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**When a Basic Innate Need Is Not Met:
The Case of the Impaired Proactive Self**

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Thesis submitted to the School of Graduate Studies and Research
of the University of Ottawa in partial fulfillment of the requirements
for the degree of Doctor of Philosophy

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This thesis is dedicated to my mom for nurturing my mind,
and to the memory of two beautiful beings whom I miss terribly,
my dad and my brother

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I am deeply grateful to all the wonderfully kind and generous people who have lent a hand along the way. You have made this an incredible journey.

Thank you.

ABSTRACT

According to Deci and Ryan (1985) the innate nature of the human self is proactivity and agency. Thus, human beings are intrinsically motivated to develop their potentials, pursue their interests, master their internal and external environments and relate to others in the social world. However, dissatisfaction in life and work prevails, failure at self-regulation is rampant, and one out of seven people needs psychotherapy. In an attempt to understand the discrepancy between real life examples and the theoretical portrayal of the human self as proactive and agentic, a causal model was proposed. This model posited that when the basic innate need for relatedness is not met the proactive self is impaired and as a result positive human functioning is impaired. Before this model could be tested however, the proactive self must be first defined. In the first study ($N=375$) the proactive self was defined as a second-order factor composed of three lower-order factors (Intrinsic motivation, organismic integration, and self as CEO) all reflecting the notion of the self as the origin of behavior. A second-order CFA lent empirical support to the proposed definition of the proactive self. In the second study ($N=395$), the definition of the proactive self was cross-validated in a second independent sample. Furthermore, SEM analyses supported and validated the model postulating causal relations among the need for relatedness, the proactive self, and positive human functioning. In the third study ($N=392$) both the definition of the proactive self and the model postulating causal relations between relatedness, proactive self, and positive human functioning were cross-validated. Implications, limitations, and directions for future research are addressed.

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INTRODUCTION

The nature of the human self has long been a provocative philosophical, theoretical, and empirical question that can be traced as far back as the ancient Greeks (Goethals & Strauss, 1991). This interest in the self did not escape William James, the father of modern empirical psychology, who addressed the question in ways that have had enduring influence (Goethals & Strauss, 1991). His most helpful distinction was between the self as known, as an object of reflection, or the Me, and the self as knower, as a conscious agent, or the I. This distinction has come to be best known as the self as content, and the self as process. In this conceptualization, the Me represents the sum total of the content of the self, while the I is the ongoing process of consciousness (James, 1890, 1892).

James' distinction is considered helpful because it enabled psychologists to concentrate on the Me, on the self as content, which "is simpler to explore than the self as process" (Goethals & Strauss, 1991 p. 2). As result, modern empirical psychology has looked at the self in one of two ways. Either the self was viewed as a set of cognitive schemata's and appraisals (e.g., Bandura, 1978; Greenwald, 1988; Khilstrom & Cantor, 1984; Scheier & Carver, 1988), or it was defined as a reflection of social evaluations (Cooley, 1902; Mead, 1934). In provocative theorizing, Deci and Ryan (1991) challenged these two notions of the self, maintaining that they do not capture the essence of the self, and that in fact they miss its true nature. According to these two authors, the self is beyond cognition and more than the looking-glass self, it is a process. To these two

authors, the innate nature of the self is that of agency and proactivity. As such, the proactive self is intrinsically motivated to pursue its interests, to expand its capacities, and to master its internal and external environments, hence, epitomizing Piaget's (1971) claim that the nature of life is to overtake itself. If that is the case, if agency and proactivity are the true nature of the human self, why is it then that nearly 40% of people report boredom during leisure time (e.g., Tokarski, 1981; Bernstein, 1975)? Why is it that failure at self-regulation is rampant (Baumeister, Heatherton, & Tice, 1994), and dissatisfaction with life and work is prevalent (Deci & Ryan, 1985)? Why is it that so many individuals have failed to master their internal and external environments (e.g., Carson, Butcher, & Coleman, 1988)? What could be precluding people from living in line with their innate nature? Theoretically, these realities, inconsistent with the image of persons as proactive and agentic, point to the impairment of the proactive self. As such, two important empirical questions are raised: what is causing the impairment of the proactive self? And what are the consequences of this impairment?

The purpose of the present research is to address these issues and to argue that the answer may lie in the nature of the proactive self. According to Deci and Ryan (1985) the proactive agentic self has three basic innate organismic needs: competence, autonomy, and relatedness. These three needs constitute the essential nutriments the proactive self needs to grow and develop. Thus, when they are not met the proactive self is impaired, and fragmentation and heteronomy set in. While the effects of the lack of satisfaction of the two needs of autonomy and competence on self-determination, (which reflects the degree of involvement of the proactive self in the initiation of behavior) have been

explored, the need for relatedness has attracted little attention. The purpose of the present research is two-fold: first, to empirically define and measure the proactive self; second, to propose, test and validate a causal model whereby the lack of satisfaction of the need for relatedness impairs the proactive self which in turn leads to the impairment of positive human functioning. Conversely, when the need for relatedness is met the proactive self is healthy and developed which leads to higher levels of positive human functioning.

The thesis proposal is structured in five broad sections. In the first section, the introduction, a detailed definition of the proactive self is developed, and the role of the social environment in the development of the self, as postulated by Deci and Ryan, is reviewed. At this point, the literature on the need for relatedness is introduced. Here three perspectives are reviewed along with the consequences of relatedness deprivation. The introduction ends with a review and discussion of the consequences of the impairment of the proactive self.

To achieve the goals set forth in the present dissertation, three survey-type studies were conducted. Each study is treated within a separate section of the thesis. As such, the details and results of Study 1, Study 2, and Study 3 constitute section 2, section 3 and section 4, respectively, of the thesis. The first study was conducted for the purposes of testing and validating the definition of the proactive self developed in the introduction. The purpose of the second study was two-fold: first, to cross-validate in a second independent sample the definition of the proactive self; second, to test and validate the model proposing causal relations among the need for relatedness, the proactive self, and positive human functioning. As for the third study, it was performed solely for cross-

validation purposes of both the definition of the proactive self (in a third independent sample) and the causal model, which was tested for the first time in the second study.

In the fifth and final section of the thesis, a general discussion of the results obtained in the three studies is presented. Implications of the studies, their limitations, and possible directions for future research are also addressed.

What is a Proactive Agentic self?

Contrary to dominant trends in modern empirical psychology, which focus on how the self is constructed (e.g., Bandura, 1978), Deci and Ryan (1985) argue that the neonate is not born *tabula rasa*, passively waiting for the active environment to imprint it, and define it. Rather, there is a nascent self innately endowed with a set of processes and potentials. The self is a “vital core”, a center of energy from which action and behavior originate. As such, the proactive self is not merely the outcome of social pressures and evaluations, rather it is the very process through which individuals contact the social environment and work towards integration with respect to it. In this theorizing the self is portrayed as a set of motivational processes with a variety of assimilatory and regulatory functions. Hence, the proactive self is intrinsically motivated to pursue its interests, expand its capacities, and master itself and its environment. In other words, the self is the origin of behavior.

The notion of the self as the origin of behavior began in philosophy and phenomenology (Ryan, 1991). This notion ultimately trickled into empirical psychology

via the work of Heider (1958) and deCharms (1968), and it culminated in the self-determination theory of Deci and Ryan (1985).

Alexander Pfander (1908/1967) was one of the earliest philosophers to explore the phenomenology of will. He used the phenomenological methods to distinguish between those acts that reflect one's will and other forms of motivation. An act of will is experienced "precisely not as an occurrence caused by a different agent but as an initial act of the ego-center itself" (p. 20). While Pfander does not deny that external pressures and inner impulses may provide "grounds for willing", nonetheless he insists that an act will be considered self-determined and an act of will, if and only if, it is endorsed by the "ego-center" or the self.

In his book *Freedom and Nature* (1966), philosopher Paul Ricœur contends that one can remain willful and free, even when under pressure to act in certain ways, as long as one concurs with or accepts the mandates in a personal sense. As long as one willfully consents and accepts the motives, obligations, or inducements, one is said to be proactive and autonomous.

Pressure to act is not limited to outside forces. Phenomenologists clearly suggest that forces within the individual can hamper proactivity and autonomy (cf. Ryan, 1993). An inner impulse or drive can coerce someone just as an external force can. When the cause of one's behavior is in a desire or an impulse that "lies outside the self" and that one feels compelled to follow, then one is not proactive in following it. Hence, unless the self fully endorses the impulse, the drive, or the external pressure, the action is not autonomous or proactive.

This is echoed by the work of more recent authors on the philosophy of autonomy. Dworkin (1988), for example, argues that autonomy does not entail “being subject to no external influences” and behaving without constraints. The issue is whether in following these influences, the individual is doing so out of obedience, or coercion, or because the individual has evaluated the situation, and then made a conscious decision to follow through because of some high goal, meaning, or value. For example, one is constrained to stop at a red light. The person, however, may assent to the idea that traffic laws are there to protect and safeguard everyone. In assenting the person is retaining autonomy. According to Dworkin (1988) autonomy entails endorsement of one’s actions at the highest order of reflection.

While these notions flourished in philosophy, they were foreign to early modern psychology. At the time, the two dominant forces in psychology, psychoanalytic theory and behaviorism, made issues of volition and self-regulation mute. They considered concepts like willpower and personal agency to be little more than human fictions. This remained the case until the advent of Third Force Psychology (Humanistic Psychology), which mounted a vigorous protest against the unconscious motivational determinism of classic psychoanalytic theory and the environmental determinism of Skinner’s behaviorism.

Humanistic psychologists did not assume determinism in explaining human behavior. Rather, they assumed that humans are free to choose their own type of existence. They construed humans as spiritual, rational, purposeful and autonomous creatures. Maslow (1968), for example, argued that human motivation is more of a

“pulling” towards goals than it is a “pushing” by human drives. In the work of other humanists such as Rogers (1951) and Allport (1937) the self became the agent of personal causation with the capacity for purposeful self-direction. The workings of this global self however, remained too mysterious for many researchers. Moreover, many of the terms and concepts that humanistic psychologists used were so nebulous they defied clear definition and verification. It was not until the work of Heider and deCharms that issues of autonomy began to make their way to empirical psychology.

Heider (1958) believed that a central concern for people is the cause of action. He introduced the construct of perceived locus of causality. Action can be perceived as either personally caused or the result of non-intentional or impersonal causes. When an act is personally caused, it is intentional. Effort and ability towards some end are evinced. Conversely, impersonally caused action is characterized by an absence of control or intention with regard to actions or outcomes.

Heider’s work was further extended by deCharms (1968), who argued that intentional action by itself is not always self-initiated or free. Often intentional actions are performed because of the pressure applied by outside agents. To differentiate between heteronomous and freely performed acts, deCharms (1968) proposed that the notion of the perceived locus of causality be applied within the category of intentionality and personal causation. He argued that an intention can have either an internal or an external perceived locus of causality. An internal perceived locus of causality refers to the initiation and organization of behavior by the self. An external perceived locus of causality on the other hand, refers to the initiation and organization of behavior by

sources outside the self. Sources outside the self do not solely refer to external pressures, they do include internal pressures and emotions. When the intentional act has an internal locus of perceived causality, then action is volitional, and one experiences oneself as the “origin” of the action. On the other hand, when the intentional act has an external perceived locus of causality, then the person experiences herself or himself as a “pawn” governed by pressures or inducements even though the person intended to perform the action.

The notion of the perceived locus of causality offered an operational route into the issues of agency and self-determination versus heteronomy. Deci and Ryan (1985) used this construct to organize a variety of empirical projects that examine the functional effects of autonomy versus heteronomy on behavior, learning, and personality development. In spite of the abundance of research generated by self-determination theory (Deci & Ryan, 1985), the proactive self was never empirically defined and measured. The autonomy or self-determination indices used by researchers exploring the postulates of self-determination theory proved useful in distinguishing intentional actions that represent human agency from those that do not. These indices, however, reflect the degree of involvement of the proactive self, but they do not define it. In the following pages a definition of the proactive self based on self-determination theory (Deci & Ryan, 1985) and philosophical notions of autonomy (e.g., Dworkin, 1988) is provided and detailed.

The notion of the self as the origin of behavior translates into three major characteristics. First, the proactive, agentic self is a self that is intrinsically motivated to pursue its interest, conquer challenges, and relate to others in the social environment.

Second, the proactive, agentic self seeks integration and cohesion both within itself and with others (organismic integration). Hence, it is intrinsically motivated, for example, to internalize events and social rules so as to make them its own and remain an agent with regard to them in the process. Finally, in its interaction with the environment (internal as well as external), the proactive, agentic self remains the chief executive officer, navigating amidst the problems and pressures of daily life as an agent rather than a pawn. A brief overview of each of the characteristics of the proactive self, follows.

Intrinsic Motivation

Intrinsic motivation is at the heart of the proactive, agentic self. It is the life force, the central energy that fuels the proactive self (Deci & Ryan, 1985). Intrinsic motivation is rooted in the basic innate needs of competence, autonomy, and relatedness (Connell, 1990; Deci & Ryan, 1995; Ryan & Lynch, 1989). As such, the proactive self is innately motivated to conquer challenges, develop its potentials, interests and competencies, originate behavior, and relate to others in the social environment (e.g., Ryan & Connell, 1988). Markers of intrinsic motivation are noted in infancy (e.g., Stern, 1985; Grolnick, Frodi, & Bridges, 1984) and unless forestalled, will continue to energize behaviors across the life span. Evidence reveals that the types of activities that are intrinsically satisfying are those that promote expansion of one's capacities (Elkind, 1971). As such, intrinsic motivation is postulated to foster development (Ryan, Deci, & Grolnick, 1995).

Intrinsic motivation relates to the active, spontaneous, and challenge-seeking nature of the proactive self. When intrinsically motivated, the behaviors are not triggered

by anything in the environment, nor are they the result of reinforcements, contingencies and/or tissue deficits (e.g., White, 1959). Rather, these behaviors originate from the self independently and in the absence of any reward, pressure, or constraint (Deci, 1975). They are inherent to the nature of life (Elkind, 1971); they are purposive (Deci & Ryan, 1985) and autotelic (Csikszentmihalyi, 1975). Their only necessary rewarding consequences are the spontaneous affects and cognitions that accompany them (Deci, 1975). The person undertakes these behaviors out of interest and enjoyment (e.g., Izard, 1977; Grolnick & Ryan, 1989), energized by the search for an optimally challenging activity (e.g., Berlyne, 1966; Danner & Lonky, 1981). As such, intrinsically motivated behaviors epitomize the notion of the self as the origin of behavior. In fact, they are used in the empirical literature as a yardstick against which other types of motivated behaviors are assessed to determine the extent to which they are autonomous (e.g., Ryan, 1995).

Not every behavior individuals engage in, however, is intrinsically motivated. The complexities of daily life may warrant the engagement in activities that may not have been chosen otherwise (e.g., working as a waiter to pay the bills when one's true passion is acting). Furthermore, individuals live in a social environment that has a set of rules, expectations and cultural values, many of which are foreign to the self; many of which the self may not be interested in pursuing spontaneously (e.g., paying one's taxes; wearing a seat belt; losing weight). Yet, individuals are intrinsically motivated to relate to others, and to feel competent and autonomous in their interactions with the social environment. These motivational processes warrant that individuals abide by many of the social rules and engage in behaviors that are in line with social expectations and demands (e.g., Deci

& Ryan, 1991) Does the proactive, agentic self passively or reluctantly comply with the social rule or demand? How can the proactive self continue to originate behavior under these circumstances?

Organismic Integration

The second defining characteristic of the proactive self is organismic integration. It refers to an intrinsically motivated process whereby the proactive self seeks to attain integration and cohesion both within itself and with others in the social world. This is accomplished through the continual integration of internal and external stimuli and through the ongoing process of differentiating and integrating one's experiences into a unified sense of self (Deci & Ryan, 1985, 1991; Ryan, 1991, 1993). As such, the proactive self is intrinsically motivated to fully assimilate social regulatory processes and structures (if they are fully compatible with its nature). Hence, the agentic self does not merely accommodate the rules and expectations of the social environment. Rather, it actively works to assimilate them, to accept them as its own, and to bring them into a consistent relation to other needs, processes, and values that it has previously integrated. As result, the social rule is no longer foreign to the self. Moreover, the social rule no longer originates the behavior.

By adopting and endorsing the social rule, the proactive self becomes the originator of a behavior that began by being regulated by sources outside of it. In other words, what began outside of the self, what began as an imposition on the self, becomes originated by the self through the process of organismic integration. The organismic

integration of social rules and values is but one instance of organismic integration. It is the most detailed and researched within the context of self-determination theory (Deci & Ryan, 1985), and it is known in the literature as internalization. Due to its importance in illustrating and highlighting the second defining characteristic of the proactive self, organismic integration, the process of internalization is briefly reviewed below.

The process of internalization does not occur at once. It has several steps and levels. A healthy proactive agentic self fulfills all the steps, graduating to the upper and last level of internalization, namely integration. Only when a goal is fully integrated can it be considered as truly originating from the self, as truly self-determining. An impaired proactive self, on the other hand, may either not begin the process of internalization at all (thus, the behavior remains under external control) or it may stop at the first level of internalization. A brief review of the different steps and levels of internalization is presented below.

The first step in the internalization process is introjected regulation. It refers to the person taking in and internalizing a goal or a value that was previously regulated by agents external to the self, such as parents or teachers. At this level of internalization, even though one has taken in the value or the goal, one has not fully accepted it as one's own. One is still "being regulated" rather than operating from an integrated sense of volition. This would be the case with John, an overweight man, who follows a fitness regimen to avoid being abandoned by his partner, who has a clear preference for slender, fit men. While his wife no longer needs to nag him about exercising and eating well (he willingly goes to the gym), what is regulating John's behavior is his fear of abandonment.

As such, he is “still being regulated”. Fitness does not mean much to John, and he would gladly stop exercising were it not for his fear.

If the organismic integration process is not hindered and continues to function with respect to the introjected regulation, one comes to consider the activity as important to oneself and beneficial in and of itself. Thus, the introjected regulation becomes identified. While the self is more involved in the regulation of identified regulation than it is in the regulation of introjects, what is missing however, is consistency between this and other identifications that may have been internalized. Let us return to John, the overweight man of the previous example. At this point, John eats well and exercises because it is important to his health. His fear of abandonment is no longer the regulator of his behavior. John, however, has other priorities in his life such as providing for his family, which means working long hours if and when necessary. It is also important to John to spend as much quality time as he can with his family. Thus, John feels conflicted between all these demands on his time (family, work, and exercise). As result, he is inconsistent in his approach to fitness and often does not exercise in order to make time for the other priorities in his life.

If at this point nothing interferes with the organismic integration process, the identified regulation becomes integrated. At this level, the behavior truly originates from the self and is fully endorsed by it. There is a harmonious coexistence among the regulatory processes. The different values or goals no longer conflict with each other. As result, there is a feeling of integrity in action and cohesion of self. Action is perceived to be freely done. It is self-determined. In the case of John, this will translate into his

coming to the realization of how being healthy and energetic facilitates and enhances his engagement in the other priorities in his life. Being fit allows him to work more effectively at his job, hence leaving him more time in his day for other activities. Furthermore, being fit allows him to engage with his children in two of their favorite activities, soccer and baseball. As result, he decides to get up one hour earlier every morning to do his exercise regimen. By doing this he is keeping fit and reaping the health benefits, but he also has the time and energy to perform the other activities in his life. Hence, there is cohesion and integration among John's different self-selected goals.

The process of internalization, described above, is only one instance of organismic integration. The latter extends beyond the integration of social rules and demands to include the integration of one's experiences, emotions, interests and capacities, which are further refined and differentiated in the process (Deci & Ryan, 1985). Through the process of organismic integration and by digesting and owning rules, experiences, and emotions the agentic self continues to originate behavior and continues to be autonomous. This is the essence of the proactive agentic self.

Self as Chief Executive Officer

In addition to intrinsic motivation and organismic integration, the third defining characteristic of the proactive self is self as chief executive officer. This refers to the self remaining in charge and in control amidst and in spite of the challenges of daily life. This does not imply that the self aims to subdue and suppress everything it comes in contact with. Rather, when the self is faced by intense emotions or by intense external pressures,

it does not regress, it does not become overwhelmed, and it does not become depressed. The proactive agentic self uses emotions and pressures as feedback. It sees them as information that it will assess and then use to choose the best course of action that will lead it to attain its own integrated goals or to continue to uphold its own integrated values. Hence, in the space between stimulus and response, the proactive self does not react. Rather, it retains its freedom to choose.

At the internal boundary of the self, this will translate into the self controlling impulses and delaying gratification in the service of integrated goals and values. It translates into the proactive self dealing with its own emotions from a stance of agency. While the proactive self does not suppress the emotions, it does not passively comply with them, nor does it become immobilized by them. Rather, the proactive self retains the decision-making process and continues to originate behavior in the face of the emotions, no matter how negative or strong the latter are. In other words, emotions, impulses and urges do not originate the behavior.

At the external boundary of the self, this will translate into a self persisting in the face of setbacks, remaining resilient and resourceful. Again, the self retains the decision-making process in the face of environmental pressures, rewards, constraints, and obstacles. The proactive self, however, does not indiscriminately persist or hold on to its goals oblivious to what is happening in the environment. The proactive agentic self will change goals and courses of action if it realizes they are beyond its control. It does so, however, out of free choice, not helplessness. Deci and Ryan (1985) refer to this as choiceful accommodation.

As a result of the self remaining the chief executive officer and retaining the freedom of choice at both the internal and external boundaries, organismic congruence ensues (Deci & Ryan, 1985). There is a coherence between organismic needs, actions, cognitions, feelings, and behaviors.

The three characteristics described above reflect the innate nature, characteristics, and potentials of the proactive agentic self. Whether they will be expressed or not will depend on the quality and nature of the dialectic between the self and the surrounding social environment. It will depend on whether or not this environment carries the nutriments necessary to foster the healthy development of the proactive agentic self (Deci & Ryan, 1985). In the following subsection, a review of the research that examined the impact of different environmental conditions on the proactive self and growth processes follows.

The Proactive Self and the Social Environment

Like all living organisms, the proactive self is not born fully developed, nor does it develop in a vacuum. While the environment does not define or determine the nature of the self, it may, however, impede its proper and healthy development (Deci & Ryan, 1985; 1991).

The role of the social environment as a facilitator or inhibitor of the development of the proactive self is a central tenet in the theorizing of Deci and Ryan (1985). According to these authors, when a social environment meets the organismic needs of the

proactive self, intrinsic growth processes issue forth and are promoted. As result, the proactive self unfolds and develops in line with its innate nature. When the environment does not satisfy those needs, it will impede the expression of these growth processes and by the same token impair the development of the proactive self, leading to fragmentation, alienation, and lack of self-cohesion. This should not be viewed as a testimony that the environment shapes the self, rather it should be seen as a testimony that the innate nature of the self is the determinant. If the self did not have these innate needs, the environment would not have mattered.

The notion of the influence of the environment on the innate qualities of the agentic self was forcefully raised by deCharms (1968). He advances that external forces and pressures to act in a certain way may be conducive to creating the perception of an external perceived locus of causality, hence leading someone to feel like a pawn.

His proposition was empirically explored by researchers who offered rewards for, or imposed external controls on, the achievement of a task previously identified as one participants engage in freely out of interest and fun. Results of early studies revealed that people were less likely to persist in an activity after they were rewarded for doing it. The effect was true for children and adults alike (Deci, 1971; Lepper, Green, & Nisbet, 1973). Why would a reward, something positive after all, have such a detrimental effect? In an attempt to explain this counterintuitive phenomenon, Deci and Ryan (1980) argued that rewards may under many circumstances shift the locus of causality for engaging in the behavior from an internal locus of causality to an external locus of causality. As a result, self-determination is undermined. The person no longer sees herself as the origin of

behavior, rather an external event is, and the feeling of being a pawn sets in. As research proceeded to test the Deci and Ryan (1980) proposition, evidence accumulated in its support (see Deci and Ryan for a review, 1987). Several external events in addition to rewards led to the undermining of intrinsic motivation, among them: deadlines (Amabile, DeJong, & Lepper, 1976), surveillance (Lepper & Green, 1975), avoidance of unpleasant stimuli (Deci & Cascio, 1972), imposed goals (Mossholder, 1980), and social evaluation (Smith, 1974).

Recent research provided further refinements and distinctions to our understanding of the effects of external events on intrinsic motivation. As it turned out, having an external event such as a reward or a deadline does not necessarily lead to lower levels of intrinsic motivation towards the activity. In fact, an external event may facilitate intrinsic motivation (Harackiewicz, Manderlink, & Sansone, 1984). A reward or a deadline by itself is a neutral stimulus. It will gain its inhibiting effects on intrinsic motivation when it is offered or imposed in the context of a controlling interpersonal environment. However, when it is offered in the context of an autonomy-supportive environment, it may facilitate and enhance intrinsic motivation (Ryan, Mims, Kostner, & Deci, 1983). This discovery channeled the research on external events and interpersonal environments in a new direction and new theorizing emerged along with it.

