents and other relevant figures (including peers) during childhood (Rogers, 1961). Recently, in a study of the correlates of false self behavior in adolescents, Harter and her colleagues (Harter, Marold, Whitesell, & Cobbs, 1996) found support for the importance of conditions of worth, or quality of support in their vernacular, in relation to false self behavior. They found that the best fitting model to their data had perceived quality and level of parental/peer support predicting hope about future parental/peer support, which in turn predicted false self behavior. More specifically, adolescents believing support from significant others is conditional, and for whom little hope of future support was expected, reported engaging in the most false self behaviors. Further, consistent with the findings reported earlier (Harter, 1990b), adolescents reported enacting false self behaviors for several reasons. They enact false self behaviors to protect the true self from rejection (Harter et al., 1996, call this motive "devaluation of self"), to experiment with different roles, and to please or impress others. Interestingly, Harter and her colleagues also found that those expressing the self-devaluation motive were the most likely to express false self behaviors, had the least knowledge of their true selves, and had the poorest psychological adjustment (depression). Adolescents scoring highest on these three dimensions were those expressing false selves for role experimentation purposes, followed by those motivated to please or impress others. Therefore, it is clear from these findings that false self behaviors can result from the belief in conditional regard from significant others, and belief in little hope for support in the future. Further, regular expression of false self can lead to psychological

maladjustment.

The clinical literature supports the maintenance of a defensive false self in order to protect the core self from exposure. However, the focus is directed more at early parent/infant interactions (Bowlby, 1988; Winnicott, 1965). According to Winnicott, false self results from poor mothering. Winnicott defined "good enough mothering" as meeting an infant's needs in a timely fashion, an idea also articulated by Erikson (1968) in his stages of ego development (see also Loevinger, 1976). Winnicott believed that it is impossible to separate the mother from the infant in the earliest period of infancy. However, as the infant ages, the mother or primary caregiver must adjust her parenting style to her child's burgeoning autonomy needs. Consistent with Brammer and colleagues (1993), Harter and colleagues (1990b, 1996) and Coopersmith (1997), Winnicott (1965) defined the false self as follows.

1. The false self sets up as the real self; others tend to perceive it as the real self. However, it begins to fail in complex interpersonal relationships.
2. The false self exists to protect the true self. The true self is acknowledged as potential and allowed a secret existence
3. The false self has as its main concern the search for conditions appropriate for the revelation of the true self. If it fails, it organizes new defenses. If all else fails, suicide is the ultimate yet paradoxical defense¹
4. The false self is built on identifications (conditions of worth in Rogers's vernacular)
5. In healthy individuals, the false self is an integral part of self-adaptation, allowing for appropriate self-expression alone. (pp. 142-143)

While some degree of false self is healthy in all individuals, there are certain cases in which false self is reality, as with the borderline or the narcissistic personality. Individuals suffering from borderline personality disorder are characterized by disturbance of mood, poor interpersonal relationships, and uncertainty in self-definition (Kendall & Hammen, 1995). Masterson (1985) described the borderline personality as follows. "In the borderline personality disorder, all capacities of the real self are impaired to some degree: to spontaneously activate the self with supportive self-assertion, to acknowledge self-worth and self activation and mastery, to feel self-entitlement, to be able to soothe intense affects, to identify the self's unique individuated wishes and activate them in reality, to make and pursue a commitment, and to be creative." (p. 31)

Narcissism is characterized by feelings of grandiosity and entitlement to special treatment by others (Kendall & Hammen, 1995). The narcissistic individual can easily mislead others, with his boundless energy (reminiscent of the manic/depressive in the manic phase) into believing that he is in fact healthy. However, as soon as reality challenges

¹ according to Yegdich (1998), this is a potential reason for the incidence of suicide and self-mutilation found in borderline personality.

his perception of grandiosity, and the true self is exposed, its weakness becomes clear (Masterson, 1985).