The psychological meaning, or functional significance, people give contextual factors and social environments became the critical element in the determination of behavior (Deci & Ryan, 1985, 1987, 1991). While social environments can be construed in several ways (see Deci & Ryan, 1985) the most researched and reviewed are social-

contextual factors that have a functional significance of being either controlling or autonomy-supportive (see Deci & Ryan, 1987). Controlling environments are ones where people are pressured to feel, think, and behave in certain ways. In such environments, people do not experience choice, rather they feel obligated to abide by someone else's directives and wishes. These environments are believed to thwart the development of the proactive self. They do not allow the self as an origin of behavior to express itself or to be. Autonomy-supportive environments on the other hand are environments that encourage people to take initiative and to act in line with their own likes, dislikes, and self-selected goals. Such environments provide people with the opportunity to make choices for themselves. There is very little pressure, if any, on people to behave in certain ways. This is not to imply that these are laissez-faire environments devoid of any structure. Rather, these environments are structured such that people do experience a sense of freedom and choice within the structure. These environments are believed to be conducive to the development of the proactive self. They nurture the self as an origin of behavior and they are geared to facilitate its expression as such.

To test the new theoretical formulations, numerous studies (field and experimental) were conducted. They yielded converging evidence in support of the enhancing role of autonomy-supportive environments and the debilitating effects of controlling environments. As in the initial studies on external events, intrinsic motivation was the dependent variable of choice, given that it is the prototype of agency and proactivity, and the state most conducive to growth (Deci & Ryan, 1991).

In the field studies, the typical paradigm was to measure the existing interpersonal style of a supervisor, a parent, or a teacher and relate it to levels of intrinsic motivation or other motivational variables among the subordinates, children, or students living in that social environment. Study after study conducted among children and adult participants alike and across varied occupational fields and social environments (parent-child; supervisor-subordinate; coach-athlete) revealed that controlling environments were linked to lower levels of intrinsic motivation, while higher levels of intrinsic motivation were linked to environments that are autonomy-supportive (see Deci & Ryan, 1987).

For example, inner city children taught by teachers trained to provide an autonomy-supportive environment displayed higher levels of intrinsic motivation towards their school than the students tutored by teachers who did not receive training. Furthermore, the performance of the former students was better than the latter (deCharms, 1976). In a similar line of research, Deci and Ryan (1980) monitored the changes in intrinsic motivation of school children from the second day of school to the end of the second month. Their results revealed that children taught by autonomy-supportive teachers showed an increase over their initial levels of intrinsic motivation relative to the children taught by controlling teachers (see also Deci, Nezlek, & Sheinman, 1981).

Adults in the corporate world supervised by a controlling manager did not fare better than the students of controlling teachers. Deci, Connell, and Ryan (1989) found that employees supervised by controlling managers displayed decreased satisfaction at work and alienation from the corporation relative to the employees supervised by autonomy-supportive managers. The alienation and dissatisfaction were reduced,

however, following an intervention with controlling managers that helped them change their styles towards becoming more autonomy-supportive and empathic with workers.

Experimental studies, where the spontaneous non-prompted engagement of a subject in an activity was measured first, and then an autonomy-supportive or controlling environment was created in the lab and its effects on the intrinsic motivation of the participants were registered, mirrored the field studies. In lab conditions where participants were offered explicit choices (Zuckerman, Porac, Lathin, Smith, & Deci, 1978) and were addressed using non-pressuring locution (Ryan et al., 1983), it was found that participants' intrinsic motivation was maintained or enhanced. In lab conditions where participants were addressed using pressuring locution such "Be a good boy and do this", their level of intrinsic motivation plummeted.

The support of autonomy is but one of the processes postulated by Deci and Ryan (1985, 1991) to influence motivation. According to cognitive evaluation theory, a sub-theory of self-determination theory (Deci & Ryan, 1985), perceptions of competence play an important role in affecting intrinsically motivated behaviors and self-determined extrinsically motivated behaviors. Hence, any event or environment that increases and enhances perceptions of competence will lead to higher levels of intrinsic motivation. Conversely, any event or environment that decreases perceptions of competence will adversely affect intrinsic motivation and self-determined extrinsic motivation.

Real life examples and empirical research lend support to these contentions. People, for example, do tend to stay away from activities they do not feel very competent at, while preferring to engage in activities they feel they are good at (Vallerand & Thill,

1993). Laboratory studies have shown that the experience of success and positive feedback lead to an increase in perceptions of competence which in turn leads to higher levels of intrinsic motivation. The experience of failure and negative feedback, however, reduce perceptions of competence. As result, intrinsic motivation suffers and participants' free engagement in the activity is lower.

Vallerand and Reid (1984), for example, asked participants to engage in a balancing act (the stabilometer) during pre-test and post-test periods. Following the post-test alone, participants were given either positive, negative, or no performance feedback. Following both pre-test and post-test, participants completed questionnaires pertaining to situational perceptions of competence and intrinsic motivation. Results revealed that the more positive the feedback given to participants, the more competent they felt. In turn, the more competent participants felt, the more they were intrinsically motivated. Perceptions of competence explained 40 out of 48% of the variance in situational intrinsic motivation. These findings were replicated with different tasks, subject populations, and settings (Harackiewicz & Larson, 1986; Vallerand & Reid, 1988; Whitehead & Corbin, 1991). Finally, it seems that the mediating effects of perceptions of competence are particularly strong when the subject's main objectives are to achieve competence (Sansone, 1986) and when the individual's sense of autonomy is supported (Ryan, 1982). The Ryan study conveys once again the importance of autonomy-support. Participants who were given competence-enhancing feedback in an autonomy-supportive manner were more intrinsically motivated towards the task than the participants who were given the competence-enhancing feedback in a manner that conveyed control.

Together, field and experimental studies denote the importance of an autonomy-supportive and competence-enhancing environment for promoting intrinsically motivated behavior. They provide sufficient evidence for the nefarious effect of an environment that does not satisfy the organismic needs of the proactive self. However, most of these studies have focused on the two needs of competence and autonomy. The need for relatedness remains the least explored of the three needs, and one whose lack of satisfaction in terms of intrinsic motivation, growth processes, and agency are not well-known. There was a time, indeed, when the need for relatedness was not even mentioned by researchers empirically exploring the postulates of self-determination theory. While this is no longer the case, and while an emerging robust interest in the need for relatedness seems to be building, nonetheless, only a handful of studies can be linked to the need for relatedness.

Avery and Ryan (1988) found that the quality of child-parent relationship as it is represented by the child, may be associated with more positive self-beliefs, more confidence and more sense of adjustment. Moreover, children who had representations of their parents as nurturing were more liked by their peers than children who did not have such representations. In a similar vein, Ryan, Stiller, and Lynch (1994) reported that representations of relationships to parents, teachers, and friends may have direct significance for adaptive functioning in school and for self-esteem during adolescence.

Ryan and Kuszowski (1994) report that the imaginary audience phenomenon prominent in adolescence tends to diminish by late adolescence. However, if the

relationship between adolescent and parent is of the insecure type, the imaginary audience phenomenon will remain salient.

Perceptions of parents as nurturing and autonomy-supportive were associated with high levels of perceived lovability, competence, self-esteem, and separation-individuation (Ryan & Lynch, 1988). Research by Richer and Vallerand (1996) indicated that workers who had a high need for relatedness at work were more likely to be self-determined towards work if their need was met than if it was not met.

The paucity of research on the need for relatedness within the context of self-determination theory is evident. In most of the studies reviewed above, the need for relatedness was not the primary focus of the investigation nor did the postulates of self-determination theory provide the theoretical background for most of these studies. In addition, these studies were domain specific. Finally, the postulation of the need for relatedness as an organismic need of the proactive self was never explored before. The present research proposes to bridge this gap and to explore the effects of the satisfaction or lack thereof of the need for relatedness on the proactive self. In the following subsection, the literature on the need for relatedness is addressed.

The Need for Relatedness

The notion of a need for relatedness or a need to belong is not new in modern psychology. A large number of modern theorists, both early and recent, proclaimed its existence (Baumeister & Leary, 1995). Freud (1930), for example, asserted its presence

in several ways. When he was asked to define mental health, he retorted with the well-known dictum *lieben und arbeiten* (loving and working). Ever since, the capacity of individuals to form and maintain close emotional bonds with others has remained a vital criterion for mental health. Freud, however, tended to conceive of the need to belong as derived from the sex drive and the filial bond. Maslow (1968), on the other hand, positioned the need for “love and belongingness” in the middle of his motivational hierarchy. While food, hunger, and safety take precedence over the need for love and belongingness, the latter, however, takes precedence over other psychological needs such as esteem and self-actualization. Relatedness is the central motivational theme in object-relations theories (Fairbairn, 1954) as well as in the more contemporary need-based accounts (e.g., Epstein, 1994).

These are but a handful of the theorists who posited the presence of a need for relatedness. Several others have made similar suggestions (e.g., Horney 1945; Fromm, 1955; Sullivan, 1953; Deci & Ryan, 1985; Ryan, 1991; de Rivera, 1984; Hogan, 1983; Guisinger & Blatt, 1994). The existence of a need to belong is thus a familiar point of theory and speculation. In addition, reviews and empirical studies of the sources of life satisfaction almost invariably place relationship success at or near the top of the list (Argyle, 1987; Myers, 1992). What does it mean to relate? Is it about social affiliation and social contact? Or is there more to relatedness? To help understand the meaning of relatedness, three definitions will be reviewed below. The first is Baumeister and Leary’s (1995) need for belongingness, the second is the Deci and Ryan definition (1991), the third is attachment theory (Bowlby, 1969, 1988).

Baumeister and Leary (1995) define the need to belong as the need to form and maintain at least a minimum quantity of positive, significant, and lasting interpersonal relationships. They consider the need to be biologically prepared. As such, human beings are naturally driven towards establishing and sustaining close interpersonal ties. Humans do not acquire the need to belong through social learning, nor do they independently generate it. Furthermore, the need to belong, according to these authors, “is a powerful, fundamental, and extremely pervasive motivation” (p. 497).

According to Baumeister and Leary (1995), the need to belong has two main features. First, individuals need to engage in frequent personal interactions and contacts with the other person. Second, people need these interactions to occur in the framework of an ongoing, stable relationship characterized by caring and concern. Both features must be met if the need is to be satisfied. Frequent contacts alone are not sufficient by themselves for the need to belong to be satisfied. The person must in addition believe that the other cares about his or her welfare, and likes or “loves” him or her. Similarly, believing someone cares about you and not having frequent contacts with them interferes with the satisfaction of the need.

Thus, according to Baumeister and Leary (1995), the need to belong is something more than either a need for affiliation or a need for intimate attachment. An extensive search of the literature supported their contention and provided a further distinction. While there is more satisfaction of the need to belong when both features are met, nonetheless fulfilling one of the features provides some benefit compared to satisfying neither one of them. Baumeister and Leary (1995) conclude their review of the literature

asserting: “The desire for interpersonal attachment may well be one of the most far reaching and integrative constructs currently available to understand human nature” (p.522).

Further refinement of what it means to relate is provided by the work of Deci and Ryan (1991). Like Baumeister and Leary (1995), these authors also consider the need for relatedness to be an innate need. They do tie it, however, to the self, the psychological entity of the human being, something Baumeister and Leary do not do. The need for relatedness, according to Deci and Ryan (1991), refers to the person’s strivings to relate to and care for others, to feel that others are relating authentically to one’s self, and to feel a satisfying and coherent involvement with the social world in general. Like the other two needs of competence and autonomy, the need for relatedness energizes the intrinsic motivational processes of the self. It is also one of the essential nutriments the proactive self needs to grow and develop. Unfortunately, however, this is the extent of the theoretical dealings of Deci and Ryan (1991) with the need for relatedness. The third conceptualization of relatedness we turn to is that of attachment theory (Bowlby, 1969, 1973, 1979). Given that it is the most developed modern theory on relatedness, both empirically and theoretically, it will be addressed in greater detail in order to acquire a good understanding of what relatedness is about.

Attachment theory is considered to be a theory still in the making (Bretherton, 1985), with many researchers contributing to its refinement and expansion. Among the principal propositions of this new approach are the following : (1) emotionally significant bonds between individuals have basic survival value and therefore a primary status; (2) they

can be understood by postulating cybernetic systems situated within the C.N.S. of each partner to the other; (3) in order for the system to operate efficiently, each partner builds in his or her mind working models of the self, of the other, and of the patterns of interactions that have developed between them; (4) a key hypothesis of attachment theory, is that variations in the way these bonds develop and become organised during infancy and childhood are major determinants of whether a person grows up to be mentally healthy.

According to attachment theory (Bowlby, 1969, 1973), human beings are innately motivated towards the formation of strong emotional bonds to particular individuals. This propensity is already present in the neonate in germinal form and continues through adult life into old age. Although food and sex may at times play important roles in such relationships, nonetheless, the relationship exists in its own right and has an important survival function of its own, namely protection. Children as well as adults would have higher chances at survival if they were affiliated with a group that cares for them, and affords them protection, than if they were on their own.

Thus, within the attachment framework, emotional bonds are not considered to be subordinate to, nor derivatives of food and sex. Furthermore, the urgent desire for comfort and support experienced by humans of all ages when facing adversity is not regarded as childish. On the contrary, the capacity to form strong emotional bonds with other individuals, whether it be in the role of a care-giver or the role of the care-seeker, is considered by attachment theory to be a principal feature of effective personality functioning and mental health. Once the emotional bonds have formed, a child (as well as

an adult) is said to have attached and attachment behaviour (i.e. seeking and maintaining close proximity to one or a few significant others) begins to be displayed.

Attachment behaviour is regulated by an attachment behavioural control system, which is biologically rooted, and is fundamental to many species. Through the sensory system, the attachment control system continuously scans, monitors, and appraises two classes of events: those that are indicative of the presence of potential danger or stress (internal or external), and those concerning the whereabouts and availability of the attachment figure (physical or psychological). Based on these appraisals, which might be experienced as feeling uneasy, unwell, insecure, anxious, or frightened, action to increase proximity is called for. The particular action suited for the situation at hand is engaged and continues until the system's sensors indicate that the situation has changed and the child is feeling comforted and secure.

From the psychological vantage point of the attached person, the system's set goal is felt-security (Bischof, 1975). The mere knowledge of the presence, availability, and responsiveness of the attachment figure provides a strong and pervasive feeling of security and so encourages the person to value and continue the relationship. The attached person experiences attachment as a psychological bond to the attachment figure, who plays the part of the secure base and haven. According to Bowlby (1988): "No concept within the attachment framework is more central to developmental psychiatry than that of the secure base." (p. 3). On what basis does the system decide the appropriateness of a certain action?

Through continual transactions with the world of persons and objects, the child constructs increasingly complex internal working models of the attachment figure, the

general environment, and the self. Thus, a new situation is not appraised afresh every time. The developed models guide expectations, perceptions, and behaviour in new situations. Once organised, the internal working models tend to operate outside of conscious awareness. The model of the self and attachment figure are complementary. For example, if the attachment figure frequently ignores or ridicules a child's bid for comfort in stressful situations, the child may come to develop not only an internal model of the parent as rejecting and non-responsive but also one of him or herself as not worthy of help and comfort. Conversely, if the attachment figure gives help and comfort when needed, the child will tend to develop a working model of the parent as loving and of him or herself as worthy of such love (Bowlby, 1973).

Thus, different child-caregiver experiences will lead to different patterns of attachment, manifested in different patterns of behaviour, which indicate the quality of the attachment bond within a relationship. Ainsworth, Belhar, Waters, and Wall, (1978) identified three distinct patterns of interaction shown by infants toward their parents during the Strange Situation experiment. These patterns are: secure, anxious/ambivalent, and avoidant. Which pattern an infant/individual will develop has been found to be profoundly influenced by the way his or her parents treat him or her. Based on the work of Ainsworth et al., (1978), the following profiles can be drawn for each of the patterns identified above.

The pattern of attachment consistent with healthy development is that of secure attachment (Bowlby, 1988). Individuals with such a pattern are confident that the attachment figure is available, helpful, and responsive when needed. With this assurance and trust they feel bold in their exploration of the world and also competent in dealing with

it. This pattern is seen among individuals whose “mothers” have been readily available and most sensitive to their children’s needs, responding warmly and lovingly when the child seeks comfort and assistance.

The anxious/ambivalent pattern is characteristic of individuals who are uncertain of whether the attachment figure will be available when needed. As a result, such an individual is prone to separation anxiety, and tends to be clinging, and anxious about exploring the world. Such a pattern is the end result of an attachment figure that is inconsistently available when the individual is distressed. At times she responds, at others she rebuffs. Furthermore, the attachment figure tends to use the threat of separation and abandonment as a mean of control.

The avoidant pattern, on the other hand, results from an attachment figure who constantly rebuffs, or constantly ignores the child when he or she approaches her for comfort and protection. Ambivalent individuals in this case have no confidence that they will get care when they seek it. Thus, they attempt to live their lives without the love and support of others.

Once attachment patterns have formed, they are likely to remain stable (Warner, 1986; Main, Kaplan, & Cassidy, 1985; Main & Cassidy, 1988; Grossman & Grossman, 1991; Waters, 1978; Main & Cassidy, 1988), unless the care-giving style changes (Egeland & Farber, 1984) and unless that change takes place within the period of time during which the pattern of attachment is the property of the relationship. As it becomes the property of the child, it becomes harder to change (Bowlby, 1973, 1988).

A key hypothesis in attachment theory stipulates that patterns of attachment are predictive of later functioning and mental health, with secure attachment being the pattern consistent with healthy development, and the avoidant and the anxious/ambivalent patterns being predictive of disturbed development (Bowlby, 1988). This hypothesis is echoed by Deci and Ryan (1991) and Baumeister and Leary (1995) who postulate dire and negative consequences if the need for relatedness is not met. One of the conditions considered essential by Baumeister and Leary (1995) for a need to qualify as an innate motivating need, is that its deprivation must lead to a variety of ill effects and pathology, effects that go beyond mere emotional upset and negative affect. Certainly, there is no lack of abundance of evidence in this regard. In fact, the body and variety of evidence are staggering. These negative effects are both physiological and mental. In the following subsection, consequences of relatedness deprivation will be reviewed starting with correlates of attachment patterns in children and followed by: attachment correlates in adults, physiological consequences, and mental health consequences.

Consequences of Relatedness Deprivation

Attachment Correlates in Younger Children

Researchers have been hard at work attempting to document the correlates of attachment. The latter have turned out to be many and varied. Matas, Arend, and Sroufe (1978) examined the relationship between attachment classifications and later quality of play and problem solving. Children assessed and classified at the age of 18 months were

observed again at the age of 24 months while they were playing (free-play), cleaning up, and solving problems of increased difficulty. The results indicate significant differences between the three groups. Secure children engaged in more imaginative play than the toddlers that were classified as either avoidant or ambivalent. Moreover, secure children were more enthusiastic, compliant, and persistent. They made better use of their mother's suggestions during the problem-solving phase of the experiment. They were less aggressive and displayed more positive and less negative affect than the two insecure groups. Matas et al. (1978) indicated that the differences observed were not due to temperament nor to developmental quotient. In fact, the three groups of children did not differ on these measures. Rather, it is the differences in the quality of early attachment relationships that seem to explain the differences observed. These results were subsequently replicated by Frankel and Bates (1990).

Stroufe (1983) demonstrated that the pattern of attachment at 12 months was highly predictive of behaviour outside the home in a nursery group three and a half years later. Thus, children who were classified as secure at 12 months were described by their teachers at 3½ years old as cheerful, co-operative, popular with other children, resilient, and resourceful. Those who were classified as avoidant at 12 months were likely to be described as emotionally insulated, hostile, antisocial, and unduly seeking of attention. Those who had shown an anxious/ambivalent pattern at 12 months were later rated by the teachers as unduly seeking of attention and as either tense, impulsive, and easily frustrated, or as passive and helpless. It is important to note that the teachers were completely blind to the

attachment patterns of the pupils. Furthermore, teachers' observations were confirmed by independent observers, who were also blind to the pupils' attachment patterns.

Arend, Gove and Sroufe (1979) were also interested in investigating the relationship between early attachment relationship and later functioning. They looked at the functioning of children who were classified as secure or insecure at the age of 18 months and then looked at their functioning at age 5. They found that secure children were more ego-resilient than the other two insecure groups. Ego-resiliency referred to the ability to respond to problem situations with resourcefulness, flexibility, and persistence rather than with inflexibility and the tendency to become disorganised in the face of stress.

An experimental study conducted in Germany (Lukenhaus, Grossman, & Grossman, 1985) provided further dramatic support for the effect of attachment patterns on later functioning. Results indicate that 3-year-old children, earlier assessed as securely attached, responded to potential failure with increased effort. They responded with confidence and hope that they could succeed. Conversely, insecurely attached children showed signs of helplessness and defeatism.

In addition to examining the cognitive correlates of early attachment relationships, researchers have also been interested in the relationship between attachment patterns and later measures of social competence and sociability. A group of children classified as secure or insecure at the age of 15 months was extensively observed and assessed at 3½ years old in a pre-school setting without the presence of mothers (Waters, Wippman, & Sroufe, 1979). Two measures were of interest to Waters et al. (1979) social competence and ego strength/effectance. The results indicate that secure children were more likely to assume

leadership roles, suggest activities, empathise with the distress of a peer, and be sought out as interaction partners. Conversely, insecure children were more likely to be socially withdrawn and hesitant with others. They were more likely to watch than to participate, and they tended to listen more than to converse. The ego strength/effectance measure revealed that secure children were more likely to be self-directed, to enjoy learning new skills, and to go forcefully after what they want. Insecure children on the other hand seemed to lack curiosity about the new and were more likely to be described as “spaced out”. Waters et al. (1979) considered these results to be all the more striking given that mothers were absent, indicating that factors internal to the child are more responsible for the observed behaviours than are environmental factors.

Sociability differences between the secure and insecure groups were also observed by Pastor (1981) who paired 2-year-olds previously classified at the age of 18 months as secure, avoidant or ambivalent, with a same-age securely-attached playmate. Dyads were observed interacting in the presence of their respective mothers, and they were rated on a variety of dimensions. Results indicate that secure children were significantly more sociable and more interested in engaging their playmates than were the anxious/avoidant or anxious/ambivalent. The ambivalent toddlers were more likely than the other two groups (secure and avoidant) to ignore offers made by their playmates. They were also less likely to make social offers to their playmates. In addition, they were less positive in their interactions with their mothers. Among the many observations made by Pastor (1981) the following is of particular interest: he noted that ambivalent children tended to look towards

their mothers, avoidant children towards objects, and securely attached toddlers towards their peers. This simple observation sums it up all too well.

In a similar line of research, Jacobson and Wille (1986) paired children previously classified as secure, ambivalent or avoidant, with a same-sex securely-attached and unfamiliar playmate at the age of 2-3 years. Dyads were observed and their interactions rated along several sociability and social competence dimensions. Results indicate a clear preference by children (regardless of attachment styles) for the securely-attached playmates. The latter received the most positive responses from their playmates. Playmates paired with an avoidant partner directed fewer positive interactions towards them. Playmates paired with an ambivalent partner were more disruptive of their partners' play and initiated more conflictual interactions with them. These observations led Jacobson and Wille (1986) to suggest that differences in early attachment experiences elicit different responses from interaction partners. This differential responsiveness serves to confirm the child's already existing models of the self and others, strengthening them further and leading to further stability in the patterns of attachment. The same conclusions have been reached by other researchers (e.g., Elicker, Englund, & Sroufe, 1992).

The social competence of securely-attached children is not limited to their interactions with their peers; it has also been noted in their interactions with adults. Lukenhaus, Grossman, and Grossman (1985) measured the attachment styles of a group of children when they were 12 months old. At the age of three "a stranger" visited their homes and their interactions and reactions to this unfamiliar adult were observed. The results reveal a significant difference between the secure and insecure groups. Securely-attached

children interacted faster and more smoothly with the "stranger" than insecure children. In addition, following failure at a competitive game with the stranger, the secure children tended to increase their efforts and persistence whereas the insecure groups decreased their efforts and persistence when they failed at the game. Moreover, secure children expressed feelings of sadness following failure more openly and readily than insecure children.

Researchers have also been interested in the relationship between attachment patterns and aggression, passive withdrawal, and psychopathology. Results from several studies (e.g., Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989) indicated that avoidant attachment was significantly related with aggression for boys, but not for girls. Similar results emerged for passive withdrawal, where significant associations were found between avoidant attachment and passive withdrawal, but only for boys. Renken et al. (1989) suggested that the failure to find differences for girls may be due to the fact that the scores of the girls tended to cluster at the low ends of the scales assessing aggression and passive withdrawal.

Lewis and Ferring (1991) examined the relationship between early attachment classifications and later family cohesion and conflict as determinants of behaviour and psychopathology at age 6. Interactions between mother and child were observed first when the children were 3 months old. At the age of 12 months their attachment styles were assessed and they were classified into one of the three groups accordingly. Five years later, at the age of six, the mothers were asked to fill out the Family Environment Scale (Moos & Moos, 1976) and The Child Behavioural Profile (Achenbach, 1978). Although the latter also measures school competence, peer behaviour, and social activities, it is primarily a

scale for measuring behavioural problems. It allows for the differentiation of children with and without emotional problems.

The results indicate that while only 5% of the secure boys developed psychopathology, 40% of the insecure males displayed signs of psychopathology at the age of 6. Moreover, 50% of the conflicted families had male children who exhibited signs of psychopathology. Conversely, not a single one of the non-conflicted families had males who exhibited signs of psychopathology. Finally, later environmental stress had little effect on the development of psychopathology for securely-attached males. For insecurely- attached males, however, the development of psychopathology was dependent on exposure to poor environmental conditions.