While not everyone expressing a false self can be classified as having a personality disorder, a false self can lead to ineffective regulation of affect (see Harter et al., 1996). As opposed to the false self, the culmination of proper self-development results in a healthy sense of self. Masterson discussed the notion of a real self. According to Masterson, the word “real” in real self is synonymous with healthy. Therefore, according to Masterson, the real self is a healthy self. Masterson hypothesized several capacities of the real (healthy) self. These are:

- Spontaneity and aliveness of affect - The capacity to experience affect deeply with aliveness, joy, vigor, excitement, and spontaneity
- Self-entitlement – The self is entitled to experience mastery and pleasure, as well as an environment appropriate to manifest these experiences
- Self-activation, assertion, and support – the capacity to identify one’s unique wishes and use autonomous assertion to achieve them and defend them should they come under attack
- Acknowledgment of self-activation and maintenance of self-esteem – the ability to acknowledge one’s efficacy in dealing with an affective state or environmental challenge. This capacity is the basis for autonomous control of self-esteem
- Soothing of painful affects – the capacity to autonomously limit, minimize, and soothe painful affects
- Continuity of self – the ability to recognize that the “I” of all experiences is continuous over time
- Commitment - to commit the self to a specific objective or relationship, and to persevere in spite of road blocks
- Creativity – to use the self to generate novel patterns out of the familiar
- Intimacy – The capacity to express the self freely in an interpersonal relationship, with minimal anxiety about separation or dependence. (pp. 26-27)

Epstein (1973) discussed the similarity between a self-theory, discussed earlier, and scientific theories. He believed that for a self-theory to function in a healthy fashion, it must meet several criteria appropriate to all theoretical perspectives, self or scientific. According to Epstein, a self-theory must be extensive. He wrote, “A person with an extensive self-theory will have concepts available for coping with a wide variety of situations.” (p. 408) A self-theory must be parsimonious. In order to avoid behavior being situation specific (schematic), it is critical that a self-theory be hierarchically organized around central integrative postulates. A self-theory must have empirical validity. Epstein recognized that no theory is completely valid, especially a self-theory developed through direct and vicarious experience. Instead of taking validity at face value, Epstein preferred the term “self-correcting.” Therefore, a good self-theory is one that is self-correcting rather than rigid. Whereas rigidity may be functional to prevent a total dissolution of the self, it is only through self-correction that an individual can

hope to achieve a healthy self. Rogers believed that a lack of congruence between self-concept and reality is the cause of anxiety (Brammer et al., 1993; Rogers, 1961).

A self-theory must be internally consistent. It is important for one’s view of the self to read like a story with a solid plot. While contradictions are tolerable, and even healthy (see Harter, 1990b), they must make sense as sub-postulates of broader postulates (i.e., a hierarchical organization). A self-theory must be testable. Epstein believed that self-theories should become more valid with experience. To do so, postulates, especially broader postulates, must be testable. It is not uncommon, though, for a self-theory to rest on a foundation of postulates that are beyond verification. Many people seek to maintain self-esteem by constructing a fantastic world in which they are the stars of their own feature production. The less testable a postulate, the more difficult it is to disprove, the easier it is to maintain. However, while such postulates may mask reality well to outsiders, they hardly save the individual from brushes with the incongruity of their beliefs, creating a potentially intolerable feeling of anxiety, an anxiety that the truth may one day be exposed (see also Brammer et al., 1993). Therefore, for health, a self-theory must be congruent with reality, regardless of the pain associated with self-knowledge.

Finally, a self-theory must be useful. As you will recall, Epstein proposed three functions of the self-theory: to assimilate the data of experience, promote self-esteem, and maintain a positive pleasure/pain balance. Therefore, so long as the self-theory carries out these three functions, it is useful. If it fails at any one of these functions, self-reorganization is necessary. However, not everyone is strong enough to reorganize the self. The most likely scenario is that the individual will maintain a deficient self-theory so long as it is useful.