The work of Lewis and Ferring (1991) is of vital importance, clearly showing how early attachment experiences may leave the child either vulnerable or resilient to environmental stress and by the same token to mental health problems. Their work clearly denotes the importance of the interaction between attachment styles and the environment. Hence, an insecure child may not develop any serious problems until environmental conditions are ripe for it. Recently Sroufe, Egeland, and Kreutzer (1990) provided more compelling evidence that “adaptation is always a product of both developmental history and current circumstances” (p.1363). These authors found that when two groups of children classified as either secure or insecure later displayed poor adaptation in the pre-school years, a significant rebound towards positive functioning was experienced by those who were classified as securely attached. Thus, while the effects of secure attachment may be masked at one point, they do reassert themselves at a later date.

Attachment Correlates in Older Children

So far all the studies reviewed have dealt with very young children or at least with children who were about 5 or 6 years old. But what about maturation? Is it possible that as children mature and acquire better cognitive development, they will be able to transcend the attachment patterns developed earlier? Although studies on the subject are rare, it seems that advancing in age does override early experiences. In fact, from the very few studies available, there is powerful evidence of the predictive power of attachment patterns as far as 10 years later

A sample of German children was followed from infancy through ten years of age (Grossman & Grossman, 1991). Their behaviours were measured and assessed at different times throughout the years, revealing a pattern of results similar to the results obtained by other researchers, some of which have been discussed above. When the children reached the age of ten, they were interviewed about their peer relations as well as the coping strategies they use when faced with stressful situations. Significant differences emerged between the secure and insecure groups. While secure children reported having at least one or a few good friends whom they considered to be reliable and trustworthy, insecure children reported having either no friends or many good friends. Ironically however, further probing revealed that they were unable to provide the names of those so-called friends. They were also more likely to describe themselves as more ridiculed, exploited, and excluded from the peer groups.

When it came to coping strategies, significant differences were noted for the two groups when experiencing fear, sadness, or anger. When faced with a negative situation, secure children reported that they turn towards others for help and comfort. This is not surprising, given the mental models they allegedly develop as a result of secure attachment (Bowlby, 1982, 1988). These mental models led them to view the self as worthy of help and others as readily available to help them. Insecure children, on the other hand, tend to rely solely on themselves when faced with problems and negative events (Grossman & Grossman, 1991). Further differences between the two groups of children were noted by the researchers during the interviews. According to Grossman and Grossman (1991), while secure children showed socially appropriate behaviour, insecure children either blatantly ignored the interviewer or were inappropriately intimate or affectionate.

In a similar line of research, Elicker, Englund, and Sroufe (1992) invited 47 children whom they have been following since infancy to participate in a 4-week camp. At that point the children had reached the age of 10 years old. Detailed and extensive observations were made of the children in addition to an interview with the children one week prior to the end of the camping experience. The results are undoubtedly a powerful testimonial to the predictive power of patterns of attachments of later competence in interpersonal relationships. Ten years after initial assessment, the interpersonal as well as the intrapersonal correlates of the attachment bond were evident outside of the home and in the absence of the mother.

In general, securely-attached children were rated as more emotionally healthy, more competent, and more self-assured than their insecure counterparts, who were described as

more dependent on adults. Secure children spent more of their time with their peers than with the adults. They also received higher ratings than the insecure children on popularity, sociability, and prosocial interaction skills. In addition, secure children evidenced positive biases in evaluating the performance of their peers. Insecure children were more negative in their evaluations of their peers, with the avoidant group displaying the lowest levels of interpersonal sensitivity and understanding. With regard to cross-gender interaction, insecure children were the ones most likely to break implicit rules of gender interaction for 10 year olds. In other words, they engaged in more cross-gender interactions than secure children, and they were more likely to sit next to members of the opposite sex when in group circles. Finally, by the end of the camping experience, secure children were the ones most likely to have developed friendships and, interestingly enough, their friends were more likely to be secure children themselves.

Attachment Correlates in Adults

Adult attachment studies using a variety of retrospective self-report methodologies have yielded compatible and convergent findings (Rothbard & Shaver, 1994). Regardless of the approach or operationalization adopted, adult participants classified as secure describe their primary attachment figures in childhood as having generally been warm, responsive, available, and sensitive. Adult participants classified as insecure generally tend to describe their attachment figures as having provided less than optimal caregiving environments. Anxious/ambivalent adults, for example, portray their parents as having been loving and warm part of the time, but inaccessible, intrusive, unresponsive, and inconsistent at other

times. The description of the attachment figures by avoidant participants reveals parents who, compared to the other groups, were less warm and nurturing, somewhat rejecting of them, and relatively uninvolved. These results support the hypothesis that adult attachment patterns have their roots in childhood attachment relationships. Furthermore, numerous studies have revealed that attachment dynamics are similar in childhood and adulthood (Rothbard & Shaver, 1994). A few of these studies are reviewed below.

Infant attachment patterns are assessed using the Strange Situation paradigm. Recently, Simpson, Rholes, and Nelligan (1992) conducted a study in which they attempted to create a situation parallel to the paradigm used with children. They solicited the participation of seriously dating couples who upon arrival at the lab were separated and asked to fill out questionnaires. As the researchers were escorting the individual participants back to the waiting room, they showed the female member of each couple a darkened psychophysiology laboratory and told them that the next phase of the experiment would involve the engagement in an activity that generates considerable anxiety for most participants. Once in the waiting room, the couple were unobtrusively taped and the tapes were used to assess their verbal and non-verbal behaviours.

Results revealed that as observer-rated anxiety increased, secure women sought emotional and physical comfort from their partners. Conversely, avoidant women tended to distance themselves both physically and emotionally from their partners. Moreover, they were less likely than the secure women to bring up the topic of the anxiety-provoking situations to their partners. In addition, they were more likely than secure women to resist their partners attempt to make physical contact with them. The attachment patterns of the

male partner were also linked to different responses to their partners' anxiety. While secure males tended to provide more reassurance and emotional support as the females' anxiety increased, avoidant male partners were less inclined to provide such reassurance and support. These patterns are consistent with the patterns displayed by infant-mother dyads in the Strange Situation paradigm (Ainsworth et al., 1978).

Further evidence of adults and children displaying the same patterns of attachment comes from an interesting study by Mikulincer, Florian, and Weller (1993) conducted shortly after the end of the Gulf War. The researchers interviewed secure, avoidant and anxious ambivalent Israeli participants shortly after the end of the Gulf War. Participants were administered several questionnaires assessing stress, coping, and health. Results indicate that secure participants were more likely than the insecurely-attached ones to have sought social support and coped effectively, with no signs of prolonged distress. Anxious /ambivalent participants reported the highest levels of upset during the missile attacks among all participants and tended to use "emotion-focused" coping strategies. Avoidant participants used denial and other avoidant coping strategies during the war. After the war, however, they were angrier than other participants about the missile attacks and reported higher levels of psychosomatic symptoms.

The relationship between attachment styles and feelings and behaviors at work were assessed in a recent study by Hazan and Shaver (1990), who reasoned that work is the equivalent for many adults of what Bowlby called "exploration" in infancy. Their results indicate that secure participants are generally satisfied with their work, get along well with co-workers, and make a reasonable amount of money relative to their

education level. Avoidant participants reported getting along less well with their co-workers than their secure counterparts. They prefer to work alone and reported feeling that work provided a good excuse to stay clear of social relations. They make as good a salary as the secure participants. Anxious/ambivalent participants reported feeling underappreciated and overinvolved at work. They also make less money than the other two groups of participants even when education and gender are controlled. These results closely mirror the results of many studies of attachment and problem-solving in early childhood.

Other studies have revealed that secure adults, like secure children are more emotionally positive than insecure adults (Simpson, 1990) and more trusting (Collins & Read, 1990). Secure adults, like secure children, seem slightly more likely to pair up with secure relationship partners (e.g., Senchak & Leonard, 1992). Anxious/ambivalent adults, like the anxious/ambivalent children who suffer from unusually conflictual peer relationships, are especially likely to experience rapid relationship breakups (e.g., Shaver & Brennan, 1992).

Physiological Consequences

Animal research. There is a large body of evidence in animal research attesting to the effect of separation and breakage of the attachment bond on a number of biological systems. Early studies in animal laboratories detailed the behavioral responses of primate infants to separation from their mothers. Apparently, this is a two-stage behavioral response. The first stage is characterized by a reaction where behavior is agitated and

distress vocalization is increased. The second stage is known as the “depression reaction”. This depressed reaction consists of decreased activity and social play, sad facial expression, and a slouched posture (Seay and Harlow, 1965; Kaufman & Rosenblum, 1967).

With the advancement in technologies, researchers were able to develop a multichannel, implantable biotelemetry system which allows the collection and analysis of multivariable physiological data concurrently as behavior occurs (Pauley & Reite, 1981; Reite, 1985). Moreover, methods were developed that would allow researchers to assess immune function as a consequence of separation experiences (e.g., Reite, Harbeck, & Hoffman, 1981). These developments allowed the examination of the physiological and immunological correlates of both pigtail and bonnet monkeys, as well as the moderating effects of several variables, including social context and autonomic reactivity (Boccia, Reite, Kaeming, Held, & Laudenslager, 1991).

Results indicate that in the agitation phase infant primates display dramatic increases in heart rate (HR) and body temperature (BD) (Reite, Seiler, & Short, 1978). As the second phase of despair or depression sets in, these infants increase their eating behaviors and cease playing entirely. This period is accompanied by decreases in HR and BD; also noted is a disruption in sleep patterns, reduced antibody response to a foreign protein antigen, and other findings compatible with a disturbance of regulation of autonomic homeostasis precipitated by the separation experience (e.g., Laudenslager, Reite, & Harbeck, 1982). Other studies reported increases in the cerebrospinal fluid norepinephrine in rhesus infants following separation from either their natural mothers or

maternal surrogates (Kraemer, Ebert, Schmidt, & McKinney, 1989). Recent evidence suggests elevations in cortisol and growth hormones during separation in pigtail infants (Laudenslager, Boccia, Berger, & McFerran, 1993). The effect of relatedness deprivation is not limited to “mothers”, it extends to separation from peers (Kraemer & McKinney, 1979).

In sum, the breakage of a bond in primates seems to lead to a dysregulation of multiple physiological systems. Researchers have postulated that this represents a dysregulation of autonomic function with a relative parasympathetic predominance. What is most troubling is that this disruption and dysregulation may not be an evanescent or transient phenomenon. In fact, researchers have noted a diminished response to mitogen stimulation in pigtail macaques aged 3 to 6 years. These infants have been separated for only 10 days from their mothers during infancy. Moreover, it was found that primate infants who have experienced a short period of maternal separation tended to have fewer adult friends as they matured. Hence, researchers concluded that significant alterations in early experience may themselves produce long-lasting changes in brain biochemistry and morphology, which may further influence subsequent behavior and response to stress (Reite & Boccia, 1994).

Human research. While most of the data on the subject come from animal research, recently however, dramatic photographs of the brain of human babies who have been emotionally deprived were displayed side by side with those of human babies who were reared in a warm and loving home (Reiner, Reiner, & Zweibel, 1997) . The visual difference between the two brains was astonishing. The brain of the deprived child

showed significant atrophy and lack of growth and expansion in its gray matter compared to the brain of the emotionally nurtured child. Moreover, there is evidence that relatedness deprivation affects levels of serotonin, depleting them. Serotonin is implicated in depression, decreased locomotion, and, most importantly, it is involved in violent aggressive behavior (Reiner et al., 1997).

Further evidence of the maladaptive effect of failed relatedness comes from medical studies. Following a review of the medical literature, Lynch (1979) concluded that the: "U.S mortality rates for all causes of death ... are consistently higher for divorced, single and widowed individuals" than for married individuals (p.38). There is a greater incidence of cancer, tuberculosis, and fatal heart attacks among unattached individuals than among married people (Lynch, 1979). This is not to imply that deprivation of relatedness is the sole reason for such health problems. Nonetheless, social relations have always displayed a persistent, independent, robust effect when other suspected variables are controlled. For example, Goodwin, Hunt, Key, & Samet (1987) found that even after controlling for other variables such as cigarette smoking, timing of diagnosis, and likelihood of receiving treatment, married participants survived cancer better than single ones.

The immune system does not seem to escape the maladaptive effects of deprivation. It was found that loneliness was associated with a decrease in immunocompetence. Particularly affected was natural killer cells activity. Changes in perceived stress did not have any bearing on this effect (Kiecolt-Glaser, Garner, Speicher, Penn, Holliday, & Glaser, 1984; see also Kiecolt-Glaser, Ricker, George, Messick,

Speicher, Garner, & Glaser, 1984). Finally, women experiencing marital disruption such as divorce, separation, and or unhappy marriages had poorer immune function on several measures than their happier counterparts (Kiecolt-Glaser, Fisher, Orgocki, Stout, Speicher, & Glaser, 1987).

Mental Health Consequences

The effects of relatedness deprivation are not limited to physical health, they also extend to the mental realm. As previously noted insecure children are more likely to display psychopathology than secure ones (e.g., Lewis & Ferring, 1991). A recent study by Kobak, Sandler, and Gamble (1991) revealed that insecure teenagers reported more depressive symptoms and had higher levels of dysfunctional anger than those rated as secure.

After reviewing the evidence on the relationship between mental illness and marital status, Bloom, White, and Asher (1979) concluded that admission rates to mental hospitals were the highest for divorced and separated people, lower among never married people, and the lowest for married people. This effect was reported in all studies. In fact, it seems that mental illness is at least 3 and possibly up to 22 times higher among divorced people than among married ones.

Studies have also linked attachment to eating disorders. Sours (1974) reported that patients suffering from eating disorders tended to be overly sensitive to separation from their mother when they were children. It was also found that women with eating disorders had significantly more intense and severe attachment difficulties than a normal

comparison group (Armstrong & Roth, 1989). Crime has also been linked to failed relatedness (e.g., Sampson & Laub, 1993; Geis & Moon, 1981).

Brown and Harris (1978) studied large representative samples of the female population in the London boroughs. Their aim was to identify women suffering from depression of a clinically significant degree and to compare them to women who were not depressive in order to identify the variables that distinguish the two groups. They uncovered a historical variable that played a significant role in separating the two groups, namely the loss of the mother before the 11th birthday. The incidence of current affective disorders in those who have lost their mother as opposed to those who have not was as follows: 43% versus 14% for one sample, 25% versus 7% for another, and 34% versus 17% for a third sample. Those who lost their mothers after their 11th birthday were also more prone to depression than those who did not lose their mother, but to a lesser extent than those who lost their mother prior to their 11th birthday (e.g., Bifulco, Brown, & Harris, 1987).

Brown and Harris (1978) also reported that a woman who has received inadequate care growing up was twice as likely to have developed a negative self-image as the woman who has received adequate care. Furthermore, other aspects of her life (such as her marriage and finances) were much less successful than the one who received adequate care. These results led Bowlby (1988) to hypothesize, “the more secure an attachment a woman has experienced during her early years, we can confidently predict, the greater will be her chances of escaping the slippery slope” (p.8).

Perhaps the most dramatic illustration of the maladaptive effects of failed relatedness and insecure attachment comes from studies on suicide. Evidence continues to accumulate that a lack of social integration increases the likelihood of suicide (Trout, 1980). Furthermore, compared with other segments of the population, higher levels of suicide have been registered for single, divorced, and widowed people (e.g., Rothberg & Jones, 1987), the unemployed, and people who belong to shrinking social groups and those who belong to shrinking occupations (Baumeister & Leary, 1995).

Recently, Adam (1994) argued that the acute suicidal crisis can be better conceptualized as an acute attachment crisis, and suicidal behavior as extreme attachment behavior that takes both its form and function from the childhood separation response. Moreover, the severity of exposure to adverse childhood experiences has been correlated with the severity of suicidal behavior for both frequency and intent in two separate studies (Adam, Lohrenz, Harper, & Streiner, 1982; Hawton, Osborne, O'Grady, & Cole, 1982).

The body of evidence that converges with the theoretical assertions about relatedness deprivation leading to dire maladaptive consequences is staggering. All of the studies reviewed above have examined the effects of relatedness deprivation as they pertained, for example, to cognition, affect, and mental health. None of these studies however, related the effects of relatedness deprivation to the proactive agentic self, which is the psychological entity postulated to have the need (Deci & Ryan, 1985). In the present research we argue that when the basic innate need for relatedness is not met the proactive agentic self is impaired and its development thwarted. But if the proactive

agentic self becomes impaired when its need is not met, what are the consequences of its impairment? This is the topic we turn to next.

Consequences of the Impairment of the Proactive Self

In addition to positing the determinants of motivation, self-determination theory (Deci & Ryan, 1985) asserts its consequences. When the proactive agentic self is impaired or its development thwarted, fractionization is hypothesized to set in. In this case introjects rule, and lack of cohesion both within and with the outside world prevails. A large body of research has been conducted in order to test the hypothesis that positive consequences are linked to high levels of self-determination while negative consequences are linked to low levels of self-determination. These studies have covered varied life domains such as education (see Deci, Vallerand, Pelletier, & Ryan, 1991), the workplace (Blais, Lacombe, Vallerand, & Pelletier, 1990), leisure (Pelletier, Vallerand, Green-Demers, Brière, & Blais, 1995), interpersonal relationships (Blais, Vallerand, Pelletier, & Briere, 1991), therapy (Pelletier, Tuson, & Haddad, 1997); pro-environmental action (Pelletier, Tuson, Green-Demers, Noels, & Beaton, in press); and sports (Vallerand, Deci, & Ryan, 1987), all yielding converging evidence in support of the Deci and Ryan hypothesis.

In the academic domain, it was found that children who were intrinsically motivated towards academic activity displayed higher levels of creativity, better performance, and a higher quality of conceptual learning than children who had low

levels of self-determination towards school (e.g., McGraw, 1978; Benware & Deci, 1984; Lloyd & Barenblatt, 1984; Gottfried, 1985; Amabile, Hennessey, & Grossman, 1986). Furthermore, amotivated students were more likely than their self-determined counterparts to display intentions of dropping out. Finally, students who did drop out of school had lower levels of self-determination towards academic activities than those who stayed in school (e.g., Pelletier, Senecal, & Vallerand, 1992).

In the workplace, it was found that self-determined employees have higher levels of job satisfaction and more interest in their work. Furthermore, they are not interested in changing jobs, whereas amotivated employees have clear intentions of doing so (Blais et al., 1990).

In the leisure domain, results indicated that participants who were self-determined in their involvement towards leisure activities derived the highest benefits in terms of mental health (Pelletier et al., 1995). On the other hand, the participants who practiced leisure activities for non-self-determined reasons showed the lower levels of mental health benefits among the participants. In addition, people who engage in sports activities out of self-determination tend to continue to engage in these activities, whereas non-self-determined people tend to drop out (Pelletier, Briere, Blais, & Vallerand, 1988).

In the interpersonal domains, people who were self-determined in their interpersonal relationships were more likely to experience positive affect, and to report higher levels of social satisfaction and mental health than their non-self-determined counterparts. They also reported having better-quality relationships and lower levels of social anxiety and loneliness than those who have lower levels of self-determination

(Blais et al., 1990). Moreover, among romantically involved couples, partners who have high levels of self-determination displayed higher levels of confidence in and love for their partners. This suggests that people's motivation towards their interpersonal relationships may affect the quality of the relationship and its outcome. Self-determined partners were more likely to perceive their interaction as positive and more likely to report happiness as a couple (Blais et al., 1990).

Further support of the hypothesis came from studies that looked at the gradation of the positivity and negativity of consequences in relation to the self-determination continuum. As one moved up the different levels of the continuum, the positivity of consequences increased accordingly. Hence, intrinsic motivation had a higher level of positive consequences than the next highest form of self-determination (integrated) which has a higher level than the next one (identified). As one moved down the continuum the negativity increased accordingly. The worst consequences were linked to amotivation, the second worst to external regulation, and the third worst to introjected regulation (e.g., Vallerand & O'Connor, 1989).

It is clearly evident that positive consequences are linked to high levels of self-determination and negative consequences are linked to low levels of self-determination. The body of evidence reviewed above attests to these empirical realities. In the present research, however, we are going to take the exploration of the consequences of the impairment or lack thereof of the proactive self farther and deeper, to more central consequences. Furthermore, while past studies have looked at self-determination indices that reflected the degree of involvement of the proactive self, in the present research the

proactive self as an entity is under study. Hence, consequences should be tailored to the postulated function of the proactive self.

Thus, in the present research the consequences posited to be linked to the impairment of the proactive self extend beyond affect, memory, creativity and dropping out of school, to include positive human functioning. Recall that the proactive self is the vital core, the center from which action and behavior are originated. It initiates and guides action intrinsically motivated to pursue its interests, to develop its capacities, to master its environment, and to seek harmony within and with the outside world. Consequently, when this center is impaired, actualization of one's potential will be stunted, environmental mastery will be forestalled, inner harmony and self-acceptance will remain elusive.

Conversely, when the proactive self is healthy and developed, potentials blossom, actual-ideal self-gaps are bridged, environmental mastery is sharpened, inner harmony and self-acceptance are attained. Self-actualization, environmental mastery, and self-acceptance have long been hailed as hallmarks of positive human functioning (e.g., Rogers, 1961; Maslow, 1968; Jung, 1933; Allport, 1961; Erikson, 1959; Buhler, 1935). Their status has recently been empirically supported by Ryff (1995). Furthermore, past research has linked self-determination indices to reigning measures of positive human functioning in the literature such as life satisfaction, self-esteem, and depression (e.g., Pelletier, et al., 1995). Hence, the proactive self, in addition to being the center from which behavior originates, is also the center from which growth processes and positive human functioning issue forth.

To summarize, according to Deci and Ryan the innate nature of the human self is proactivity and agency. Whether the proactive self will grow and develop however, depends on whether the environment satisfies its basic innate psychological needs for autonomy, competence, and relatedness. Of particular interest for the present research is the need for relatedness whose postulated influence on the development or lack thereof of the proactive self was never explored before. The need for relatedness is posited to be one of the essential nutriments of the proactive self whose satisfaction is necessary if the proactive self is to grow and develop. In turn, given that the proactive self is the vital core from which growth processes and positive human functioning issue forth, its impairment will lead to the impairment of positive human functioning. The healthy development of the proactive self, on the other hand, will lead to higher levels of positive human functioning denoted in elevated levels of general well-being, actualization, environmental mastery, and self-acceptance.

Overview of Proposed Research

The present research was designed to define and measure the proactive self, and to test the causal model proposed above, whereby the satisfaction of the need for relatedness influences the development of the proactive self, which in turn influences human psychological growth processes and positive psychological functioning. Three studies were designed to carry out these goals. In the first study, the definition of the proactive self, developed in the introduction of this thesis, was tested and validated. In the second

study, the definition of the proactive self was cross-validated in a second independent sample, and the causal model proposed above was tested and validated for the first time. In the third study, both the definition of the proactive self and the causal model were cross-validated in another independent sample (the former for the second time and the latter for the first time).

STUDY 1: DEFINING AND MEASURING THE PROACTIVE SELF

The purpose of Study 1 was to measure, test, and validate the empirical definition of the proactive self proposed in this dissertation. Based on philosophical essays on autonomy (e.g., Ricœur, 1966) and self-determination theory (Deci & Ryan, 1985), the proactive self was defined along three dimensions, all reflecting the notion of the self as the origin of behavior. Briefly, the proactive self is characterized by: (1) intrinsic motivation where behaviors are engaged in out of pure interest, pleasure, and enjoyment; (2) organismic integration where the self actively integrates and takes in processes and values originally foreign to it and makes them its own; (3) self as chief executive officer (self as CEO), where the self retains the decision-making process, the regulation of behavior, and the freedom to choose in its interactions with the inner and outer environments. The proactive self as CEO is not overtaken by emotions or situations, rather it continues to originate behaviors guided by its integrated goals, values, and self-selected roles, as well as its reading of the information in the environment. In other words, between stimulus and response the self chooses and does not react.

To the best of our knowledge, no empirical measure of the proactive self as an entity has been developed to date. While some aspects of the proactive self such as intrinsic motivation have been empirically explored, the third dimension of the proactive self, self as CEO, remains untapped. Hence, no questionnaire was developed to measure it. As result, we did an extensive search of different bodies of literature in search of a suitable measure, guided by our theoretical definition of this dimension. We found two

such measures: the Ego-Resiliency Scale (ERS; Klohnen, 1996) and the Action Control Scale (ACS-90; Kuhl, 1994), which we believe must be used together to truly capture this dimension of the proactive self. These measures were chosen because each one of them was developed to measure a construct whose theoretical operationalization closely corresponds to our theoretical description of the dimension: self as CEO. Before introducing the method section, where a detailed description of the two questionnaires and their psychometric characteristics is provided, a brief introduction to the constructs they aim to measure is presented below.

Ego-resiliency has been defined by Block and Block (1980) as “the resourceful adaptation to changing circumstances and environmental contingencies, based on analyses of goodness of fit between situational demands and behavioral possibilities and flexible invocation of the available repertoire of problem solving strategies ...” (p. 48). Clearly, this is a reflection of the characteristics of the dimension: self as CEO. Not only is there a theoretical correspondence between the two constructs, the ego-resiliency construct has been found to be related to secure attachment style across time (e.g., Kobak & Sceery, 1988) and there are strong relations between ego-resiliency and effective functioning in diverse areas of life (Klohnen, 1996). Therefore, ego-resiliency can be linked to both, the postulated antecedent of the proactive self (relatedness) and its postulated consequence (positive human functioning).

The second relevant construct is that of State Orientation (Kuhl, 1985, 1994). According to Kuhl (1994), everyday life is full of behavioral paradoxes. Although one may intend to do something and is able to do it, more often than not things remain

unaccomplished. In order to explain the lack of movement from intention to action, Kuhl (1985) developed a theory of action versus state orientation. Action orientation is described as the ability to facilitate the enactment of context-adequate intentions by activating the motivational maintenance system (MMS) whenever it is appropriate. State orientation, on the other hand, is defined in terms of a catastatic mode of control in which the flexible and context use of the MMS is impaired. The person does not move from intention to action because of entanglement in states related to some past, present or future event that has nothing to do with the intention at hand. How does this link to the proactive self?

An essential part of proactivity is the ability to enact self-congruent intentions. Furthermore, the proactive self does not drown in states, and does not become overwhelmed by emotions. State-oriented people do, indicating an impairment of proactivity. Furthermore, Kuhl (1994) postulates that the lack of satisfaction of innate needs, overprotective parents, and neglectful ones are among the distal antecedents of state orientation. In addition, state orientation has been theoretically and empirically linked to the following consequences: rumination (e.g., Kammer, 1994); behavioral passivity (Kuhl, 1983); alienation (e.g., Beckman & Kuhl, 1984); and the encoding of options as obligations (e.g., Kuhl, 1994). Each of these consequences can be theoretically linked to an impaired proactive self.

It is important for both scales to be administered to measure the self as CEO dimension of the proactive self. The two scales complement each other by tapping into different facets of self as CEO. One taps the ability to move from self-congruent intention

to action, and the other taps the ability to remain flexible in the face of adverse or unfavorable circumstances. Both are necessary if the self as CEO is to carry out its executive function and remain the originator of behavior.

Hypothesis. The proactive agentic self is a second order-factor composed of three lower order factors: intrinsic motivation, organismic integration, and self as CEO. The higher order factor, the proactive self, accounts for and explains the variance in, and correlations among, the three lower order factors. The associations between the higher-order factor and each of the lower-order factors are positive and significant. The second order CFA will yield acceptable goodness of fit indices (see Figure 1, p.72).

Method

Participants and Procedure

Three hundred and eighty three undergraduate students, enrolled in a variety of Social Sciences courses at the university of Ottawa, were recruited to participate in the study. The sample consisted of 130 men and 246 women (7 participants did not report their gender), ranging in age between 16 and 51 years ($M = 23.2$; $SD = 5.3$). The majority of the participants were enrolled with full time status. Only 3% of the participants reported attending university on a part-time basis. About 11% of the participants reported being an only child, while 40% reported having one sibling, and 29% indicated they had two siblings. The remaining 20% reported having three or more siblings. Of the sample, 35.1% reported being the first-born, while 34.6% reported being the youngest.

With the permission of class professors, students were approached during designated class periods. They were told that the purpose of the study was to understand the reasons why they perform the different activities in their lives and to understand their beliefs and attitudes about themselves, others, and interpersonal relationships. Students were informed that although their participation was highly appreciated, nonetheless, it was completely voluntary. Students who did agree to participate were given a questionnaire package which took approximately 35 minutes to complete. The questionnaire package contained the following: (a) a cover letter explaining the purpose of the study as well as all the necessary ethical information. Participants were not asked to fill out an official consent form. Filling out the questionnaire package constituted consent; (b) a set of scales to measure the proactive self; and (c) demographic questions. Participants were requested not to write their names, student numbers or any other identification reference. This request was made to secure the confidentiality and anonymity of the participants.

Measures

Three scales were used to measure the proactive self. They were: the Global Motivation Scale (GMS; Guay, Blais, Vallerand, & Pelletier, 1996), the Action Control Scale (ACS-90; Kuhl, 1994), and the Ego-Resiliency Scale (ERS; Klohn, 1996). The intrinsic motivation subscales of the GMS were used to measure the intrinsic motivation dimension of the proactive self, whereas the extrinsic motivation subscales of the GMS were used to measure the second dimension of the proactive self identified as organismic

integration. The other two scales, the ERS and the ACS-90, were used to measure the third dimension of the proactive self, self as CEO.

The Global Motivation Scale (GMS; Guay et al., 1996). The GMS assesses the reasons why people perform the different activities of their lives. It is composed of seven subscales corresponding to five of the motivation subtypes defined by Deci and Ryan (1985). There are seven subscales and five motivation subtypes because three of the subscales are devoted to the measurement of intrinsic motivation (more below). The five motivation subtypes fall on a continuum of self-determination, and from highest to lowest levels are: intrinsic motivation (e.g., in order to feel pleasant emotions); integrated regulation (e.g., because they reflect what I value most in life); identified regulation (e.g., in order to help myself become the person I aim to be); introjected regulation (e.g., because I would beat myself up for not doing them); and external regulation (e.g., in order to show others what I am capable of). Participants are asked to rate, on a 7-point Likert scale (1 = does not correspond at all; 7 = corresponds exactly), the degree to which each of the scale's items (28 items in total) corresponds to the reasons why they do the different activities of their lives.

The GMS was used to measure two of the dimensions of the proactive self: intrinsic motivation and organismic integration. The intrinsic motivation subscales of the GMS: intrinsic motivation towards accomplishment (IMA), intrinsic motivation to know (IMK), and intrinsic motivation to experience sensation (IMS) were used to assess the intrinsic motivation dimension of the proactive self. The items of each of the intrinsic motivation subscales were collapsed to form an indicator to be used to measure the

intrinsic motivation dimension of the proactive self. Three intrinsic motivation indicators were formed: IMA, IMK, IMS, one per subscale.

The remaining subscales: external regulation, introjected regulation, identified regulation, and integrated regulation were used to assess the organismic integration dimension of the proactive self. For this purpose, an organismic integration index was derived whereby the level of organismic integration was determined by using the following formula $[2(\text{integrated}) + 1(\text{identified}) - 1(\text{introjected}) - 2(\text{external regulation})]$. The different subscales were assigned a weight according to their respective placement on the self-determination continuum. Because external regulation and introjection are conceptualized as less determined forms of self-determination, they were assigned the weights -2 and -1 respectively. Because integrated and identified regulations are considered self-determined forms of motivation, they were assigned the weights of +2 and +1, respectively. Ryan and Connell (1989) have reported extensive support for the construct validity of such a composite index (see also Blais, Sabourin, Boucher, & Vallerand, 1990; Grolnick and Ryan, 1987, 1989; Grolnick, Ryan, & Deci, 1991). Four indicators were derived using this formula. These indicators are OII1, OII2, OII3, OII4. They were used to measure the organismic integration dimension of the proactive self. Vallerand (1997) reports the GMS displays a good factorial structure and good psychometric properties.

The Action Control Scale (ACS-90; Kuhl, 1994). The ACS-90 consists of three subscales: (1) Action orientation subsequent to failure versus preoccupation (AOF); (2) Prospective and decision-related action orientation versus hesitation (AOD); (3) Action

orientation during successful performance of activities (intrinsic orientation) versus volatility (AOP). For the purpose of the present research only the first two subscales AOF and AOD will be used. They constitute the shorter version of the ACS-90 (Kuhl, 1994).

Each subscale consists of 12 vignettes, each describing a hypothetical situation a subject might encounter. Two possible behavioral responses are provided per vignette. One represents action orientation, and the other represents state orientation. Typically, Kuhl administers the questionnaire in a multiple-choice format where participants can choose only one of the behavioral responses provided per vignette, either the state orientation one, or the action orientation one. For the purposes of the present research, however, participants were asked to provide an answer for each of the behavioral responses. A 7-point Likert-type scale was used to assess how true each of the two behavioral responses is of the participants (1 = totally true; 7 = not true at all). The two subscales of the (ACS-90) were scored separately, given that each subscale deals with a different behavioral aspect of action orientation.

Each subscale yielded 24 responses (12 action orientation responses, and 12 state orientation responses). The 12 action orientation responses of the AOD subscale were added together to yield an action-orientation score per subject. Similarly, the 12 state-orientation responses of the AOD subscale were added together to obtain a state-orientation score per subject. The state-orientation score was then subtracted from the action orientation score to determine the subject's dominant orientation. A positive result indicated the subject was action oriented. A negative result, on the other hand, indicated

the subject was state oriented. The very same procedure was followed for the AOF subscale.

The procedure described above yielded two indicators: one representing the AOD subscale and the other representing the AOF subscale. The two indicators were used along with the indicator derived from the ERS scale (discussed below) to measure the self as CEO dimension of the proactive self. The internal consistency estimates of the ACS-90 satisfy traditional standards, with a Cronbach alpha of .70 for the AOF subscale and .78 for the AOD subscale (Kuhl, 1994). The following is an example of a vignette extracted from the AOF subscale and its two possible responses:

1. When I have lost something that is very valuable to me and I can't find it anywhere:
 - a. I have a hard time concentrating on something else (state orientation).
 - b. I put it out of my mind after a little while (action orientation).

The Ego Resiliency Scale (ERS; Klohnen, 1996). The ERS is a self-report measure composed of 29 items aimed at measuring the ego resiliency construct as defined by Block and Block (1989). Broadly defined, ego resiliency refers to the general capacity for flexible and resourceful adaptation to internal and external stressors. A 7-point Likert-type scale (1 = not true at all; 7 = totally true) was used to assess the extent to which each item was true of the subject's experiences. The ERS has excellent internal consistency with Cronbach alphas of .88 and .81 in two different samples. The convergent validity of the ERS is reported by Klohnen (1996) to be substantial. For the purposes of the present research, the ERS items were collapsed to form the ER indicator, which was used in

conjunction with the two indicators derived from the ACS-90 (Kuhl, 1994) to measure the self as CEO dimension of the proactive self.

Statistical Analyses

A two-step process characterized the statistical analyses of the data. The first step consisted of preliminary analyses performed to ensure the integrity of the main analyses (e.g., Tabachnick & Fidell, 1989). For this purpose, the SPSS computer program was used to assess, check, and appropriately deal, when necessary, with the following: accuracy of data, missing data, the presence of both univariate and multivariate outliers, normality, linearity homoscedasticity, multicollinearity, singularity, and the factorability of R.

The second step consisted of a second-order confirmatory factor analysis (CFA) performed to assess the postulated structure and definition of the proactive self. The LISREL 8 computer program (Jöreskog & Sörbom, 1993) was used for this purpose. Analyses were based on the covariance matrix using Maximum Likelihood estimation (Bollen, 1989). The variables were treated as continuous even though they have a 7-point ordinal scale. The treatment of ordinal variables as continuous is considered acceptable when sample size is large and the number of categories in the ordinal scale is above five; as it is the case in the present data set (see Byrne, 1997).

Multiple goodness of fit indices were used to assess how well the model fit the data (Bollen, 1989; Byrne, 1997). They were: (a) the Chi-Square Likelihood Ratio (χ^2);

(b) the Goodness-of-Fit Index (GFI; Jöreskog & Sorbom, 1989); (c) the Adjusted Goodness-of-Fit Index (AGFI; Jöreskog & Sorbom, 1989); (d) the Comparative Fit Index (CFI; Bentler, 1990); (e) The Incremental Fit Index (IFI; Bollen, 1989); (f) the Parsimonious Comparative Fit Index (PCFI; Mulaik, James, Van Alstein, Bennett, & Stilwell, 1989); (g) and the Standardized Root Mean Square Residual (SRMSR). In addition to these statistical and practical criteria, theoretical and substantive criteria were also used to assess how well the model fit the data (MacCallum, 1986; Bollen, 1989).

The χ^2 evaluates whether the estimated covariance matrix differs significantly from the sample covariance matrix (Jöreskog & Sorbom, 1989). The null hypothesis is that the results obtained by subtracting the reproduced covariance matrix from the sample covariance are equal to 0. However, because the chi-square tends to be oversensitive to sample size, the null hypothesis is generally rejected (e.g., Bentler & Bonnett, 1981). Thus, it is not valid in most applications to use the chi-square to test the null hypothesis of overall model fit (Jöreskog & Sorbom, 1989). Yet, because the overall match between the model and the observed data has conventionally been assessed using the chi-square (Hu & Bentler, 1995), this index is reported for the sake of tradition. Moreover, in spite of its limitations as a measure of overall fit, the chi-square can be quite useful in providing a basis for comparing nested models (Hoyle & Panter, 1995).

The GFI is based on the ratio of the χ^2 value minus its related degrees of freedom. The GFI is analogous to an R^2 in multiple regression (Tanaka & Huba, 1989). When the GFI is adjusted to the number of parameters estimated in the model, it yields the AGFI. The CFI provides a measure of complete covariation in the data. It has been corrected for

sample-size dependency and has emerged as the index of choice (Bentler, 1990). The IFI is a comparative fit index that addresses issues of sample size and parsimony known to be associated with other fit indices such as the Non-Normed Fit Index. The PCFI is derived from the CFI. It is adjusted to reflect the parsimony of the model by compounding the value of the CFI with the ratio of the degrees of freedom of the estimated model to the null model. The SRMSR represents the average residual value across all standardized residuals derived from the fitting of the variance-covariance matrix for the hypothesized model to the variance-covariance matrix of the sample data (see Hu & Bentler, 1995).

In judging the adequacy of fit, the larger the GFI and AGFI (i.e., values above .90 for the GFI and .80 for the AGFI) the better the fit (e.g., Pedhazur & Pedhazur-Schmelkin, 1991). The CFI and the IFI values should be above .90 (Bentler, 1990; Bollen, 1989). PCFI values above .50 are considered acceptable (Mulaik et al., 1989). Finally, SRMSR values of 0.05 and less are indicative of a good fit between the data and the model (Thompson, Coover, Richards, Johnson, & Cattarin, 1995).

Results and Discussion

Preliminary Analyses

Inspection of the means and standard deviations of each of the ten variables included in the analyses indicated their values to be plausible and within the expected theoretical range for each of them (see Table 1). The preliminary analyses revealed the presence of some missing data (less than 10%) that were randomly distributed across

Table 1

Summary Statistics for the Indicators of the Definition of the Proactive Self(Study 1)

Variables	Mean	Standard Deviation	Skewness	Kurtosis
IMA	20.470	5.168	-.719	.477
IMK	21.122	5.177	-.767	.415
IMS	20.954	4.683	-.593	.045
OII1	4.888	5.884	.087	-.383
OII2	2.145	5.130	.403	.182
OII3	2.933	5.309	.375	-.047
OII4	2.538	5.314	.333	.692
ER	146.193	29.498	-.391	-.369
AOD	7.609	22.107	.137	.279
AOF	-1.431	21.395	.130	.366

items and consisted mainly of one item of missing data per subject. Subject's own mean on the particular scale or subscale where the missing value was detected was used to replace it.

Casewise residual values were inspected to detect the presence of univariate outliers. No case with a z value > 3.0 , which is indicative of the presence of univariate outliers, was noted in the present data set. The Mahalanobis distance was used as the criterion for the detection of multivariate outliers (Tabachnick & Fidell, 1989); 8 cases (2 males, 6 females) were identified as such and they were subsequently deleted from the analyses. This left a sample of 375 participants, which is considered adequate for the performance of second-order CFA (Comrey & Lee, 1992).

The skewness of the variables ranged between $-.76$ and $.40$ ($M = -.10$), the values for kurtosis ranged between $-.38$ and $.69$ ($M = .16$). Data are said to approximate normal distribution when the means of the skewness and kurtosis fall within a range of ± 1.00 (Muthen & Kaplan, 1985). Furthermore, visual inspection of the cumulative probability plot and of the histogram of studentized residuals (Tabachnick & Fidell, 1989) did not reveal any marked departure from normality. Similarly, the inspection of pertinent bivariate scatterplots did not reveal any marked departure from linearity and homoscedasticity.

The absence of multicollinearity and singularity was determined by the absence of any correlation above $.85$. Moreover, tolerance values ranged from 0.45 to 0.64 , well above the range of 0.01 to 0.0001 which constitutes the default values of many statistical programs for the presence of multicollinearity and singularity. The factorability of R was

ascertained via the presence of many correlations above 0.30 and a Kaiser's measure of sampling adequacy (KMO) of .84.

Second-Order Confirmatory Factor Analyses

The hypothesized model is presented in Figure 1. In line with conventional CFA schematic representations, unobserved variables (i.e. first and second order factors) are represented by circles. A large circle represents the second-order factor and the small circles represent the first-order factors. Measured variables (i.e. observed) are represented by boxes. Each measured variable is associated with an error term. Error terms are represented by small circles with unidirectional arrows pointing toward the boxes.

The CFA model hypothesizes a priori that (a) the proactive self is a second-order factor that is explained by three lower first-order factors (Intrinsic Motivation, Organismic Integration, and Self as CEO), (b) each first-order factor is measured by a set of indicator variables (c) each indicator would have a non-zero loading on the first-order factor it was designed to measure, and zero loadings on the other two first-order factors, (d) error terms associated with each item would be uncorrelated, and (e) covariation among the three first-order factors would be explained fully by their regression on the second-order factor.

For purposes of statistical identification, the first of each sets of loading was fixed to 1.00. Because second-order factor analysis presupposes that covariation among first-order factors is explained by the higher-order factor, correlations among the primary factors were fixed to zero, as were correlations among their residual terms. Variance for

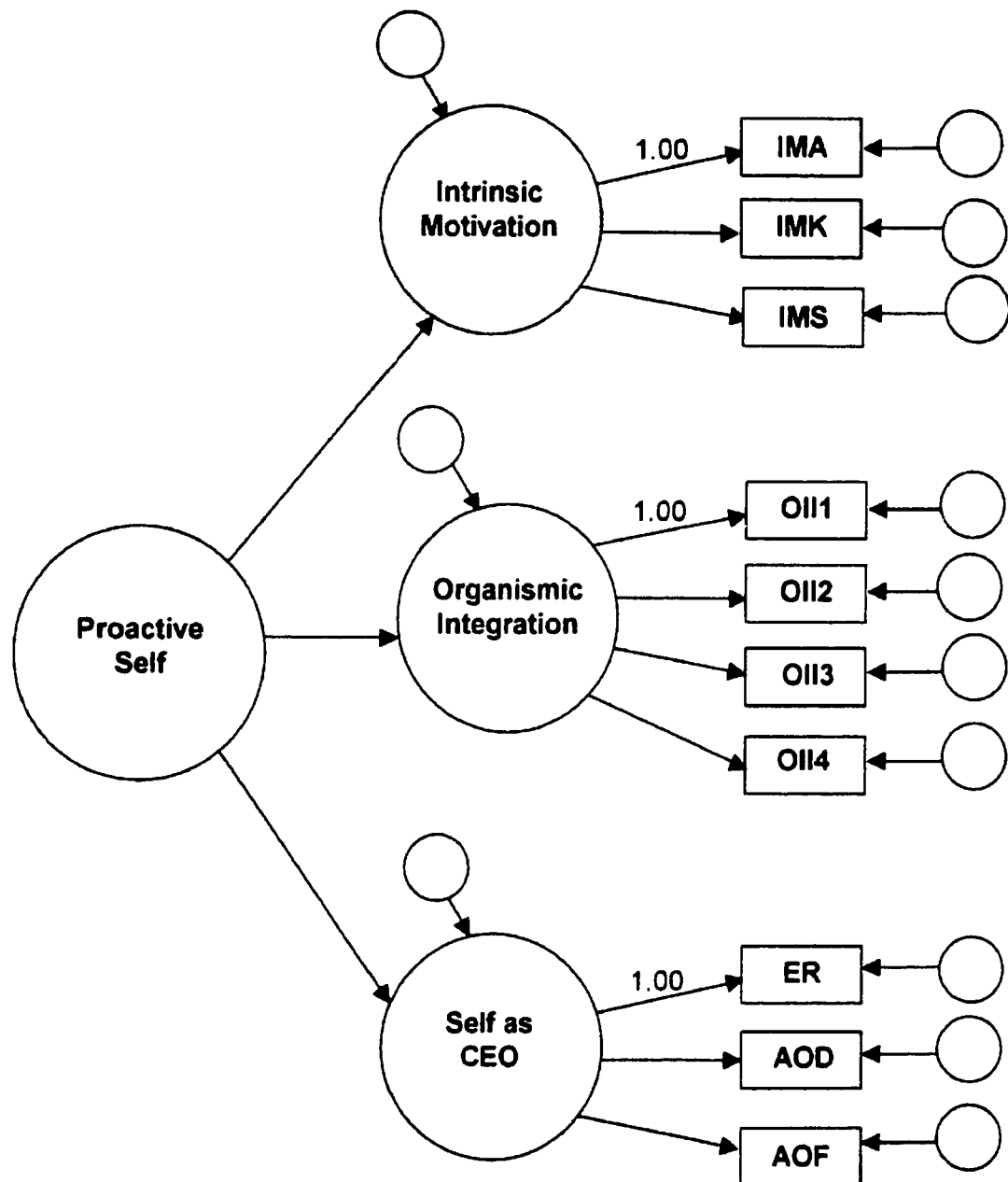


Figure 1. Postulated definition of the proactive self. Self as CEO refers to self as chief executive officer.

the second order factor was fixed to 1.00. The covariance matrix on which the analyses were based is presented in Appendix B.

The goodness of fit indices revealed a good fit between the data and the model ($\chi^2_{(32, N=375)}=131.84$, $p<.001$; SRMSR=0.054; GFI=.93; AGFI=.89; CFI=.93; IFI=.93; PCFI=.66). Due to the good fit, improvement on the model was deemed unnecessary, and post-hoc analyses were not performed. Thus, the results obtained were strictly confirmatory. All parameters were significant at $p<.01$ (see Figure 2). There was a strong positive association between the proactive self and the three lower order factors: intrinsic motivation, organismic integration and self as CEO. The highest association was between the proactive self and self as CEO ($\gamma=.84$), the second highest was between the proactive self and organismic integration ($\gamma=.81$). The lowest association was between the proactive self and intrinsic motivation ($\gamma=.68$). The proactive self factor explained 70% of the variance in CEO. It explained 66% of the variance in organismic integration and 46% of the variance in intrinsic motivation.

These results support and validate the definition of the proactive self proposed in this dissertation. As such, the proactive self may be defined as a higher-order factor accountable for three lower-order factors: intrinsic motivation, organismic integration, and self as CEO. Hence, a healthy developed proactive self has high levels of intrinsic motivation, organismic integration, and self as CEO. Conversely, an impaired proactive self has low levels of intrinsic motivation, organismic integration, and self as CEO.

Results also indicate that even though the three lower-order factors, intrinsic motivation, organismic integration, and self as CEO are theoretically distinct from one

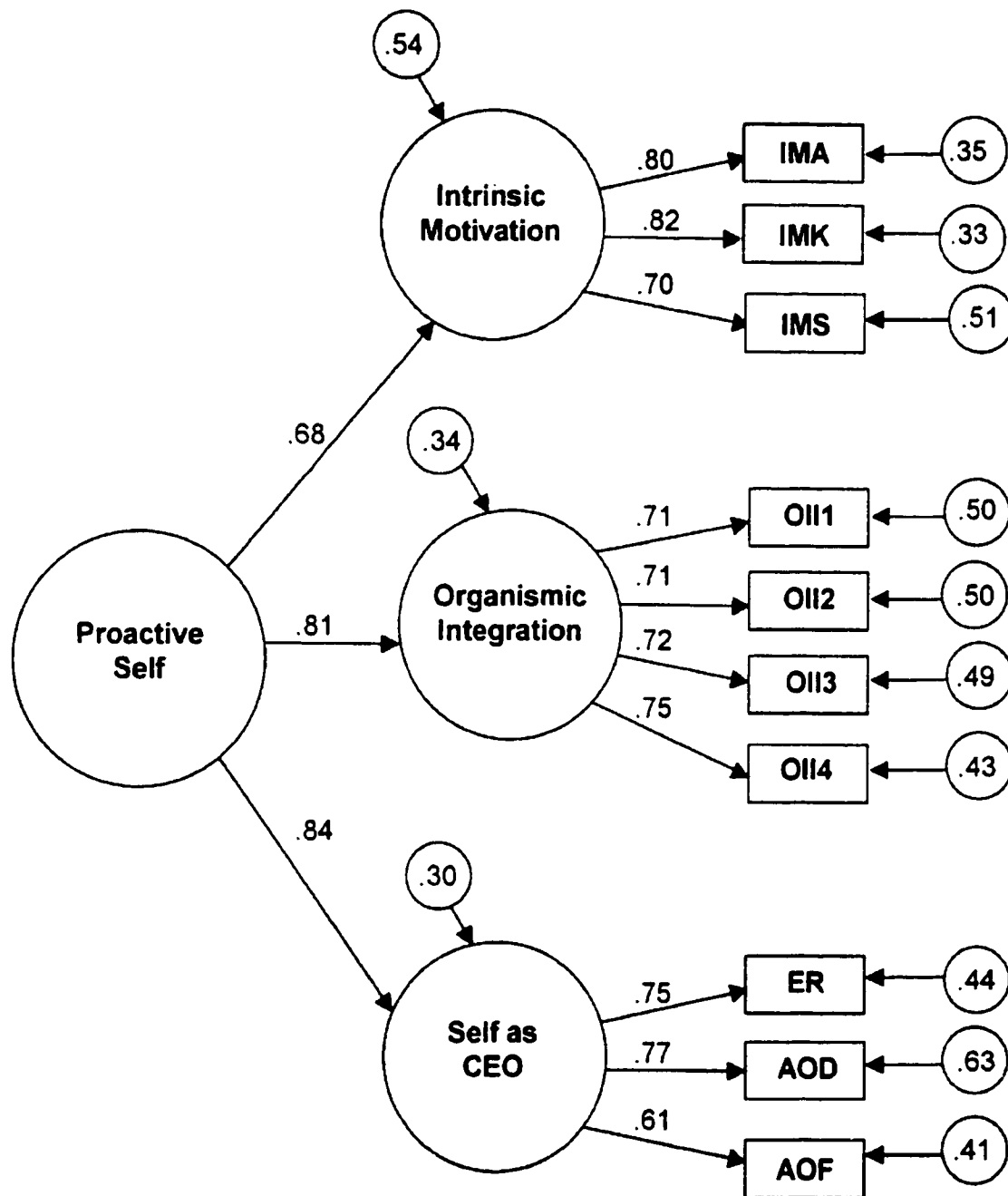


Figure 2. Definition of the proactive self (Study 1; $N = 375$). All of the parameters in the model are standardized and significant at the .01 level. Self as CEO refers to self as chief executive officer.

another, they all reflect the notion of the self as the origin of behavior. Furthermore, they do represent varied motivational, assimilatory, and regulatory processes. As such, the successful definition of the proactive self as a unitary superordinate factor accountable for these processes suggests that the proactive self may indeed be the entity that initiates and guides behavior, thus providing empirical support to Deci and Ryan's organismic approach to the self.