The Characteristics of a Healthy Self

Based on the literature reviewed, 15 conditions emerged as indicative of a healthy self. An individual possessing a healthy self has a strong sense of personal autonomy without sacrificing the benefits of culture (Maslow, 1970). He is spontaneous in his expression of feelings, able to experience affect deeply and with aliveness (Brammer et al., 1993; Masterson, 1985). The healthy self is creative, not limited by functional fixedness; he finds novel uses for familiar objects (Maslow, 1970; Masterson, 1985). The healthy self is characterized by self-activation; he is capable of identifying his unique wishes and defending them as necessary (Masterson, 1985). He has an uncanny sense of self-awareness, fearing not the shadow side of his personality, integrating it into a unique whole being (Jung, 1969). His self-perceptions are congruent with reality, precluding a need to defend a faulty self-theory (Brammer et al., 1993; Epstein, 1973, Rogers, 1961). Therefore, he is capable of maintaining a positive pleasure/pain balance, with normal levels of anxiety and depression (Brammer et al., 1993; Epstein, 1973). The healthy self feels entitled to mastery experiences and pleasure (Masterson, 1985). Therefore, you are likely to find

him enrolled in courses learning new skills, or reading books or the newspaper, always expanding his range of knowledge. Socially speaking, he has a capacity to be alone, and even desires to spend time by himself, when others would shy away from similar situations (Maslow, 1970). Therefore, you are likely to find him alone at restaurants and movies, not because he is unable to be with others, but because he chooses to spend quality time by himself. He is capable of commitment to goals and others, remaining committed even when progress hits walls (Masterson, 1985). Because of his commitment to people, he can count on others when in need of social support. He is capable of role playing, displaying false selves as needed, but not allowing them to interfere with achievement of valued objectives (Brammer et al., 1993; Harter, 1990b; Harter et al., 1996; Winnicott, 1965). He is problem focused. Thus, he gets deeply involved in his pursuits, directing his attention outward rather than ruminating on the inadequacies of his self (Maslow, 1970). As such, he has frequent experiences of the “oceanic” feeling, feeling at one with nature (Maslow, 1970). Finally, he has learned to accept others and himself, without unnecessary judgement (Maslow, 1970; Masterson, 1985). Therefore, he focuses not on his faults or the faults of others, but realizes frailty is a characteristic of human nature.

Based on these characteristics, 60 Likert-scale items were generated in the first version of the Healthy Self Survey (HSS). I am currently collecting data to assess the construct validity of the HSS. The first step is an internal structure analysis. Subsequent studies will be designed for cross-structure analysis. The latter studies will include attempts to validate the HSS against physiologic measures of autonomic functioning, like respiratory sinus arrhythmia (see Porges, 1992, for information on the use of respiratory sinus arrhythmia as a measure of stress response) and concentrations of serotonin metabolites.

Summary, Conclusions, and Directions for Future Research

The self and its processes play a critical role in human survival. It is the ability to reflect upon oneself as an outsider and the capacity to evaluate one’s efforts in relation to situational constraints that allows us to adapt successfully to changing circumstances. A person who can reflect upon his performance accurately, experience the negative feelings associated with failure of his old self-theory, change it, and validate it anew, possesses a healthy sense of self. People who fail to adapt to the constraints of their environment are apt to experience low self-concept and self-esteem. As noted previously, researchers have found that self-esteem is correlated negatively with affective states like depression and anxiety (Harter, 1990a; Rosenberg et al., 1995).

The current model of a healthy self reflects a psychological mechanism that serves to adapt the organism to the constraints of his environment, a process I call psycho-adaptation. As the individual progresses from one set of circumstances to another, a series of psychological processes occur, including an assessment of fit of the current self-theory to the prevailing

environmental constraints. If the self-theory is successful in accounting for experience, the individual pushes forward toward his goals. If on the other hand, the self-theory fits the data poorly, the result is anxiety, as there is a threat to one’s self-definition. This threat is as imposing as a threat to one’s physical person. Therefore, an attempt is made to defend the self-theory against dissolution. As discussed previously, Epstein (1973) hypothesized that the functions of the self-theory include maintenance of self-esteem and a positive pleasure/pain balance. This translates into attempts to make the current self-theory fit the data of experience, whether or not it is congruent with reality.² At times this strategy will work; the public lauds those who succeed against all odds. However, more often it results in failure, and the individual suffers consequences such as depression.