The results of the present study provide an empirical glimpse into the behavioral implications of the proactive self. Participants whose proactive self was healthy and developed were engaging in daily activities that reflected their interests, provided them with pleasure and enjoyment, and allowed them to learn, to accomplish, and to experience stimulation. They also displayed high levels of integration of behavioral regulation. In other words, they were inner-directed and they were engaging life based on what is important to them and what reflected their values and their self-selected goals. In addition, they were resourceful and flexible in their dealings with life challenges. Finally, they were able to initiate and maintain actions related to their self-selected goals.

A very different portrait emerged for participants whose proactive self was impaired. In general, they did not engage in activities that reflected their interests or afforded them the opportunity for learning, accomplishment, and the experience of stimulation. They were pawn-like, their behavior regulated by internal pressures and/or external agents. Life challenges overwhelmed them, and they were unable to initiate and maintain self-generated intentions. Instead, they were prone to rumination, preoccupation, and hesitation.

Results also revealed an intriguing finding. The association between the proactive self and intrinsic motivation even though significant and strong was lower than the associations between the proactive self and the two other lower-order factors, organismic integration, and self as CEO. One possible explanation for the lower engagement of the intrinsic motivation dimension of the proactive self is the nature of a student's life which is filled with deadlines, evaluations, and the challenges of fitting in. These challenges may require the engagement of organismic integration and self as CEO at a higher level than that of intrinsic motivation. Furthermore, the challenges of student life may limit the engagement in intrinsically motivated activities, thus possibly lowering the association between the proactive self and intrinsic motivation.

Results also indicated that the two measures (ERS and ACS-90) chosen to assess the self as CEO dimension of the proactive self were valid and reliable measures of this lower-order factor even though they were borrowed measures that were not originally designed to measure self as CEO. The associations between the self as CEO and the three indicators generated from the two measures were strong, positive, and significant attesting to their validity as indicators of self as CEO. Furthermore, they were also reliable measures with R^2 values of 59% (AOD), 56% (ER), and 37% (AOF). The successful integration of these two different measures into one factor supports the decision made to use both scales to assess the dimension, self as CEO, hence allowing the tapping of different facets of self as CEO.

Overall, the results seem to support both the conceptual definition of the proactive self proposed in this dissertation and the choice of measures used to tap the self's

postulated components. They provide preliminary support to Deci and Ryan's portrayal of the self as an entity endowed with varied motivational, assimilatory, and regulatory processes with which it originates behavior.

STUDY 2: CROSS-VALIDATING THE DEFINITION OF THE PROACTIVE SELF,
AND EXAMINING CAUSAL RELATIONS AMONG NEED FOR RELATEDNESS,
PROACTIVE SELF AND POSITIVE HUMAN FUNCTIONING

The results of Study 1 constituted the first empirical attempt at defining the proactive self. As such, their generalizability was not established. Thus, their replication in a second independent sample was highly advisable if the issue of whether or not they were sample specific was to be addressed. Furthermore, with the proactive self successfully defined it became possible to address the empirical questions raised in this dissertation as to what causes the impairment of the proactive self and what are the consequences of this impairment.

Thus, the purpose of study 2 was two-fold. First, to cross-validate in a second independent sample the definition of the proactive self specified and tested in the first study. Second, to test the validity of the model proposed in this dissertation, which postulated causal relations among the need for relatedness, the proactive self, and positive human functioning. The satisfaction of the need for relatedness was assessed for two levels of maturity, childhood and adulthood. The purpose of the dual assessment was to ensure a more comprehensive assessment of the participants' relatedness experiences and to explore childhood influences on the proactive self. Before introducing the hypotheses of the present study a brief comment is made on positive human functioning.

Traditionally, self-esteem, life satisfaction and positive and negative affect measures were used to assess positive human functioning (Diener, 1984). These measures

however, were severely criticized by Ryff (1989) because of their limited theoretical grounding, which led to the neglect of important aspects of psychological functioning. She proposed, as an alternative, six-theory guided dimensions of positive human functioning (purpose in life, autonomy, self-acceptance, personal growth, environmental mastery, and positive relations with others). For the purposes of the present research a combination of both the traditional and the new measures were used to assess positive human functioning.

The choice of indicators was based on the postulated function of the proactive self. For example, the proactive self is postulated to be intrinsically motivated to expand its potentials (Deci & Ryan, 1985). Thus, we reasoned that if the proactive self is healthy and developed it would be pursuing its interests and expanding its potentials. Therefore, actualization unfolds. For this reason, actualization, which is postulated by many theorists to be one of the hallmarks of positive human functioning (e.g., Maslow, 1968) was chosen as one of the indicators of positive human functioning. The very same reasoning guided the choice of the other indicators used in the present research to assess positive human functioning (self-acceptance, environmental mastery, and general well-being). Self-acceptance was chosen because it reflects an instance of inner harmony, which the proactive self is postulated to seek (Deci & Ryan, 1991). The measures used to assess these indicators are detailed in the method section of Study 2.

Hypothesis 1. The definition of the proactive self proposed and validated in Study 1, will cross-validate in this second independent sample.

Hypothesis 2. The four latent variables of the Relatedness (childhood and adulthood), Proactive Self, and Positive Human Functioning Model are adequately represented by their respective measures. The CFA should confirm the existence of these factors and yield acceptable goodness of fit indices.

Hypothesis 3. The satisfaction of the need for relatedness in childhood is a significant predictor of the satisfaction of the need for relatedness in adulthood and of the healthy functioning of the proactive self. In turn, the satisfaction of the need for relatedness in adulthood is a significant predictor of the healthy functioning of the proactive self, which is a significant predictor of positive human functioning. SEM are expected to yield acceptable goodness of fit indices. The postulated model is presented in Figure 3.

Method

Participants and Procedure

A total of 404 students enrolled in a variety of undergraduate courses at the University of Ottawa were recruited to participate in the study. The sample consisted of 68 males and 334 females (2 participants did not report their gender). Participants ranged in age between 17 and 63 years ($M=22.5$; $SD=5.9$). They had an average of 2.3 years of university education. They reported an average yearly income of \$15,657.00, with 60% of the participants earning $\leq$ \$10,000. On average they had 2.08 siblings each, 37.4% reported having one sibling, 29.7% indicated having two siblings, and 11.4% reported

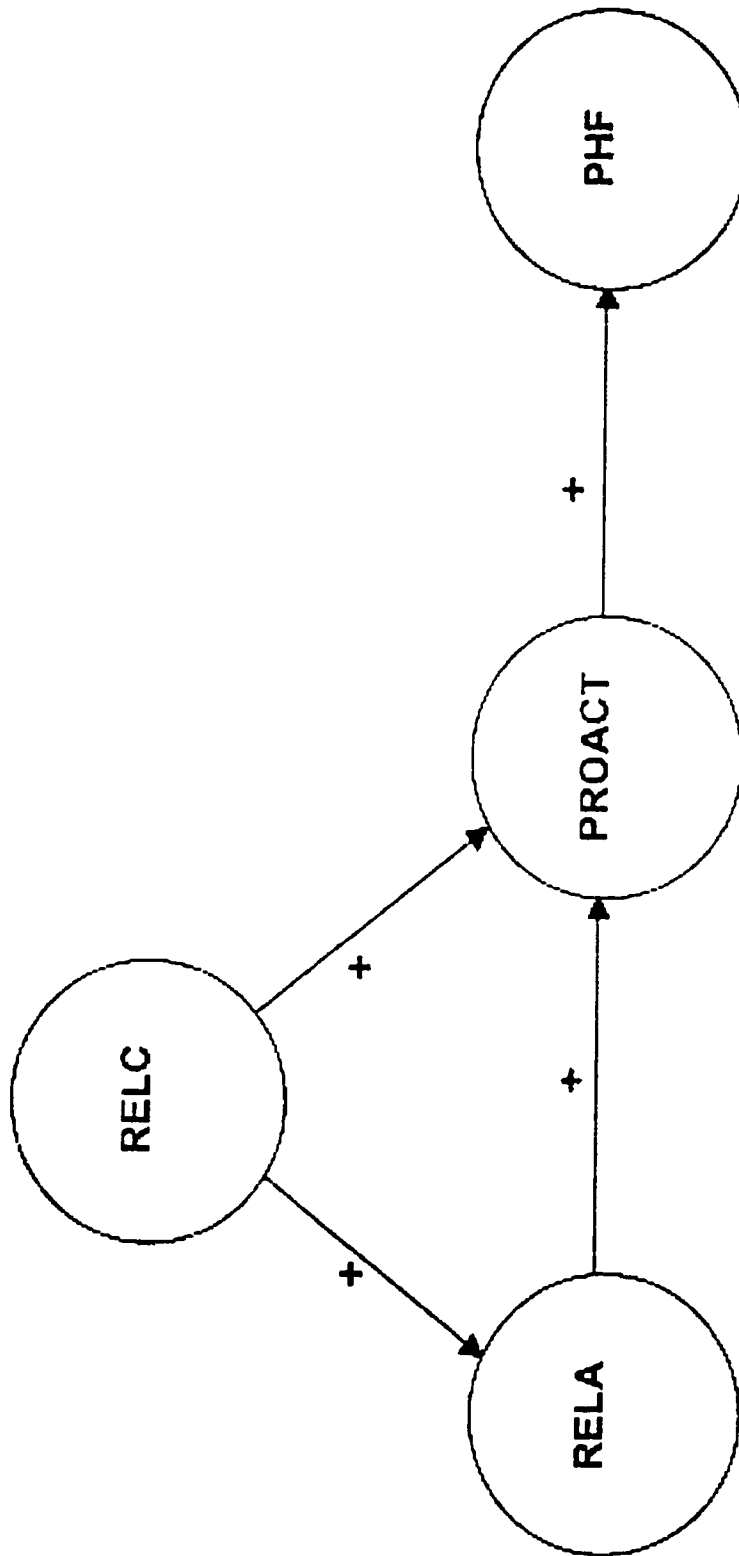


Figure 3. Postulated Relatedness, Proactive Self, and Positive Human Functioning Model. RELC = Relatedness Childhood; RELA = Relatedness Adulthood; PROACT = Proactive Self; PHF = Positive Human Functioning

having three or more siblings. Of the sample, 31.2% were first-born and 33.6% were the youngest in their families.

With the permission of the class professors, students' participation was solicited during a designated class period. Participants were told the purpose of the study was to understand university students' beliefs and attitudes about themselves, others, and interpersonal relationships. Also of interest, they were told, were the reasons why they do the different activities in their lives. Students were informed that their participation was completely voluntary. Students who agreed to participate were given the questionnaire package to complete in class. It took participants approximately 50 minutes to fill out the questionnaire. The questionnaire package contained: (a) a cover letter explaining the purpose of the study as well as standard ethical considerations. The participants were not provided with an official consent form because the completion of the questionnaire constituted consent; (b) a set of scales to measure the proactive self, the need for relatedness, and positive human functioning; and (d) demographic questions. Participants were asked to refrain from writing their names, student numbers or any other identification reference. The request was made to secure the confidentiality and anonymity of the participants. In conclusion, participants were told that once the data were analyzed, they were welcome to inquire about the global results, which would be discussed with them upon request.

Measures

In the present study the following scales were used to measure the following latent constructs: The Parental Bonding Instrument (PBI; Parker, Turpling, & Brown, 1979) was used to assess the satisfaction of the need for relatedness in childhood; the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) and the short version of the Positive Relations with Others Scale (PROS; Ryff, 1989) were used to assess the satisfaction of the need for relatedness in adulthood. The GMS, the ACS-90, and the ERS (discussed in Study 1) were used to assess the proactive self; the Actualization Scale (AS; Scale developed for the purposes of the present study), the Environmental Mastery Scale (EMS; Ryff, 1989), the Self-Acceptance Scale (SAS; Ryff, 1989), the Self-Esteem Scale (SES; Rosenberg, 1965), the Center for Epidemiological Studies-Depressed Mood Scale (CES-D, Radloff, 1977) and the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) were used to assess positive human functioning.

The Parental Bonding Instrument (PBI; Parker, Turpling & Brown, 1979). The PBI was used to assess the satisfaction of the need for relatedness in childhood. The PBI is a self-report scale measuring the subject's perceptions of parents on two dimensions - Care and Protection- derived from attachment theory and related research. Participants are asked to score their parents as remembered from their own first 16 years. The PBI has 12 items on its Care subscale and 13 items on its Protection subscale. Each item requires the respondent to judge the extent to which the descriptor was like or unlike one's parents. A 7- point Likert-type scale is used for the scoring. A combination of high Care - low Protection is held to represent "optimal parenting"; low Care - low Protection, "neglectful

parenting”; high Care/high Protection, “affectionate constraint”; and low Care - high Protection, “affectionless control”. For our purposes “optimal parenting” meant the need for relatedness was met. A less than optimal parenting indicated that the need for relatedness was not met.

To obtain some measure of the reliability of the responses of the sample, the researchers included two identical items in the original 48 item questionnaire. Responses to these two items were intercorrelated, producing a Pearson correlation coefficient of 0.704 ($p < 0.001$). The test-retest reliability of the PBI was initially assessed over a brief interval and it was shown to be impressive (Parker et al., 1979). More recently, the long term reliability in scoring parents on the PBI was assessed over a 10-year period (Wilhelm & Parker, 1990), with the overall level of agreement for Care (.68) and Protection (.62). These numbers are considered impressive when compared against other measures including trait personality ones. For the purposes of the present research, the PBI items were used to derive four indicators of optimal bonding between parent and child. They were OB1, OB2, OB3, OB4. These indicators were derived from the judicious subtraction of the Protection items from the Care items, given that optimal bond resulted from high Care and low Protection on the part of the parents.

The satisfaction of the need for relatedness was also assessed in adulthood. Two measures, detailed below, were used for this purpose. The Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991), and the Positive Relations with Others Scale (PROS; Ryff, 1989). The two scales were used because they tap different approaches to relatedness. One of the scales, the RQ, assesses people’s mental models about

interpersonal relationships and the self in that context. The RQ, however, does not reveal any information as to the actual state of the subject's relationships. The PROS, on the other hand, provides information as to the actual success or failure of people in forming and maintaining relationships. By using both measures, it was hoped that a balanced and more comprehensive perspective as to the satisfaction of the need for relatedness in adulthood would be achieved.

The Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991). The RQ is composed of four paragraphs, each describing a prototypical attachment pattern (detailed below) as it applies to close relationships in general. Participants are asked to indicate on a 7-point Likert-type scale the extent to which each of the prototypes describes them. These attachment patterns are based on Bartholomew and Horowitz's (1991) model of adult attachment. These authors drew on Bowlby's theory (1973) and postulated two types of internal working models, an internal model of the self and an internal model of others. Each model can be dichotomized as positive or negative, hence yielding four theoretical attachment styles: Fearful, Dismissing, Preoccupied and Secure. Fearful individuals have a negative model of self and others. They are highly dependent on others for the validation of their self-worth; however due to their negative expectations of others they shun intimacy to avoid the pain of loss or rejection. Dismissing individuals, who have a positive model of self and negative model of others also avoid intimacy. They do, however, maintain their high sense of self-worth by stressing the value of independence and denigrating the value of interpersonal relationships. Preoccupied individuals display a negative model of self but a positive model of others. This

motivates them to validate their sense of self-worth by getting excessively close in interpersonal relationships. This leaves them quite vulnerable to a high level of distress when interpersonal relationships do not work out. Finally, Secure individuals have positive models of both the self and other. They tend to be comfortable with intimacy and autonomy. The convergent and discriminant validity of Bartholomew and Horowitz's (1991) four-category model has been established (Griffin & Bartholomew, 1994). The following is an example of an RQ item: I am somewhat uncomfortable getting close to others. I want close relationships, but I find it difficult to trust others completely or to depend on them. I sometimes worry that I will be hurt if I allow myself to become close to others (Fearful).

The Positive Relations with Others Scale (PROS; Ryff, 1989). PROS refers to an individual who has warm, satisfying, and trusting relationships with others, is concerned about the welfare of others; is capable of strong empathy, affection, and intimacy; understands the give and take of human relationships (e.g., People would describe me as a giving person, willing to share my time with others). The PROS' short version was used for the purposes of the present research. A 7-point Likert-type scale was used to assess the extent to which each item corresponds to the subject's experience. Participants were asked to indicate, on a 7-point Likert-type scale the extent to which each of the PROS items (3 items) is true or not for them (1 = not true at all; 7 = totally true). The PROS has good internal consistency with a reported Cronbach alpha of .86 and a correlation of .98 with the parent scale. The three PROS items were collapsed to form one indicator,

POSREL, that was used in conjunction with the four RQ indicators derived from the RQ questionnaire (discussed above) to measure the need for relatedness in adulthood.

The proactive self was measured using the three scales detailed in the previous study and they are: the Global Motivation Scale (GMS; Guay et al., 1996); the Ego-Resiliency Scale (ERS; Klohnen, 1996); and the Action Control Scale (ACS-90; Kuhl, 1994). Because of the detailed elaboration of these measures in the previous section (STUDY 1), they will not be discussed further.

Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The SWLS is a short and unidimensional instrument designed to measure subjective life satisfaction (e.g., If I could live my life over, I would change almost nothing). It is composed of five items scored on a 7-point Likert-type scale (1 = not true at all; and 7 = totally true) The SWLS displays high levels of internal consistency with an alpha of .87. The test-retest reliability of the SWLS appears to be excellent, with a correlation of .82 for a two-month period, suggesting it is very stable. The SWLS concurrent validity is also well established.

Center for Epidemiological Studies-Depressed Mood Scale (CES-D; Radloff, 1977). The CES-D is a 20-item questionnaire originally designed to measure depressive symptomatology in the general population (e.g., I had crying spells). Since its development, however, the CES-D proved to be useful in clinical and psychiatric settings. The CES-D has very good internal consistency, with an alpha of .85 for the general population and an alpha of .90 for the psychiatric population. The CES-D stability is rather fair with test-retest correlations that range from .51 to .67 (tested over two to eight

weeks) and .32 to .54 (tested over 3 months to one year). In addition to excellent concurrent validity, the CES-D has good known-groups validity. It discriminates well between psychiatric inpatients and the general population, and moderately among levels of severity within patient groups. The CES-D has also been shown to discriminate between people in the general population who state they “need help” and those who do not. The CES-D items were scored on a 7-point Likert type scale (1 = rarely; 7 = all the time)

Self-Esteem Scale (SES; Rosenberg, 1965). The SES consists of 10 items designed to measure Rosenberg’s definition of self-esteem as self-acceptance and a feeling of basic self-worth. Participants were asked to indicate on a 7-point Likert-type scale the extent to which each of the SES is true of them or not (1 = not true at all; 7 = totally true). Rosenberg reported a reproducibility coefficient of .92 and a scaleability coefficient of .72. He also reported significant correlations between self-esteem and clinical ratings of depression.

For the purposes of the present research the three scales discussed above, SES, SLS, and CES-D were combined to form one general well-being indicator (GWB). The GWB indicator was formed by adding the two SES and SWLS scores, then subtracting the subject’s score on CES-D from their combined score. This procedure is considered valid given that the three constructs represented by SES, SWLS, and CES-D can be subsumed under one superordinate factor (GWB; see Appendix D). The combining of the three scores was done for the purposes of parsimony and conceptual clarity. The derived

GWB indicator was used along with three other indicators (environmental mastery, actualization, and self-acceptance) to measure positive human functioning.

Actualization Scale (AS; Scale developed for the purposes of the present research). The AS is a short scale composed of six items designed to measure the degree of the participants' actualization. Inspired by the definition of self-actualization (Maslow, 1965), the AS assesses the extent to which people are developing their potentials, expanding their capacities, and working on self-improvement (e.g., Every day I take action steps aimed at improving areas of my life I am dissatisfied with). Reigning measures of self-actualization were excluded because of the overlap between their items and the items of the ERS (Klohn, 1996). The ERS was used in this dissertation as an indicator of the proactive self, which is postulated to predict positive human functioning. Actualization, on the other hand, is one of the indicators of positive human functioning. Thus, it was important to develop a measure that does not confound actualization and the proactive self.

Four of the AS items are reported on a 7-point Likert-type scale (1 = not true at all; and 7 = totally true). Two of the items however, are reported on a 10 point Likert-type scale because of the nature of the item. An example is provided below:

On a scale from one to ten:

If number 10 represents your ideal self (i.e. who you would like to be, your dreams, your aspirations) for this stage of your life, where do you think your actual self (i.e. who you are right now) is in comparison?

The actual-ideal discrepancies were included because growth may be conceptualized as one's perception of becoming closer to one's ideal (Rogers, 1951; see also Higgins, 1990). The first four items of the AS were embedded within the Satisfaction with Life Scale, while the other two were several scales away from these four items. This spatial separation was for the purpose of reducing response set as much as possible. The AS has good internal consistency with a Cronbach alpha of .80 for the present sample. The AS items were collapsed to form ACTUALIZ, one of the indicators of positive human functioning.

Environmental Mastery Scale (EMS; Ryff, 1989). The short version of the EMS was used for the purposes of the present research. The EMS was designed to measure environmental mastery, which refers to an individual who has a sense of mastery and competence in managing the environment; controls a complex array of external activities; makes effective use of surrounding opportunities; and is able to choose or create contexts suitable to personal needs and values (e.g., I am quite good at managing the many responsibilities of my daily life). Participants were asked to indicate, on a 7-point Likert-type scale the extent to which each of the EMS items (3 items) is true or not for them (1 = not true at all; 7 = totally true). The EMS has good internal consistency with a reported Cronbach alpha of .86 and a correlation of .98 with the parent scale. The EMS items were collapsed to yield ENVTMAS, one of the indicators of positive human functioning.

Self-Acceptance Scale (SAS; Ryff, 1989). The SAS was designed to measure self-acceptance, which refers to an individual who possesses a positive attitude toward the self, acknowledges and accepts multiple aspects of self, including good and bad qualities,

and feels positive about past life. The SAS's short version was used for the purposes of the present research. Again, the responses were reported on 7-point Likert-type scale. The short version SAS is reported to have good internal consistency, with a Cronbach alpha of .91 and a correlation of .99 with the parent scale. The SAS items were collapsed to form SELFACC, one of the indicators of positive human functioning.

Statistical Analyses

Data were analyzed and will be presented in four major stages. In the first stage, two sets of preliminary analyses were performed. The first set was conducted on the variables that compose the second-order CFA definition of the proactive self. The second set of preliminary analyses was performed on the variables that constitute the model, which postulated causal relationships between the need for relatedness, the proactive self, and positive human functioning. The SPSS computer program was used for this purpose.

In the second stage, a second-order CFA was performed to cross-validate in a second independent sample the definition of the proactive self specified and tested in the first study. In the third stage, a CFA was performed on the measurement portion of the full causal model tested in the fourth stage. Testing for the validity of the measurement model is considered to be a critical preliminary step in the analyses of full latent variable models. It aims to ensure that the measurement of each latent variable is psychometrically sound before the latent model itself is tested (see Byrne, 1997). In the fourth stage, structural equation modeling analyses (SEM) were performed to assess the validity of the full causal model proposed in this dissertation.

The LISREL 8 program (Jöreskog & Sorbom, 1993) was used in the performance of the second-order CFA, the CFA, and the SEM analyses mentioned above. Analyses were based on the covariance matrix using Maximum Likelihood estimation procedures (Bollen, 1989), and variables were treated as continuous (Byrne, 1997). The same statistical, practical, and substantive criteria used to assess the fit of the second-order CFA model, tested in the first study, were used in the present study. As such, evaluation of model fit was based on the χ^2 statistic, the SRMSR, the GFI, the AGFI, the CFI, the IFI, the PCFI, as well as the substantive meaningfulness of the model.