Let me elaborate further on the role of emotional experience in the process of psycho-adaptation. Rather than hanging on desperately to a poor self-theory, riding an infinite loop nowhere, the anxiety discussed above, felt in association with a crumbling sense of self, may be adaptive as it forces the individual to reevaluate his failing self-perceptions. However, because environmental competence is so important to survival, a defeat of one’s pretensions must be forestalled until an alternative self-theory is erected. Once the realization occurs that the current self-theory is no longer valid, depression is likely to set in. Like anxiety, depression is probably an adaptive response as well, as it affords the individual time to give the self-theory several final tries while seeking alternative goals (Neese, 2000). In this way, the ability to experience variation in mood (e.g., anxiety and depression) may be quite adaptive, an idea also articulated by Rogers (1961) and Brammer and colleagues (1993).

As I mentioned previously, one of my goals is to validate the HSS with measures of psychophysiological functioning, as I believe the survey research design is plagued with problems (e.g., social desirability). One psychophysiological system that is implicated in adaptive functioning is the serotonergic neural network of the central nervous system. Deficiencies in the neurotransmitter serotonin (5-HT) are implicated in a variety of psychological disorders indicative of poor adaptation (Carlson, 1999). Serotonin is implicated in Attention Deficit Hyperactivity Disorder (ADHD) (Gainetdinov, et al., 1999; Halperin et al., 1997; Marx, 1999), alcoholism (Lovinger, 1997), aggression (Stanley et al., 2000), clinical depression (Malt, Robak, Madsbu, & Loeb, 1999; Sallee, Hilal, Dougherty, Beach, & Nesbitt, 1998), obsessive-compulsive disorder (Mataix-Cols et al., 1999), panic disorder (Gorman, Kent, Sullivan, & Coplan, 2000; Kirchner, 1999), and suicide (Steegmans et al., 1996; Tanskanen et al., 2000), just to name a few psychological disorders. Researchers speculate that SSRIs (selective serotonin reuptake inhibitors, antidepressant drugs used to treat the aforementioned psychological disorders) may affect autonomic reactivity to feared stimuli by inhibiting neural projections originating in the central nucleus of the amygdala.

² Recall that the third task of the self-theory proposed by Epstein is the assimilation of the data of experience.

These projections affect neural structures involved in the fear response, including the brain stem, hypothalamus, periaqueductal gray matter, and prefrontal cortex, among others (Carlson, 1999; Gorman et al., 2000).

The experience of fear (anxiety), with all its associated responses, is critical to adaptive functioning. For instance, in one study exploring the effects of reduction in prefrontal gray matter volume on adaptive functioning, researchers found that individuals diagnosed with antisocial personality disorder had attenuated autonomic reactivity to normal fear-provoking stimuli (Raine, Lencz, Bihrlé, LaCasse, & Colletti, 2000). Evidently, the inability to experience fear in the individual diagnosed with an antisocial personality, precludes rational judgement, hence mature ego functioning. The latter is an important characteristic of the healthy self. Further, all of the disorders discussed involve the inability to control impulses, another characteristic indicative of a deficiency in ego function. Perhaps the serotonergic neurons, originating in the raphe nuclei of the brain stem, are the biologic equivalent of the psychological ego, what Masterson (1985) hypothesized as the executive arm of the self. Perhaps deficiencies in the serotonin system cause one to overreact to stimuli contradicting one's self-theory. There is already some evidence linking serotonin levels to self-esteem (Sylwester, 1997). Only psychophysiological research can reveal the nature of relation of serotonin and other neurotransmitters in ego function and healthy self-functioning. I plan to pursue this research further.