Results and Discussion

Preliminary Analyses

The first set of preliminary analyses was performed on the ten variables used in the definition of the proactive self. The means and standard deviations of all ten variables were well within their respective theoretical ranges (see Table 2). Of the original 404 cases, 17 (i.e. less than 5%) were noted to have missing values. The pattern of missing data was random, distributed across the different items (see Muthen & Kaplan, 1985), and consisted mainly of one missing value per subject. The subject's own mean on the particular scale or subscale where the missing value was noted, was used to replace it. While there were no univariate outliers, 9 cases (7 males, 2 females) were identified as multivariate outliers and were subsequently deleted from the analyses. This left a total of

Table 2

Summary Statistics for the Indicators of the Definition of the ProactiveSelf (Study 2)

Variables	Mean	Standard Deviation	Skewness	Kurtosis
IMA	20.248	4.911	-.620	.330
IMK	21.277	4.771	-.524	-.051
IMS	21.490	4.661	-.835	.684
OII1	6.272	6.106	-.216	-.308
OII2	2.743	5.864	.349	.171
OII3	4.161	5.506	.082	.310
OII4	3.985	5.783	.319	-.023
ER	141.065	24.812	-.576	.022
AOD	33.135	21.240	-.020	.315
AOF	-3.588	21.002	.005	.322

395 participants, a sample size ($N=395$) considered adequate for the performance of CFA analyses (Comrey & Lee, 1992).

Multivariate normality was evident with kurtosis values ranging between $-.30$ and $.68$ (mean $= .17$) and skewness values ranging between $-.83$ and $.34$ (mean $\underline{SK} = -.20$) (see Muthen & Kaplan, 1985). Furthermore, visual inspection of the cumulative probability plot and of the histogram of studentized residuals (Tabachnick & Fidell, 1989) did not reveal any marked departure from normality. Similarly, the inspection of pertinent bivariate scatterplots did not reveal any marked departure from linearity and homoscedasticity.

The factorability of R was established by the presence of numerous bivariate correlations above $.30$ and by a KMO value of $.86$. Finally, multicollinearity and singularity were ruled out because none of the bivariate correlations exceeded $.85$. In addition, tolerance values for the data set ranged between $.40$ and $.57$.

The second set of preliminary analyses was performed on the observed variables of the model positing causal relationships between the need for relatedness, the proactive self, and positive human functioning. All these variables displayed means and standard deviation values well within the expected theoretical range for their respective scales (see Table 3). Eighteen cases (less than 5%) were identified as having missing values. Again, the pattern of missing values was random and consisted mainly of one item per subject. The subject's own mean on the particular scale or subscale where the missing value was noted was used to replace it.

Table 3

Summary Statistics for the Indicators of the Relatedness Proactive Self, Positive Human Functioning Model (Study 2)

Variables	Mean	Standard Deviation	Skewness	Kurtosis
OB1	5.225	6.907	-.377	-.314
OB2	7.697	7.161	-.811	.289
OB3	6.985	7.858	-.798	.042
OB4	7.598	6.976	-.922	.499
RQ1	4.603	1.642	-.405	-.712
RQ3	5.041	1.777	-.689	-.592
RQ4	4.387	1.951	-.178	-1.242
POSREL	16.319	3.653	-.861	.129
IM	63.032	12.237	-.495	.005
OI	27.384	21.097	.199	-.078
CEO	170.609	54.459	-.110	.158
GWB	23.134	33.108	-.572	-.138
ENVTMAS	15.331	3.088	-.640	.575
ACTUALIZ	31.800	6.367	-.302	.006
SELFACC	16.191	3.165	-.553	-.079

The data set was free of univariate outliers; 8 cases (4 males, 4 females) were identified as multivariate outliers and deleted from the analyses, leaving a sample size of 393 cases. Such a sample size ($N=393$) is considered acceptable for the performance of SEM analyses.

The assumption of multivariate normality was met. Skewness values ranged between -.92 and .19 (mean $\underline{SK} = -.47$); kurtosis value ranged between -1.2 and .57 (mean $\underline{KU} = -.17$). Moreover, the studentized residuals and the cumulative probability plot (Tabachnick & Fidell, 1989) did not display any marked departure from normality. The assumptions of linearity and homoscedasticity were deemed met following the inspection of pertinent bivariate plots.

R was found to be factorable given numerous bivariate correlations in excess of .30 and a KMO value was .88. Finally, multicollinearity and singularity were ruled out due to tolerance values ranging between .19 and .81 and the absence of any bivariate correlation above .85.

Second-Order Confirmatory Factor Analyses

The definition of the proactive self tested and validated in the first study was retested on this second sample of undergraduate students. The purpose was to cross-validate the definition and ensure its replicability in a second independent sample. The Covariance Matrix on which the analyses were based is presented in Appendix E.

Goodness of fit indices reveal a well-fitting model ($\chi^2_{(32, N=393)} = 102.18, p < .001$; SRMSR=.045; GFI=.95; AGFI=.92; CFI=.96; IFI=.96; PCFI=.67) attesting to the

replicability of the definition of the proactive self. All parameters were significant (see Figure 4). The associations between the higher order factor, the proactive self and the three lower-order factors (intrinsic motivation, organismic integration, and self as CEO) were all positive and strong. The results indicate that while the three lower-order factors are conceptually distinct and reflect different processes, they all, however, in their differences reflect the self as the origin of behavior. All three of them can be explained by a higher-order factor, the proactive self. Thus, the healthy proactive self displays high levels of intrinsic motivation, organismic integration, and self as CEO. Conversely, an impaired proactive self displays impaired intrinsic motivation, organismic integration and self as CEO processes.

The strongest association was between the proactive self and organismic integration ($\gamma=.89$). The second strongest was between the proactive self and self as CEO ($\gamma=.80$). The lowest association was between the proactive self and intrinsic motivation ($\gamma=.65$). The amount of variance explained in organismic integration was 79%. The amount of variance explained in self as CEO was 65%. Finally, the amount of variance explained in intrinsic motivation was 43%. In sum, these results do support the replicability of the definition of the proactive self in a second independent sample. They clearly indicate that the postulated definition of the proactive self is valid and replicable.

In comparison with the first sample, both samples had strong and positive associations between the first-order factors and the second-order factor. In both samples the lowest association was between intrinsic motivation and the proactive self. As for the organismic integration and the self as CEO first-order factors, they displayed reverse

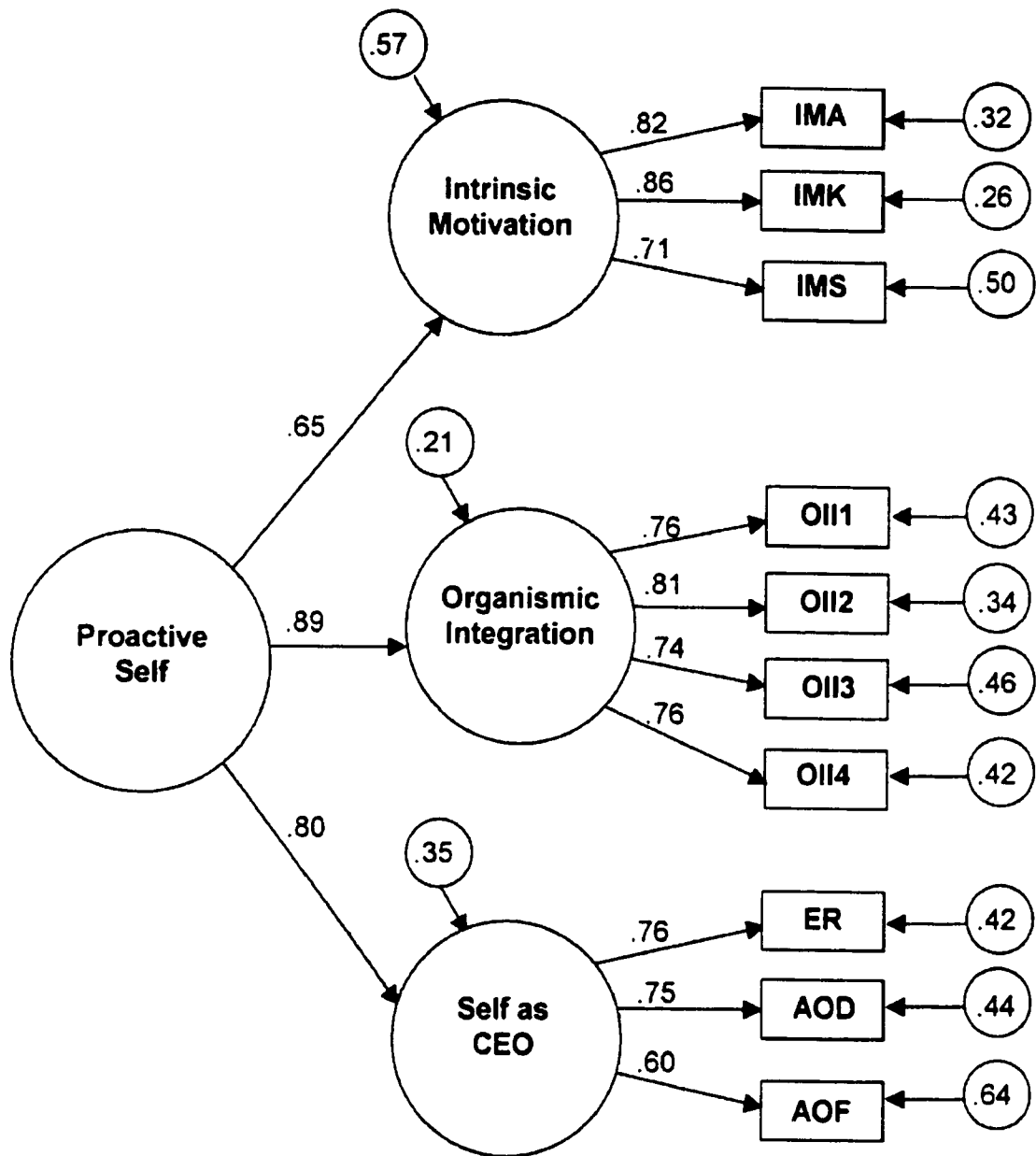


Figure 4. Definition of the Proactive Self (Study 2; $N = 395$). All of the parameters in the model are standardized and significant at the .01 level. Self as CEO refers to self as chief executive officer.

patterns from one sample to the other. In the first sample, the highest association was between the self as CEO and the proactive self, whereas in the second sample, the highest association was between the organismic integration and the proactive self.

Confirmatory Factor Analyses

A full structural equation model is composed of two parts: the measurement portion of the model and the structural portion of the model. The measurement portion of the model is about the relationship between the indicators and their respective latent constructs. The structural portion of the model involves relations among only latent variables. The primary goal in testing a full model is the assessment of the extent to which the relations among latent variables are valid. Therefore, it is critical for the measurement of each latent variable to be psychometrically sound. Thus, before even making any attempt to evaluate the structural model, the validity of the measurement model must be tested (Byrne, 1997).

For this purpose, a CFA was performed on the latent factors and their respective indicator variables see (Figure 5). There were four factors: RELC (need for relatedness in childhood), RELA (need for relatedness in adulthood), PROACT (proactive self), and PHF (positive human functioning). There were 16 indicators (i.e. observed variables), postulated to load on the four factors in the following manner: OB1, OB2, OB3, and OB4 would load on the RELC factor; RQ1, RQ2, RQ3, RQ4, and POSREL would load on the RELA factor; GIM, OI, and CEO would load on the PROACT factor; and GWB, ENVTMAST, SELFACC, and ACTUALIZ would load on the PHF factor. Each

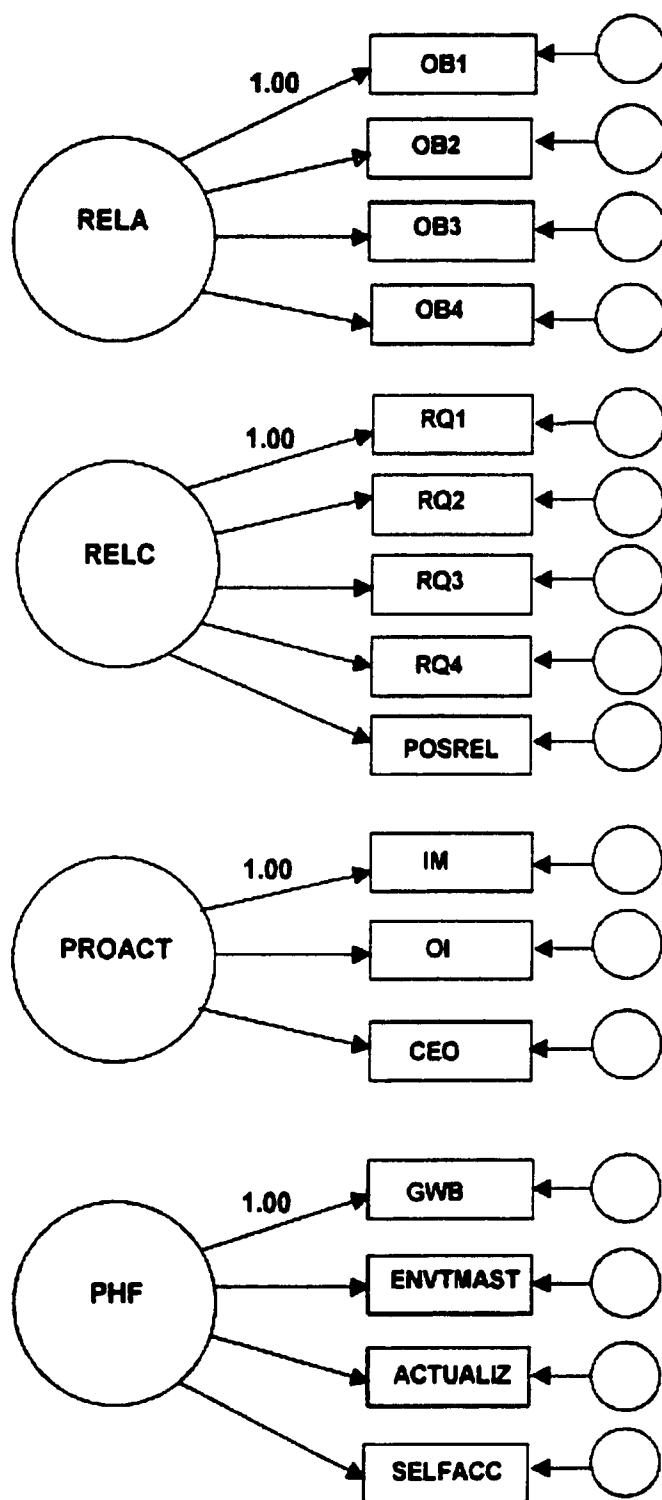


Figure 5. Postulated Relatedness, Proactive Self, and Positive Human Functioning Measurement Model. Factors are intercorrelated.

indicator variable would have a non-zero loading on the factor it was postulated to measure and a zero-loading on all other factors. Errors of measurement associated with each item were uncorrelated. For issues of statistical identification, the first indicator of each factor was fixed to one. The intercorrelations among factors were freed up in the Phi matrix.

The model postulated a priori was put to the test. The goodness of fit indices indicated the model may not fit the data very well ($\chi^2_{(98, N=393)} 350.57$, $p < .001$; SRMSR=.067; GFI=.90; AGFI=.86; CFI=.93; IFI=.93; PCFI=0.74). Given that the purpose of a CFA on the measurement portion of a structural model is to ensure the psychometric soundness of the indicator variables, individual indicator variables were assessed for validity and reliability. While all parameters were statistically significant, one indicator variable RQ2 (hypothesized to load on RELA) displayed a small regression coefficient ($\lambda = .28$). Such a value is below the cut-off point ($\lambda = .30$) required for a variable to qualify as an indicator of a certain factor. This low lambda value was indicative of the poor validity of RQ2 as a measure of the RELA factor. Clearly, RQ2 did not seem to measure what it was supposed to measure (insecure attachment). In fact, RQ2 could have been measuring “independence” not as insecurity but as a positive quality. It seems that participants may have interpreted independence as reflecting one’s ability to function effectively and to take care of oneself. Furthermore, RQ2 had a low reliability value ($R^2 = .04$). The rule of thumb is to choose indicators with large reliability values (Bollen, 1989). Because of the poor validity and reliability of RQ2 and for substantive reasons, RQ2 was subsequently removed from the analyses. With RQ2 removed, 15

indicators were left in the measurement model and the RELA factor was now measured by four indicators instead of five. The new model was tested and goodness of fit indices indicated the model fits the data well ($\chi^2_{(84, N=393)} 287.54$, $p < .001$; SRMSR=.057; GFI=.91; AGFI=.87; CFI=.94; IFI=.94; PCFI=.73), hence, attesting to the psychometric soundness of the observed variables. Having established the soundness of the indicator variables in the measurement model, the next step was to assess the full structural model.

Structural Equation Modeling

With the validity of the measurement model established, the full structural model depicted in Figure 6 was tested. The model comprised four factors, one independent factor representing the need for relatedness in childhood (RELC), and three dependent factors representing the need for relatedness in adulthood (RELA), the proactive self (PROACT), and positive human functioning (PHF). The independent factor (RELC) was linked to four independent observed variables, while the three dependent factors (RELA, PROACT, PHF) were linked to eleven dependent observed variables. In addition to the specification of the measurement portion of the model discussed above, further specifications were made to cover the structural portion of the model. The causal paths between the independent factor (RELC) and two of the dependent factors (RELA & PROACT) were specified as free in the Gamma matrix, whereas the causal paths between the three dependent factors (RELA, PROACT, PHF) were specified in the Beta matrix. Furthermore, the error residuals associated with each of the dependent factors, which

represent error in their prediction, were specified as free in the Psi matrix. The Covariance Matrix on which the analyses were based is presented in Appendix F.

Based on theory and empirical research, the model postulated that the satisfaction or lack thereof of the need for relatedness in childhood influences the satisfaction of the need for relatedness in adulthood and the development of the proactive self. In turn, the satisfaction of the need for relatedness in adulthood influences the proactive self which in turn influences positive human functioning.

Goodness of fit indices indicated a good fit between the model and the data ($\chi^2_{(86, N=393)}=291.70, p.<.001$; SRMSR=.058; GFI=.91; AGFI=.88; CFI=.94; IFI=.94; PCFI=0.75). Furthermore, all parameters were significant (see Figure 6). The associations between the different factors were positive and ranged from modest to strong. The association between the need for relatedness in childhood and the need for relatedness in adulthood was moderate ($\gamma=.36$). The association between the need for relatedness in childhood and the proactive self, however, was small ($\gamma=.13$). The association between the need for relatedness in adulthood and the proactive self, however, was larger ($\beta=.63$) than the association noted between the need for relatedness in childhood and the proactive self ($\gamma=.13$). Such a difference in the strength of the association between the two needs and the proactive self highlights the distal influence of the need for relatedness in childhood on the proactive self and the proximal influence of that need in adulthood. This was an expected effect given that the proactive self was measured in adulthood. The positive association itself indicated that when participants had their need for relatedness met, their proactive self was healthy and developed. On the other hand, when the need for

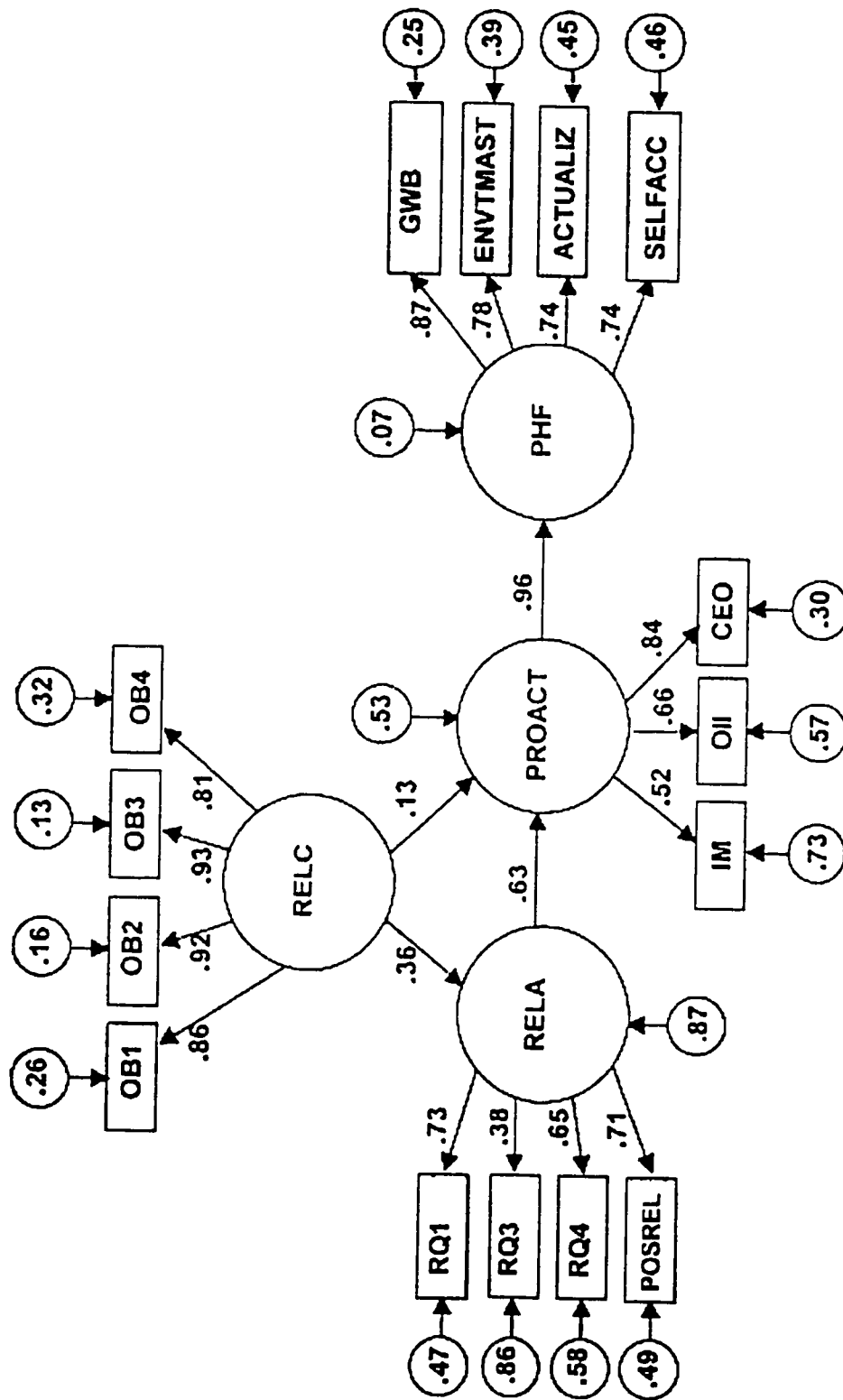


Figure 6. Relatedness, Proactive Self, Positive Human Functioning Model (Study 2; N = 393). All of the parameters in the model are standardized and significant at the .01 level. RELC = Relatedness Childhood; RELA = Relatedness Adulthood; PROACT = Proactive Self; PHF = Positive Human Functioning

relatedness was not met, the proactive self was impaired. Finally, the proactive self was strongly linked to positive human functioning ($\beta=.96$). This indicated that when participants' proactive self was healthy, they displayed high levels of positive human functioning. Conversely, when their proactive self was impaired, so was their positive human functioning.

The amount of explained variance in the need for relatedness in adulthood was 13%; the amount of explained variance in the proactive self was 47%; the amount of explained variance in positive human functioning was 93%. The results do support the model proposed in this dissertation whereby the satisfaction of the need for relatedness influences the proactive self which in turn influences positive human functioning.

The two goals set forth for the present study were successfully achieved. The definition of the proactive self was replicated in a second independent sample suggesting that the definition proposed in this dissertation may be generalizable and that the results obtained in Study 1 were not sample specific nor an aberrant occurrence. Therefore, the notion of the self as the origin of behavior is gathering empirical strength indicating that an organismic approach to the self is amenable to scientific study and that the notion of the self as the origin of behavior is likely a good representation of the true nature of the human self.

The results of Study 2 may have also identified the antecedents and consequences of the proactive self, thus providing preliminary answers to the two questions raised in the introduction of this dissertation. The first question pertained to the causes of the impairment of the proactive self and the second question pertained to the consequences

of such an impairment. The results of Study 2 pointed to the possibility that the need for relatedness may be an essential nutriment of the proactive self as posited by Deci and Ryan (1985). Results suggest that its satisfaction may foster the development of the proactive self whereas its lack of satisfaction may forestall its development. The satisfaction of the need for relatedness in childhood and the satisfaction of relatedness in adulthood were both significant predictors of the proactive self. The satisfaction of the need for relatedness in adulthood, however, emerged as the strongest predictor. This was an anticipated effect because of the distal influence of childhood and the proximal influence of adulthood. The effect size for the satisfaction of the need for relatedness in childhood however, was so small it raised questions as to what could have possibly contributed to such a small effect. The anticipated distal effect of the satisfaction of the need for relatedness childhood on the functioning of the proactive self in adulthood may not be sufficient by itself to justify the small effect size. This issue is addressed at length in the General Discussion Section of this dissertation.

As for the consequences of the proactive self, the results of Study 2 revealed the proactive self to be a significant predictor of positive human functioning. This suggests that the inconsistencies noted between the theoretical portrayal of the self as proactive and agentic and real life examples of dysfunction may be a reflection of the impairment of the proactive self. The proactive self emerged as a possible mediator of the effects of relatedness on a variety of psychological processes.

The results of the present study also point to the validity and reliability of the different indicators chosen to measure positive human functioning. These indicators

represented a mixture of traditional measures and new ones. All of the measures including the newly developed Actualization Scale displayed strong, positive and significant associations with positive human functioning with the values of the associations ranging between .74 and .87. Furthermore, these indicators displayed high levels of reliability with R^2 values of: .75 for general well-being; .61 for environmental mastery; .55 for actualization; and .54 for self-acceptance suggesting that positive human functioning may encompass both: (a) states of being that reflect contentment and satisfaction; (b) and the expansion of potentials and the active, masterful engagement of the environment.

Overall, the results supported the hypotheses proposed for Study 2. The definition of the proactive self did cross-validate in a second independent sample. The measurement portion of the Relatedness, Proactive Self, and Positive Human Functioning Model was composed in general of psychometrically sound measures. A problematic item, RQ2, was removed from the analyses due to poor validity and reliability. With the removal of RQ2 the measurement model displayed a good fit with the data. Finally, the Relatedness, Proactive Self, and Positive Human Functioning Latent Model was validated attesting to the possible viability of the relations proposed between its latent constructs.

STUDY 3: CROSS-VALIDATION OF THE DEFINITION OF THE PROACTIVE
SELF; AND CROSS VALIDATION OF THE MODEL POSTULATING CAUSAL
RELATIONS AMONG THE NEED FOR RELATEDNESS, THE PROACTIVE SELF,
AND POSITIVE HUMAN FUNCTIONNING

The third and final study aimed to achieve two goals: first to cross-validate the definition of the proactive self as a higher-order factor in a third independent sample; second, to cross-validate the model, which postulated causal relations between the need for relatedness, the proactive self, and positive human functioning in a second independent sample. These two cross-validation studies were performed in order to ensure the generalizability of the results.

Hypothesis 1. The definition of the proactive agentic self proposed in this dissertation will replicate in a third independent sample (see Hypothesis, p.60)

Hypothesis 2. The measurement portion of the Relatedness, Proactive Self, and Positive Human Functioning Model will replicate in a second independent sample (see Hypothesis 2, p.80)

Hypothesis 3. The Relatedness, Proactive Self, and Positive Human Functioning Model proposed and validated in Study 2, will replicate in a second independent sample. Hypothesis 3 of Study 2 is applicable (p.80)

Method

Participants and Procedure

A total of 403 undergraduate students enrolled in undergraduate courses at the University of Ottawa took part in the study. Of the sample 167 were men and 234 were women (2 cases did not report their gender); the age of participants ranged from 17 to 50 years ($M = 21.5$; $SD = 3.7$). Participating students reported being on average in their 2.2 years of university studies. Sample yearly income averaged \$14,562, with 57% reporting an income of $\leq \$10,000$. Nearly 45% of the sample reported having one sibling, with 31.3% having two siblings, while 15.3% of participants had three or more siblings. Over 37% of the participants reported being first-born and 36.4% reported being the youngest child in the family.

The recruitment procedure and the administration of the questionnaire package were tailored after the procedure detailed in Study 1 and Study 2. As such, no further detail will be provided here.

Measures

The measures used in the present study were the same measures used in Study 2. Therefore, they will not be further detailed.

Statistical Analyses

As in the second study, statistical analyses were conducted in four stages. In the first stage, two separate sets of preliminary analyses were performed. The first set dealt with the variables pertinent to the definition of the proactive self. The second set was performed on the variables of the Relatedness, Proactive Self, and Positive Human Functioning Model. In the second stage, a second-order CFA was conducted to cross-validate the definition of the proactive self in a third sample. In the third stage, a CFA was performed on the measurement portion of the causal model. Such a CFA is considered a prerequisite to the testing of the full latent model (Byrne, 1997). In the fourth stage, structural equation modeling analyses were performed on the causal model proposed in this dissertation which depicts causal relations among the need for relatedness, the proactive self and positive human functioning.

The LISREL 8 program (Jöreskog & Sörbom, 1993) was used and the analyses were based on the covariance matrix using Maximum Likelihood method of estimation. Variables were treated as continuous. In addition to substantive criteria, the following statistical and practical indices were used to assess model fit: The χ^2 ; the GFI; the AGFI; the CFI; the IFI; the PCFI; the SRMR.

Results and Discussion

Preliminary Analyses

The first set of preliminary analyses was performed on the observed variables of the definition of the proactive self. The means and standard deviations of the ten variables used in the definition of the proactive self were plausible (see Table 4). Of the total sample, there were 24 cases (nearly 6%) with missing values. The pattern of the missing values was random and distributed across items. The subject's own mean on the scale or subscale where the missing value was detected was used to replace it. While no univariate outliers were detected in the data set, 11 multivariate outliers (3 males, 8 females) were noted and deleted from the analyses. The size of the remaining sample (N=392) was still adequate for the performance of a second-order CFA.

Data were normally distributed with skewness values ranging between $-.54$ and $.64$ (mean $\underline{SK}=.00$), and kurtosis values ranging between $-.52$ and $.98$ (mean $\underline{KU}=.19$) (see Muthen & Kaplan, 1985). Studentized residuals and the cumulative probability plot further attested to the normal distribution of the data. Linearity and homoscedasticity were also established.

With many correlations above $.30$ and a KMO value of $.85$, the factorability of R was evident. There was no multicollinearity or singularity (i.e. there were no correlations above $.85$ and tolerance values ranged between $.39$ and $.66$).

The second set of preliminary analyses was performed on the observed variables of the Relatedness, Proactive Self, Positive Human Functioning Model. The means and

Table 4

Summary Statistics for the Indicators of the Definition of the ProactiveSelf (Study 3)

Variables	Mean	Standard Deviation	Skewness	Kurtosis
IMA	20.198	4.785	-.509	.199
IMK	20.310	4.804	-.401	-.405
IMS	20.857	4.523	-.468	-.307
OII1	5.395	5.948	.105	-.520
OII2	1.745	5.077	.416	.371
OII3	2.771	4.861	.648	.984
OII4	2.214	5.204	.493	.953
ER	141.669	24.371	-.548	-.063
AOD	33.633	20.012	.213	.250
AOF	1.493	21.120	.053	.145

standard deviations were theoretically sound (see Table 5). Missing values (18; less than 5%) were randomly distributed across the different scales used. The subject's own mean on the scale where the missing value was detected was used to replace it. There were no univariate outliers; 7 multivariate outliers (4 males, 3 females) were noted and deleted from the analyses. The remaining sample size (N=396) is considered good for purposes of SEM analyses.

Skewness values ranged between -.91 and .54 (mean SK=-.39); Kurtosis values ranged between -1.14 and .82 (mean KU=-.22) attesting to the normality of the data. Inspection of the histogram of the studentized residuals and the cumulative probability plot also indicated that data are normally distributed. The assumptions of linearity and homoscedasticity were also met.

The factorability of R was established with the presence of many correlations in excess of .30 and a KMO value of .86. Multicollinearity and singularity were ruled out because no correlation above .85 was detected and tolerance values ranged between .32 and .83.

Second-Order Confirmatory Factor Analyses

A second-order CFA was performed on the same definition of the proactive self, specified in Study 1 and Study 2. The Covariance Matrix on which the analyses were based is presented in Appendix G. Results indicate that in this third independent sample, the model fits the data well ($\chi^2_{(32, N=392)}=148.41$, $p \leq .00$; SRMSR=.059; GFI=.93 ; AGFI=.88; CFI=.93; IFI=.93; PCFI=0.65) hence, attesting to its replicability and validity

Table 5

Summary Statistics for the Indicators of the Relatedness, Proactive Self, Positive Human Functioning Model (Study 3)

Variables	Mean	Standard Deviation	Skewness	Kurtosis
OB1	5.184	6.312	-.235	-.420
OB2	7.462	6.750	-.516	-.372
OB3	7.292	7.479	-.655	-.256
OB4	8.031	6.520	-.913	.820
RQ1	4.729	1.778	-.422	-.823
RQ3	4.844	1.819	-.556	-.793
RQ4	4.615	2.008	-.379	-1.149
POSREL	16.343	3.428	-.606	-.472
IM	61.364	12.265	-.286	-.177
OI	22.050	18.492	.548	.569
CEO	176.983	53.352	-.009	.536
GWB	25.457	30.985	-.327	-.624
ENVMAST	15.187	3.143	-.257	-.406
ACTUALIZ	32.075	6.210	-.494	.321
SELFACC	16.307	3.081	-.496	-.157

in a separate independent sample. Due to the good fit between the model and the data, further improvement of the model was deemed unnecessary. Therefore, results were strictly confirmatory. All parameters were significant (see Figure 7). Moreover, the associations between the second-order factor, the proactive self and the three lower-order factors were positive and strong. The highest association ($\gamma=.86$) was between the proactive self and organismic integration. The second highest was between the proactive self and self as CEO ($\gamma=.75$). The lowest association was between the proactive self and intrinsic motivation ($\gamma=.70$). The second-order factor, the proactive self, explained 73% of the variance of organismic integration, 57% of the variance in self as CEO, and 50% of the variance of intrinsic motivation. These strong associations provide further support to the definition of the proactive self proposed in this dissertation. Again results seem to indicate for the third time that the proactive self is best described as a second-order factor composed of three lower-order factors all reflecting the notion of the self as the origin of behavior.

This is the third definition of the proactive self. In all three samples the associations between the higher-order factor and the lower-order factors were significant, strong, and positive. The amount of variance explained in intrinsic motivation in the three samples ranged between 43% and 50%. The amount of variance explained in organismic integration ranged between 66% and 79%. The amount of variance in CEO for the three

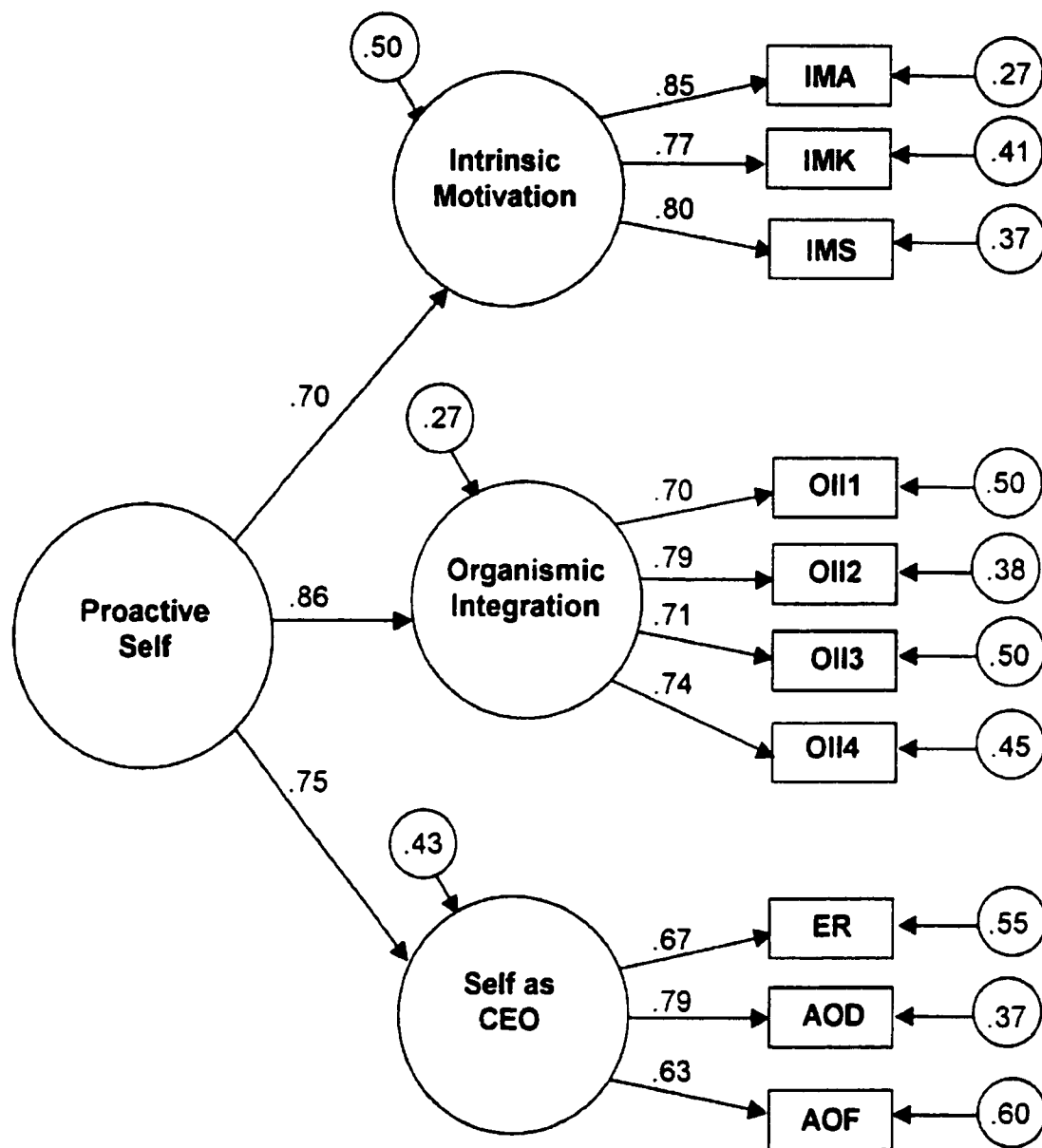


Figure 7. Definition of the proactive self (Study 3; N = 392). All of the parameters in the model are standardized and significant at the .01 level. Self as CEO refers to self as chief executive officer.

samples ranged between 57% and 70%. In all three samples, intrinsic motivation had the lowest amount of variance explained among the three lower-order factors. Organismic integration had the highest amount of variance explained in two out of the three samples. CEO ranked first in one out of the three samples. Regardless of these variations in the amount of variance explained in the lower-order factors from one sample to the other, the consistently strong, significant, and positive associations between the proactive self and the three lower-order factors attest to the validity of the definition of the proactive self proposed and to the robustness of the results obtained. Furthermore, the definition was validated in two independent samples further strengthening the conclusion that the definition is generalizable and that the results obtained were not sample specific.

Confirmatory Factor Analyses

As a prerequisite to the structural equation analyses discussed below, a CFA was performed on the measurement portion of the full model (Byrne, 1997). Goodness of fit indices indicated a good fit between the model and the data, hence attesting to the validity and reliability of the indicators used to measure the factors and to the model's replicability and validity in a different independent sample ($\chi^2_{(84, N=396)}=262.34, p<.001$; SRMSR=.054; GFI=.91; AGFI=.88; CFI=.93; IFI=.93; PCFI=.73). Post-hoc analyses were not performed due to the good fit between the model and the data. Thus, results were strictly confirmatory.

Structural Equation Modeling

With the validity of the measurement model established, SEM were performed on the full model and goodness of fit indices revealed the replicability of the full latent model proposed in this dissertation and tested for the first time in the second study. ($\chi^2_{(86, N=396)}=264.64$, $p<.001$; SRMSR=.054; GFI=.91; AGFI=.88; CFI=.93; IFI=.93; PCFI=.74). In this sample too, the postulated “causal” relationships between the need for relatedness, the proactive self and positive human functioning were supported.

The relationship between the different constructs was positive and significant (see Figure 8). The association between the need for relatedness in childhood and the need for relatedness in adulthood was moderate ($\gamma=.31$). Similarly, the association of the need for relatedness in childhood and the proactive self was moderate ($\gamma=.30$). On the other hand, the association between the need for relatedness in adulthood and the proactive self was stronger ($\beta=.52$). The strongest association in the latent model was noted for the proactive self and positive human functioning ($\beta=.91$). The amount of variance explained in the need for relatedness in childhood was 10%; the amount of explained variance in the proactive self was 46%; the amount of explained variance in positive human functioning was 84%. The results supported and validated in a second independent sample the “causal” sequence proposed in this dissertation whereby the satisfaction of the need for relatedness influences the health and development of the proactive self which, in turn, influences positive human functioning.

In comparison with the previous sample, a mirroring of the global pattern of results (with slight variations in the values of the associations among the latent variables)

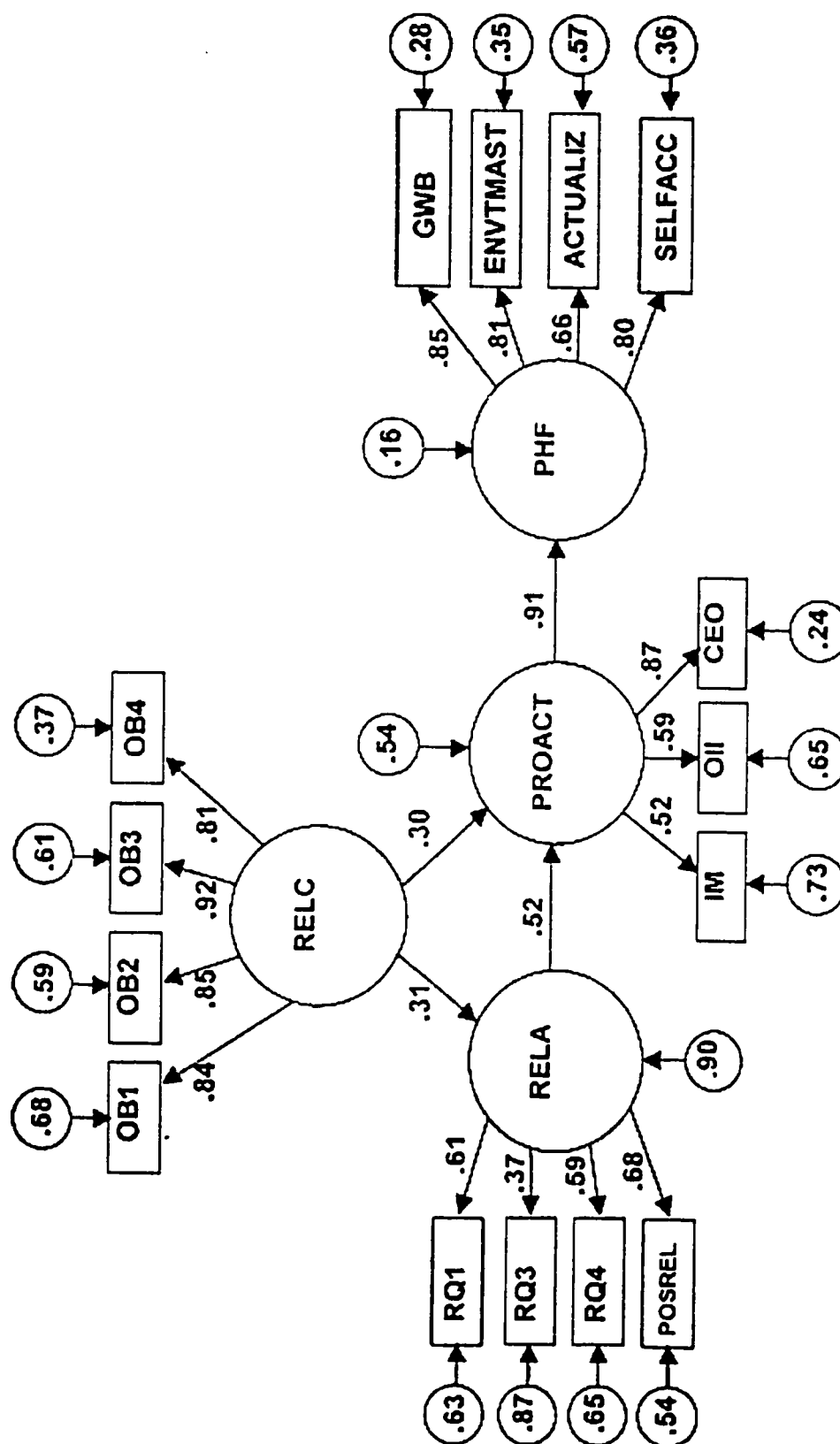


Figure 8. Relatedness, Proactive Self, Positive Human Functioning Model (Study 3; N = 396). All of the parameters in the model are standardized and significant at the .01 level. RELC = Relatedness Childhood; RELA = Relatedness Adulthood; PROACT = Proactive Self; PHF = Positive Human Functioning

was noted. Again the lowest associations were between the need for relatedness in childhood and the two constructs of relatedness in adulthood and the proactive self. The associations between the need for relatedness in childhood and need for relatedness adulthood were equivalent in the two samples (.30 vs .31), while the associations between the need for relatedness childhood and the proactive self were different with an association of .30 for this sample compared to .13 in the previous sample, attesting to a lower influence of relatedness in childhood on the proactive self for the previous sample. Conversely, the association between the need for relatedness in adulthood and the proactive self was lower for this sample than the observed association for the previous sample, .53 compared to .63. Finally, as in the previous sample, the strongest association between the latent constructs of the model was between the proactive self and positive human functioning (.91). This value, however, was slightly lower than the value registered for the previous sample (.96). The amount of variance explained in the need for relatedness in adulthood was 10% compared to 13% in the previous sample. The amount of explained variance in the proactive self was 46%, compared to 47% in the previous sample. The amount of explained variance in positive human functioning was 84% for the present sample, compared to 93% in the previous sample.

Not only did the results pertaining to the definition of the proactive self replicate in an independent sample, the model postulating causal relations between relatedness, proactive self and positive human functioning was also cross-validated in an independent sample. Thus, allowing the successful achievement of the two-goals set forth for this third and final study. The results of Study 3 clearly establish that the results obtained in Study 1

and Study 2 are unlikely to origin from capitalization on chance variability within the data, thus supporting the validity of both the definition of the proactive self and the Relatedness, Proactive Self, and Positive Human Functioning Model.

GENERAL DISCUSSION

Challenging reigning views of the human self in modern empirical psychology (e.g., Harter, 1988), Deci and Ryan (1985, 1991) proposed that the innate nature of the human self is proactivity and agency. Energized by the three basic innate needs of competence, autonomy and relatedness, the proactive self is innately motivated to master its internal and external environments, develop its potentials, and relate to others in the social world. Real life examples, however, seem to contradict such a postulation.

The empirical questions prompted by the discrepancy between theory and real life pertained to what could have caused the impairment of the proactive self and what are the consequences of its impairment. A central tenet in self-determination theory (Deci & Ryan, 1985) posits that in order for the self to grow and develop, the social environment must meet its innate needs. The latter constitute the essential nutriments of the proactive self. Given that the need for relatedness was the least explored of the three needs, it was proposed that when the need for relatedness is not met, the proactive self is impaired and as a result human functioning is impaired. Conversely, when the need for relatedness is met, the proactive self is healthy and developed which leads to higher levels of positive human functioning.

Before the model could be tested, however, an important empirical step needed to be taken first, namely, the empirical defining and measuring of the proactive self. Thus, the purpose of the present research was two-fold: first, to empirically define and measure the proactive self; second, to test the model postulating causal relations between the need

for relatedness, the proactive self, and positive human functioning. Each of the two goals will be discussed and reviewed separately. Limitations of the present research and future research possibilities are also discussed in separate subsections.

The Nature of the Human Self

The proactive agentic self is at the heart of self-determination theory (Deci & Ryan, 1985) and in spite of years of research inspired by and based on this theory, the proactive agentic self was never empirically defined and measured, hence the first major goal of the present research.

The proactive self was defined along three dimensions: intrinsic motivation, organismic integration, and self as CEO. Briefly, intrinsic motivation refers to the engagement in an activity for the pure pleasure and excitement one derives from performing it. Organismic integration refers to an intrinsically motivated process whereby the proactive self integrates social values, norms, and its own emotions and experiences, thus, achieving coherence and cohesion between its different aspects. Self as CEO refers to the self retaining the decision-making process in the face of internal and external challenges. Under such adverse circumstances, the self continues to initiate and guide action in line with its own selected goals and values.

Even though the three dimensions are theoretically distinct, bespeaking a variety of motivational, assimilatory, and regulatory processes, they all, nonetheless, reflect the notion of the self as the origin of behavior. As such, the proactive self was defined as a

second-order factor accountable for the variances in, and intercorrelations between, the three lower-order factors: intrinsic motivation, organismic integration, and the self as CEO.

The proposed definition of the proactive self was tested in three independent samples. It was confirmed and validated in all three samples. Moreover, post-hoc analyses were deemed unnecessary. As such, the results were purely confirmatory for all three samples, further attesting to the soundness and validity of the model proposed. While the fit of the model was good for all three samples, the best fit was noted for the second sample. There were no notable characteristics that differentiated this sample's participants from the other two samples' participants. Furthermore, the value of the associations between the higher-order factor and the lower-order factors was relatively similar for all three samples, rendering it difficult to speculate as to why the excellent fit for the second sample compared to the merely good fit for the other two samples. It is possible that the participants of this sample took the questionnaire more seriously and completed it in a more focused and deliberate manner. This lessens the formation of response sets. The latter are notorious for the creation of disturbances in a model, which may affect its fit (e.g., Byrne, 1997). Clearly, this is speculation. At any rate, differences in fit between samples are expected due to the very nature of sampling procedures.

The associations between the proactive self and the lower-order factors were all strong, positive, and significant. The lowest association, however, consistently noted across all three samples, was the association between the proactive self and intrinsic

motivation. This was an intriguing finding. Three possible reasons can explain the consistently lower association noted for the intrinsic motivation dimension.

First, the low association may be due to the population itself. The participants consisted of undergraduate students who are facing numerous new challenges. This is quite possibly their first extended period away from home, the first time they have to support themselves financially, and the first time they had to choose a field of study. Furthermore, their schedule is quite hectic. They are constantly faced with deadlines, evaluations, and the challenges of fitting in. These circumstances may require that the engagement of the organismic integration and self as CEO dimensions be at a higher level than the engagement of the intrinsic motivation dimension.