About the Author

Professor Daniel Rodriguez is a graduate of the University of Maryland doctoral program in Human Development, where he studied under renowned researcher Dr. Allan Wigfield. Daniel Rodriguez is currently an assistant professor of psychology at Widener University in Chester, Pennsylvania in the United States where he teaches Health, Sport, and counseling psychology, and conducts research on self-processes.

Contact Details

Assistant Professor Daniel Rodriguez, Widener University, Division of Social Science, One University Place, Chester, PA 19013, U.S.A.
Email: Daniel.Rodriguez@widener.edu
Phone: (610) 499-4353

References

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84 (2), 191-215.
Bandura, A. (1989). Social cognitive theory. *Annals of Child Development*, 6, 1-60.
Bandura, A. (1997). *Self-efficacy: The exercise of personal control*. NY: W.H. Freeman and Company.
Bowlby, J. (1988). *A secure base: Parent-child*

attachment and healthy human development. New York: Basic Books, Inc.

Bramer, L.M., Abrego, P.J., & Shostrom, E.L. (1993). *Therapeutic counseling and psychotherapy (6th ed.)*. Upper Saddle River, NJ: Prentice Hall

Carlson, N.R. (1999). *Foundations of physiological psychology (4th ed.)*. Boston: Allyn and Bacon.

Cooley, C.H. (1983). *Human nature and the social order*. New Brunswick: Transaction Books, (Original work published 1902).

Coopersmith, S.E. (1997). *Psychoanalytic Review*, 84 (3), 397-416.

Cottrell, Jr., L.S. (1978). George Herbert Meade and Harry Stack Sullivan: An unfinished synthesis. *Psychiatry*, 41, 151-161.

Epstein, S. (1973). The self-concept revisited, or a theory of a theory. *American Psychologist*, 28, 404-416.

Erikson, E. (1968). *Identify: Youth and crisis*. NY: W.W. Norton.

Fox, K.R., & Corbin, C.B. (1989). The physical self-perception profile: Development and preliminary validation. *Journal of Sport & Exercise Psychology*, 11, 408-430.

Gainetdinov, R.R., Wetsel, W.C., Sara, E.D., Levin-Jones, R., Jaber, M., & Caron, M.G. (1999). Role of serotonin in the paradoxical calming effect of psychostimulants on hyperactivity. *Science*, 283, 397.

Gorman, J.M., Kent, J.M., Sullivan, G.M., & Coplan, J.D. (2000). Neuroanatomical hypothesis of panic disorder, revised. *American Journal of Psychiatry*, 157, 793-505.

Halperin, J.M., Newcorn, J.H., Kopstein, I., McKay, K.E., Schwartz, S.T., Siever, L.J., & Sharma, V. (1997). Serotonin, aggression, and parental psychopathology in children with attention-deficit hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36 (10), 1391-1398.

Harter, S. (1978). Effectance motivation reconsidered: Toward a developmental model. *Human Development*, 21, 34-64.

Harter, S. (1982). The perceived competence scale for children. *Child Development*, 53, 87-97.

Harter, S. (1985). *Manual for the self-perception profile for children*. Denver, CO: University of Denver.

Harter, S. (1986). *Manual for the self-perception profile for adolescents*. Denver, CO: University of Denver.

Harter, S. (1990a). Causes, correlates, and the functional role of global self-worth: A life-span perspective. In R.J. Sternberg & J. Kolligan, Jr. (Eds.), *Competence considered* (pp. 67-97). New Haven, CT: Yale University Press.

Harter, S. (1990b). Processes underlying adolescent self-concept formation. In R. Montemayor, G.R. Adams, & T.P. Gullotta (Eds.), *From childhood to adolescence: A transitional period?* (Pp.205-309). Newbury Park: Sage Publications.

Harter, S. (1998). The development of self-representations. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3, Social emotional, and personality development (5th ed.)*. New

York: Wiley.

Harter, S., Marold, D.B., Whitesell, N.R., & Cobbs, G. (1996). A model of the effects of perceived parent and peer support on adolescent false self behavior. *Child Development*, 67, 360-374.

James, W. (1961). *The self*. In G. Allport (Ed.), *Psychology: The briefer course* (pp. 43-83). NY: Harper & Brothers. (Original work published 1892).

Jung, C.G. (1969). Instinct and the unconscious (R.F.C. Hull, Trans). In H. Read, M. Fordham, G. Adler, & W. McGuire (Eds.), *The collected works of C.G. Jung (Vol. 8, pp. 129-138)*. Princeton, NJ: Princeton University Press. (Original work published 1948).

Kendall, P.C., & Hammen, C. (1995). *Abnormal psychology*. Boston: Houghton Mifflin Company.

Kirchner, J.T. (1999). Is sertraline effective in the treatment of panic disorder? *American Family Physician*, 59, 1285.

Lavine, T.Z. (1984). *From Socrates to Sartre: The philosophic quest*. New York: Bantam Books.

Loevinger, J. (1976). *Ego development*. San Francisco: Jossey-Bass Publishers.

Lovinger, D.M. (1997). Serotonin's role in alcohol's effects on the brain. *Alcohol Health & Research World*, 21 (2), 114-119.

Malt, U.F., Herman-Robak, O., Madsbu, H-P., Bakke, O., & Loeb, M. (1999). The Norwegian naturalistic treatment study of depression in general practice (NORDEP)-I: randomised double blind study. *British Medical Journal*, 318, 1180.

Markus, H. (1977). Self-schemata and processing of information about the self. *Journal of Personality and Social Psychology*, 35, 63-78.

Markus, H., Cross, S., Wurf, E. (1990). The role of self-system in competence. In R.J. Sternberg & J.Kolligan, Jr. (Eds.), *Competence considered* (pp. 205-225). New Haven, CT: Yale University Press.

Markus, H.R., & Herzog, A. R. (1991). The role of the self-concept in aging. In K.W. Schaie & M.P. Lawton (Eds.), *Annual review of gerontology and geriatrics (Vol 1)*. NY: Springer-Verlag.

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, 41(9), 954-969.

Markus, H., & Wurf, E. (1987). The dynamic self-concept: A psychological perspective. *Annual Review of Psychology*, 38, 299-337.

Marsh, H.W. (1987). The hierarchical structure of self-concept and the application of hierarchical confirmatory factor analysis. *Journal of Educational Measurement*, 24 (1), 17-39.

Marsh, H.W. (1990a). A multidimensional, hierarchical model of self-concept: Theoretical and empirical justification. *Educational Psychology Review*, 2 (2), 77-172.

Marsh, H.W. (1990b). The structure of academic self-concept: The Marsh/Shavelson model. *Journal of Educational Psychology*, 82 (2), 623-636.

Marsh, H.W. (1994). The importance of being important: Theoretical models of relations between specific and global

components of physical self-concept. *Journal of Sport & Exercise Psychology*, 16, 306-325.

Marsh, H.W. (1996). Construct validity of physical self-description questionnaire responses: Relations to external criteria. *Journal of Sport & Exercise Psychology*, 18, 111-131.

Marsh, H.W., & Sutherland-Redmayne, R. (1994). A multidimensional physical self-concept and its relations to multiple components of physical fitness. *Journal of Sport & Exercise Psychology*, 16, 43-55.

Marsh, H.W., Perry, C., Horsely, C., & Roche, L.A. (1995). Multidimensional self-concepts of elite athletes: How do they differ from the general population? *Journal of Sport & Exercise Psychology*, 17, 70-83.

Marsh, H.W., & Shavelson, R. (1985). Self-concept: Its multifaceted hierarchical structure. *Educational Psychologist*, 20 (3), 107-123.

Marsh, H.W., & Sonstroem, R.J. (1995). Importance ratings and specific components of self-concept and exercise. *Journal of Sport & Exercise Psychology*, 17, 84-104.

Marx, J. (1999). How stimulant drugs may calm hyperactivity. *Science*, 283, 306.

Maslow, A.H. (1970). *Motivation and personality (2nd ed.)*. New York: Harper and Row.

Masterson, J.F. (1985). *The real self: A developmental, self, and object relations approach*. New York: Brunner/Mazel Publishers.

Mataix-Cols, D., Rauch, S.L., Manzo, P.A., Jenike, M.A., & Baer, L. (1999). Use of factor-analyzed symptom dimensions to predict outcome with serotonin reuptake inhibitors and placebo in the treatment of obsessive-compulsive disorder. *American Journal of Psychiatry*, 156, 1409-1416.

McAuley, E., & Gill, D.L. (1983). Reliability and validity of the physical self-efficacy scale in a competitive sport setting. *Journal of Sport Psychology*, 5, 410-418.

Meade, G.H. (1962). *Mind, self, and society*. Chicago: The University of Chicago Press, (Originally published 1934).

Messer, & Harter, S. (1985). *The adult self-perception profile*. Denver, CO: University of Denver.

Neeman, J., & Harter, S. (1986). *Manual for the self-perception profile for college students*. Denver, CO: University of Denver.

Neese, R.M. (2000). Is depression an adaptation? *Archives of General Psychiatry*, 57, 14-20.

Porges, S.W., & Byrne, E.A. (1992). Research methods for measurement of heart rate and respiration. *Biological Psychology*, 34, 93-130.

Raine, A., Lencz, T., Bihle, S., LaCasse, L., & Colletti, P. (2000). *Archives of General Psychiatry*, 57, 119-127.

Rodriguez, D. (2000). *Hierarchical sport self-concept: Assessing the relation of perceptions of tennis competence to broader facets of self-concept and behavior*. Manuscript submitted for publication.

Rogers, C.R. (1961). *On becoming a person*. Boston: Houghton Mifflin Company.

Rosenberg, M., Schooler, C., Schoenbach, C., &

Rosenberg, F. (1995). Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American Sociological Review*, 60, 141-156.

Ryckman, R.M., Robbins, M.A., Thornton, B., & Cantrell, P. (1982). Development and validation of a physical self-efficacy scale. *Journal of Personality and Social Psychology*, 42 (5), 891-900.

Sallee, F.R., Hilal, R., Dougherty, D., Beach, K., & Nesbitt. (1998). Platelet serotonin transporter I depressed children and adolescents: 3H-paroxetine platelet binding before and after sertraline. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37 (7), 777-784.

Shavelson, R.J., Hubner, J.J., & Stanton, G.C. (1976). Validation of construct interpretations. *Review of Educational Psychologist*, 46, 407-441.

Sonstroem, R.J., Harlow, L.L., & Josephs, L. (1994). Exercise and self-esteem: Validity of model expansion and exercise associations. *Journal of Sport & Exercise Psychology*, 16, 29-42.

Stanley, B., Molcho, A., Stanley, M., Winchel, R., Gameraoff, M., Parsons, B., & Mann, J. (2000). Association of aggressive behavior with altered serotonergic function in patients who are not suicidal. *American Journal of Psychiatry*, 157 (4), 609-614.

Stegmans, P.H.A., Fekkes, D., Hoes, A.W., Bak, A.A.A., van der Does, E., & Grobbee, D.E. (1996). Low serum cholesterol concentration and serotonin metabolism in men. *British Medical Journal*, 312 (7025), 221.

Sylwester, R. (1997). The neurobiology of self-esteem and aggression. *Educational Leadership*, 54 (5), 75.

Tanskanen, A., Variainen, E., Tuomilehto, J., Viinamaki, H., Lehtonen, J., & Puska, P. (2000). High serum cholesterol and risk of suicide. *American Journal of Psychiatry*, 157, 648-650.

White, R. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, 66, 297-323. *The motivational processes and the facilitating environment*. New York: International Universities Press, Inc.

Wood, S.E., & Wood, E.G. (1999), *The world of psychology* (3rd ed.). Boston: Allyn and Bacon.

Yegdich, T. (1998). Paradox as symptom in the borderline patient's struggle for self differentiation. *Perspectives in Psychiatric Care*, 34 (1), 15.