The second possible reason for the lower association between the proactive self and intrinsic motivation may be due to the measure used to assess intrinsic motivation. Some of the items were phrased in a manner that indicated the behavior to be originated by interest and enjoyment. While interest and enjoyment are essential in intrinsic motivation, the proactive self, however, must remain the origin of behavior. In other words, for a behavior to qualify as one originated by the proactive self, it can not be generated by an emotion, even if it is interest. Hence, it is possible that a different phrasing of the items may have yielded a higher association between the proactive self and intrinsic motivation.

The third reason that may account for the lower association between the proactive self and intrinsic motivation may be due to the priming nature of questionnaires. It is possible that as participants were reading an intrinsic motivation item they remembered

feeling interest as they were performing the activity. Interest, however, may not have been the primary reason for engaging in the activity at the time. Therefore, people may appear intrinsically motivated when in reality intrinsic motivation was not the primary originator of the behavior, and the proactive agentic self was not engaged at that level.

The validation of the definition of the proactive self, in three independent samples, provides strong empirical support for Deci and Ryan's postulation of the nature of the human self as agentic and proactive. Results suggest the proactive self may be an active entity endowed with a variety of motivational, assimilatory, and regulatory processes (intrinsic motivation, organismic integration and self as CEO) through which it originates behavior. Participants whose proactive self was developed were engaging in daily activities that reflected what was interesting, enjoyable, and important to them. When faced with life's challenges they continued to be agentic, showing resourcefulness in dealing with both the internal and external environments. Furthermore, they were able to engage in and see through activities that reflected self-congruent intentions. This emerging empirical portrait of proactive individuals supports the notion that the human self is not a passive entity the environment shapes. Rather, it seems to be the center from which action and behavior originate in line with integrated values and self-selected goals.

Therefore, the results of the present research support Deci and Ryan's (1991) criticism of reigning views about the self in empirical psychology. These results suggest that the self is beyond mere cognition and beyond being a reflection of social evaluations (the looking-glass self phenomenon). It is only when the proactive self is impaired that the looking-glass self phenomenon is observed whereby behavior is regulated by the

internalized reactions and evaluations of others in the social environment. In fact, participants whose proactive self was impaired displayed low levels of intrinsic motivation, organismic integration, and self as CEO. Thus, their behavior was guided by introjects or external regulation, by pressures and emotions. As such, the phenomenon of the looking-glass self does not reflect the true nature of the self, rather it reflects the impairment of the true nature of the self, proactivity.

In addition to providing support to Deci and Ryan's portrayal of the proactive self, the results also point to possible areas of expansion and improvement in self-determination theory (Deci & Ryan, 1985). First, the results of the present research allow for the inclusion within self-determination theory of an empirically operationalized, detailed, and structured definition of the proactive self.

Second, within the context of self-determination theory and research, it is often mentioned that organismic integration is the defining feature of the proactive self (e.g., Ryan, Deci, & Grolnick, 1995). The present research suggests that in addition to organismic integration, there are two other equally important defining features of the proactive self, namely intrinsic motivation and self as CEO. Thus, the status of defining feature should not be exclusively limited to organismic integration.

Third, the successful definition of the proactive self points to the importance of putting the proactive self back in self-determination theory. In spite of all the speculations about the proactive and agentic nature of the proactive self, most of the research and even the majority of theoretical articles have focused on how self-determination processes are affected by the environment. Although this is clearly a worthwhile endeavor, it is time

however, to conduct studies and develop articles that detail not how the self is influenced by the environment, but rather how it influences the environment and how it influences its own motivation. Isn't that the gist of self-determination theory? All these represent challenging but interesting theoretical speculations to be made and to be researched in the future.

The successful definition of the proactive self in the present research also suggests that the true authentic self is indeed amenable to empirical investigations. For many years the self has been the topic of debate and speculations. In spite of all the interest it has generated, the self remained elusive, however (e.g., Baumeister, 1998). When empirical psychology investigated the self, it eschewed the notion of the true self, in favor of mechanistic views that were easier to investigate. In spite of the unfavorable atmosphere within empirical psychology, Deci and Ryan (1991) have always maintained that it is possible to begin an empirical investigation by an organismic metatheory that reflects the nature of human beings as active living organisms, and that the true self is amenable to scientific investigation. Indeed, in the present research the definition of the self was based on a organismic metatheory, and it was successfully empirically defined and measured, thus lending empirical support to Deci and Ryan's contention.

With the results of the present research, the true self takes empirical shape. It becomes tangible, concrete, and scientific. It is no longer an abstract and elusive entity. Rather, it can be "seen", and its contours are empirically defined and measured. Moreover, it can be subjected to rigorous empirical research in the future. While the

definition may change and evolve as research proceeds, nonetheless the true self may no longer be off-limits.

The successful definition of the proactive self has theoretical implications for other areas of research in social psychology seemingly unrelated to issues of the true self. For example, researchers have attempted for years, with little success, to predict behavior from attitudes (Baumeister, Heatherton, & Tice 1994). If researchers, however, begin by exploring the extent to which an attitude is integrated and the extent to which the self as CEO is involved in monitoring and implementing the engagement in the attitude in everyday life, then they may possibly register higher levels of success in predicting behavior from attitude. The more integrated an attitude is, the more active the self as CEO is, and the higher the levels of intrinsic motivation towards the achievement of coherence and cohesion, the more likely the person is to behave in line with the attitude, both in laboratory and field experiments. The mere knowledge of the person's endorsement of an attitude is not sufficient in itself. The attitude may not be integrated. Furthermore the proactive self may be impaired, thus not guiding and directing behavior. This is but one example of the relevance of the proactive self to other areas of research in social psychology. It is beyond the purposes of this dissertation to delve into other areas of application.

The Need for Relatedness, the Proactive Self, and Positive Human Functioning

The second major goal of the present research was to address an important empirical question prompted by the marked schism between theoretical postulations which portray the nature of the human self as proactive and self-actualizing, and real life examples (empirically documented) denoting human beings functioning at less than their optimum. The seeming contradiction between theory and real life points to the impairment of the proactive self. To explain the causes of the impairment of the proactive self and its consequences, the following model rooted in self-determination theory was proposed: When the basic innate need for relatedness is not met, the proactive self is impaired, and as result positive human functioning is impaired. Conversely, when the need for relatedness is met, the proactive self is healthy and developed, which in turn leads to higher levels of positive human functioning.

The need for relatedness was assessed at two levels of maturity: childhood (the first sixteen years of life) and adulthood. This dual assessment was prompted by two reasons: (a) to have a comprehensive assessment of the satisfaction of the need for relatedness, and (b) the assessment of the influence of childhood experiences on the functioning of the proactive self in adulthood was deemed a worthwhile empirical endeavor, one never attempted before and for which self-determination does not make any allowances. The model, as it pertains to the need for relatedness, postulated that the satisfaction of the need for relatedness in childhood influences the satisfaction of that need in adulthood and also influences the functioning of the proactive self in adulthood.

In turn, the satisfaction of the need for relatedness in adulthood influences the function of the proactive self in adulthood.

Each of the sequences of the global model will be reviewed and discussed in the sequential order in which they have been postulated. Thus, the discussion will proceed in the following order: (1) the influence of the satisfaction of the need for relatedness in childhood on the proactive self; (2) the influence of the satisfaction of the need for relatedness in childhood on the satisfaction of the need for relatedness in adulthood; (3) the need for relatedness (globally) and the proactive self; (4) proactive self and positive human functioning. The discussion closes with a discussion of the limitations of the present research, and directions for future studies will be also addressed.

Need for Relatedness Childhood and the Proactive Self

Results reveal the presence of a small but significant relationship between the satisfaction of the need for relatedness in childhood and the functioning of the proactive self in adulthood. The association between the two was positive. Hence, participants who reported that their need for relatedness has been satisfied in childhood, i.e. those who reported having had an optimal bond with their parents due to the warm and autonomy-supportive characteristics of the parent-child relationship, were more likely to have a healthy proactive self in adulthood. Conversely, those participants whose parents were cold, neglectful and or overprotective were more likely to display an impaired proactive self in adulthood. Thus, the quality of the parent-child relationship seems to influence the healthy development of the proactive self. Although Deci and Ryan (1985) do not

address the issue of continuity and of childhood influence on adulthood, they do, however, postulate that warm and autonomy- supportive relationships foster and facilitate the development of the proactive self. Kuhl (1994), on the other hand, did postulate that exposure to neglectful and overprotective parenting styles in childhood sets the ground for the development of state orientation which is the antithesis of action orientation.

Although significant, the effect noted for the satisfaction of the need for relatedness in childhood on the proactive self was rather small. A much larger effect was noted for the satisfaction of the need for relatedness in adulthood. The differential effect of the two levels of maturity was expected due to the distal influence of childhood on the proactive self, as it is functioning in adulthood, and due to the proximal influence of that need in adulthood.

The distal effect, however, should not be taken to mean the role of childhood is less important or less powerful. Furthermore, the proximal effect should not be taken to necessarily mean the lack of satisfaction of the need for relatedness in adulthood is what has originally caused the impairment of the proactive self. In fact, it is highly possible that the self measured in adulthood is simply the adult version of the childhood self. In other words, people may have stepped into adulthood with a self that is already either impaired or else proactive and healthy.

The results of the present study do not allow a pronouncement as to when the damage on the self originated, nor how extensive it was. The way childhood experiences were measured in the present dissertation precludes such a conclusion. The Parental Bonding Instrument (Parker, Turpling & Brown, 1979) was used to assess the satisfaction

or lack thereof of the need for relatedness in childhood. The Parental Bonding Instrument assesses parenting style. It does not provide any information about the participants themselves. As such, it produces a measure twice removed from the proactive self in adulthood. This compounds the expected distal effect of childhood on adulthood, thus artificially lessening the influence of childhood experiences on adulthood. Before leaving the issue of the influence of the satisfaction of the need for relatedness in childhood on the proactive self, differences on this issue, noted between the two samples (Study 2; Study 3) on which the causal model was tested, will be addressed first.

A comparison between the two samples reveals that the association between the satisfaction of the need for relatedness in childhood and the proactive self in the Study 3 sample was nearly twice as large as the association noted for Study 2 sample (the association was significant in both samples). A closer look at the characteristics of the participants in both samples reveals no major differences between the participants. The only difference between the two samples is the gender of the participants (Study 2 sample was composed of 68 males and 334 females compared to 167 males and 234 females in Study 3). Can one attribute the difference in association to gender differences or could it simply be a sampling distribution difference that has nothing to do with gender, as much as it is a form of variance between samples? Only future research can address this issue.

Need for Relatedness Childhood and Need for Relatedness Adulthood

So far the discussion has centered around the influence of the satisfaction of the need for relatedness in childhood on the proactive self (as it was measured in adulthood).

In the present research, it was also postulated that the satisfaction of the need for relatedness in childhood influences the satisfaction of the need for relatedness in adulthood. This postulation was also supported. Individuals who reported their parents as being warm, caring, and autonomy supportive during their childhood were more likely to report that their need for relatedness was satisfied in adulthood. They were more likely to be securely attached in adulthood and more likely to have been able to form and maintain close positive relationships. This is in contrast with participants who reported having parents who were uncaring, cold, neglectful, and/or overprotective during the first 16 years of their lives. These participants were more likely to be insecurely attached in adulthood and to report having had problems forming and maintaining close positive relationships. These results are in line with postulations made by Bowlby (1988) and supported by attachment research (e.g., Hazan & Shaver, 1987).

The effect size, however, was rather small. Only about 10% of the variance in satisfaction of the need for relatedness in adulthood can be explained by the satisfaction of the need for relatedness in childhood. The amount of variance explained was similar in the two independent samples on which the model was tested. Clearly, there are other variables at work that have not been addressed in the present research, and that must be identified for a full understanding of what leads to the satisfaction of the need for relatedness in adulthood. There are several probable reasons why the effect size was small: (a) the presence in childhood of other sources of love and care in participants' lives. The presence of these others may have disconfirmed what has been experienced with parents or its meaning; (b) it is possible that people may have learned new

interpersonal skills, allowing them to be more effective in meeting their needs in adulthood; (c) the choice of partners or friends in adulthood who have disconfirmed childhood experiences.

While the three reasons listed above, are quite plausible, the influence of childhood experience can not be marginalized yet, in spite of the small effect size. There is an important factor in the present research that may have contributed to the small effect observed, thus possibly muddling the value of the role of childhood experiences in the satisfaction of the need for relatedness in adulthood. The small effect size obtained may be partially due to the measure used to assess the satisfaction of the need for relatedness in childhood, the Parental Bonding Instrument (Parker, Turpling & Brown, 1979). The Parental Bonding Instrument asks participants to assess what their parents were like during the first sixteen years of their lives. The information then, is about the parents. The scale does not offer any window into how the participants felt, or how the participants interpreted these experiences. Without such information the assessment of the satisfaction of the need for relatedness in childhood may not be highly reliable.

Before a verdict can be rendered as to whether childhood experiences play a marginal or a central role in the satisfaction of the need for relatedness in adulthood, further research is warranted. Measures designed to tap participants' own cognition and feelings about their early experiences with their parents should replace, or at the very least be used in conjunction with, measures assessing parenting style. Retrospective measures are often criticized for their potential for biases and errors. However, between two retrospective measures, one that measures parenting style and thus excludes the subject

under study and another that assesses participants' perspective, the choice is clear. Inquiring about other relationships in childhood, other than the parent-child relationship, is also recommended. It allows a comprehensive assessment of the satisfaction of the need for relatedness in childhood. Only then can we trust the reliability and validity of the associations we are observing between the satisfaction of the need for relatedness in childhood and the satisfaction of the need for relatedness in adulthood.

To recapitulate, the results reviewed thus far suggest that the satisfaction of the need for relatedness in childhood influences both the proactive self and the satisfaction of the need for relatedness in adulthood. The next sequence of the model to be addressed pertains to the association between the need for relatedness in adulthood and the proactive self. Briefly, a positive association was postulated between the two. The results of the present research supported it. Participants who reported that their need for relatedness in adulthood has been met displayed a healthy proactive self. This translated into higher levels of intrinsic motivation, organismic integration, and self as CEO. Conversely, participants who reported that their need for relatedness has not been met in adulthood had an impaired proactive self. This impairment translated into lower levels of intrinsic motivation, organismic integration, and self as CEO. From henceforward, as the discussion proceeds, reference will be made to the satisfaction of the need for relatedness without specifying either childhood or adulthood.

The Need for Relatedness and the Proactive Self

The positive association noted in the present research between the satisfaction of the need for relatedness and the proactive self has relevance to three central tenets of self-determination theory (Deci & Ryan, 1985): (a) the status of the need for relatedness as an organismic need; (b) the organismic dialect between the environment and the proactive self; (c) the need for relatedness as a self-need. Each point is briefly discussed below.

The need for relatedness is postulated to be one of three basic innate organismic needs of the proactive self (Deci & Ryan, 1991). As such, theoretically, its satisfaction is a must if the proactive self is to grow and develop. In the present research, the significant positive association between the need for relatedness and the proactive self, noted in two independent samples, lends empirical credence to the notion of the need for relatedness as an essential nutriment of the proactive self. Furthermore, to the best of our knowledge, it is the first time within the context of self-determination theory research that the status of the need for relatedness as a basic organismic need of the proactive self is empirically supported.

What differentiates a basic, organismic need from other “needs” and wants is that the first is essential to the functioning of the entity postulated to have it. As such, dire consequences are expected if the need is not satisfied (e.g., Baumeister & Leary, 1995; Ryan, 1995). The results of the present research suggest that when the need for relatedness is not met, the proactive self is impaired, resulting in the impairment of positive human functioning. Clearly, the impairment of the proactive self, the postulated “vital core” from which development and intrinsic growth processes issue forth, qualifies

as dire, and as such, the postulation of the need for relatedness as a basic organismic need is empirically supported.

The satisfaction of the need for relatedness is not self-generated. Rather, it is dependent on the quality and nature of an individual's interpersonal relationships. As such, the significant, positive association noted between the need for relatedness and the proactive self also empirically supports and illustrates the organismic dialectic postulated to exist between the proactive self and the social environment (Deci & Ryan, 1991). Even though the proactive self is postulated to be innately endowed with a set of assimilatory and regulatory processes, and even though the social environment does not define nor delineate the nature of the proactive self, nonetheless, it is postulated to play a vital role in the development and growth of the proactive self. The social environment may either facilitate or forestall the development of the proactive self. It all depends on whether or not the social environment provides the self with the nutriments it needs to develop. Thus, the organismic dialectic. When participants in the present research displayed an impaired proactive self when their need for relatedness was not met, compared to the healthy proactive self of participants whose need for relatedness was met, they attest to the organismic dialectic between the proactive self and the environment. Furthermore, results suggest that as a result of this dialectic, development and synthesis of personality does not invariably succeed. An interesting area of future research would be to explore if this organismic dialectic can ever be transcended?

In addition to providing empirical support for the status of the need for relatedness as an organismic need, the results of the present research link empirically for

the first time the need for relatedness to the proactive self, which is the psychological entity postulated to have the need. This empirical linkage not only provides support for one of the most important postulations of self-determination, it could also have some implications for other relatedness theories.

Baumeister and Leary (1995), for example, speak of the need as a biologically prepared and fundamental need whose lack of satisfaction leads to dire consequences. In spite of an extensive review of the literature in support of their contention, these two researchers do not offer any theoretical postulation regarding the purpose of the need for relatedness. Why do human beings have the need for relatedness? What is the purpose for the need for relatedness? Bowlby (1988) answers the question clearly and resoundingly: to ensure the survival of the specie. A child as well as an adult would have better chances for survival if they were affiliated with a group that cares for them and affords them protection.

A key hypothesis in attachment theory (Bowlby, 1973;1988), however, postulates that attachment patterns are major determinants of whether the person grows up to be mentally healthy. Furthermore, there is some evidence in the literature in support of this hypothesis (e.g., Lewis & Ferring, 1991). In spite of the theoretical speculations and empirical findings, the stated purpose of the need continues to be the survival of the specie. This represents an anomaly in attachment theory that needs to be corrected. If the main purpose of the need was the survival of the specie, then babies who are well-cared for in terms of regular feeding and protection, for example, would be securely attached. Studies have shown many of these babies to be insecurely attached because their mothers

did not seem to delight in them (e.g., Egland & Farber, 1984). If it were a matter of survival, delighting in one's baby should not have an effect. The need is serving its purpose. Thus, the postulation in attachment theory pertaining to the purpose of emotional bonds needs to be revised to accommodate an additional purpose for the emotional bonds, namely, the psychological development and health of the individual.

Self-determination theory (Deci & Ryan, 1985) is the only relatedness theory that links a psychological need to a psychological entity, the self. The empirical support lent to this linkage by the present research has several theoretical and empirical implications. First, it anchors the need to the very same psychological entity postulated to have it, thus imparting legitimacy to the need. Secondly, it anchors the research and centers it so that it can be performed directly on the entity postulated to have the need. Third, it helps explain how the need for relatedness influences adjustment and functioning.

In addition, the empirical linkage of the need for relatedness to the proactive self helps explain why the effects of relatedness deprivation are so pervasive. The proactive self is a meta entity and as such its impairment will lead to varied and extensive damages. Finally, the proactive self provides a theoretical framework that could integrate the results of relatedness deprivation noted in the literature. Without such an integrative theoretical framework, the results will read like a list of things caused by relatedness deprivation. The causes are scattered and the only link between them being that they are consequences of relatedness. However, with the proactive self to serve as a theoretical framework, there is coherence and integration of results.

The Proactive Self and Positive Human Functioning

The fourth and final segment of the model pertains to the association of the proactive self and positive human functioning. More specifically, it was postulated that when the proactive self is healthy and developed, positive human functioning is expected to unfold. Conversely, when the proactive self is impaired, positive human functioning is expected to be farstalled. Indeed, the present results strongly support this postulation.

The nature of life is to overtake itself (Piaget, 1971). As living organisms, human beings too are postulated to be inherently motivated towards the expansion of their capacities, and towards the mastery of their environment and internal and external cohesion and harmony. Theoretically however, before self-actualization occurs, and before an environment is mastered, the proactive self, the postulated vital core from which growth and development proceed, must be healthy and developed. This is nowhere more evident than in the present research, where participants whose proactive self was healthy and developed displayed high levels of well-being actualization, environmental mastery, and self-acceptance. Conversely, those participants whose proactive self was impaired displayed low levels of well-being, actualization, environmental mastery, and self-acceptance. These results suggest that the proactive self may play a pivotal role in self-expansion and development. They point to how vital it may be to nurture and nourish this self, because it seems that for life to overtake itself, the proactive self has to be healthy and well developed.

The results of the present study yielded a substantial association between the proactive self and positive human functioning. In fact, the size of the association is such,

many may be prompted to conclude that the two constructs are redundant and that in fact the two may be one and the same. They are not. The two constructs are theoretically and conceptually distinct. Furthermore, theoretically, the proactive self must be healthy and functioning before positive human functioning, as defined in the present research, can occur. If the strong association is indicative of anything, it is not redundancy. Rather, it denotes the soundness of the theoretical and conceptual background of the model. As the model was being constructed, it was speculated, that if indeed the proactive self is the vital core from which growth and development proceed (Deci & Ryan, 1985), if it is impaired, then growth and development should be also impaired. This is precisely what the strong association between the two constructs seems to suggest. It provides empirical support, the first of its kind, as to the function of the proactive self.

Furthermore, the strong association attests to the soundness of the definition of positive human functioning adopted in the present research. The definition was adopted not because it was available. Rather, it was tailored to the postulated function of the proactive self. As such, the proactive self was the starting point in the choice of definition of positive human functioning.

While causality can not be inferred from correlational research, let us at least accept, that the two variables covary. It is important to allow future empirical research to determine whether the two variables are redundant or not, rather than base the conclusion on a priori judgment about the nature of the relationship between the two variables.

Limitations of the Present Research

The three studies performed for the purposes of the present research yielded results that validated both the proposed definition of the proactive self and the model postulating causal relations between the need for relatedness, proactive self, and positive human functioning. Furthermore, the models were cross-validated in different independent samples. In spite of the clear pattern of results in support of the hypotheses postulated in this dissertation, there were several limitations to the studies conducted.

Even though sophisticated statistical procedures were used and a causal model proposed, this was still a correlational design, rendering it hazardous to draw conclusions about causality. Often, one of the solutions proposed to remedy such a shortcoming would be the performance of longitudinal studies. However, due to the well-documented and non-debatable nefarious effects of relatedness deprivation, is it justifiable to watch human suffering unfold and not to intervene? A better solution would be to choose people already suffering from relatedness deprivation and then intervene by meeting their need and documenting if any changes in proactive self and positive human functioning occur. Experimental designs could also be useful in establishing causality.

The limitation of this correlational design was compounded by the timing of the study. The self was studied and measured in adulthood in a search for what could have caused its impairment. However, the self may have already been impaired in childhood. Furthermore, in adulthood the proactive self, whether it is healthy or impaired, plays a role in determining how well its need for relatedness is met, which in turn influences its

functioning and health. Thus, a unidirectional relationship was proposed between the need for relatedness and the proactive self when a transactional relationship would have been more appropriate. As such, the study was performed at the full transactional stage of the relationship rather than at a stage when the causality was unidirectional, flowing from relatedness to the proactive self.

The third limitation pertains to the generalizability of the results. In spite of the fact that the models proposed were successfully cross-validated in independent samples, these samples came from the same student population. A common drawback to sampling university students is their narrow age range, their higher education level, and presumably their higher socio-economic status, thus, raising questions as to how representative they are of the population in general.

The fourth limitation pertained to the measures used. The results of the present research revealed the limitations of some of these measures. The Relationship Questionnaire (Bartholomew & Horowitz, 1991), for example, was not a very good measure of the need for relatedness in adulthood. The reliability and validity of its items were rather low, particularly for RQ2, which was subsequently deleted from the analyses. The Relationship Questionnaire items were formulated such that each item contained both negative and positive statements. As such, it was unclear what aspect of the item the negative or the positive participants were responding to. In fact, some participants literally scratched out portions of the items, thus tailoring them to their perspectives.

The Relationship Questionnaire was not the only problematic measure, the single use of the Parental Bonding Instrument (Parker, Turpling, & Brown, 1979) to assess the

satisfaction of the need for relatedness in childhood was not a judicious choice either. The Parental Bonding Instrument assesses parenting style, it does not allow any window into how the participants felt or responded to the parenting styles they were exposed to. The Parental Bonding Instrument should have been complemented with another measure that taps the participants' own perceptions and cognitions on the issue.

Another measure-related limitation pertained to the questionnaires used to measure self as CEO dimension of the proactive self. The latter were borrowed measures originally designed to measure constructs other than self as CEO. Therefore, some subtle facets of the proactive self may not have been tapped. In addition, the questionnaire packages were rather long, which may have led to the participants' boredom or fatigue, thus leading to response sets or to a quick non-reflective answer to the questions posed. Finally, the measures were self-report measures, and some authors criticize their use to assess mental health, or positive functioning (e.g., Shedler, Mayman, & Manis, 1993). They maintain that such measures may result in the failure to distinguish between true mental health and the facade of mental health because of the presence of psychological defenses. However, the consistency of the results obtained and the strength of the associations between the constructs raises questions about the legitimacy of such a claim. If it were a facade, it was quite a consistent and coherent one.

The fifth limitation has to do with the fact that there was two firsts in the present research: one pertains to the definition of the proactive self; the second pertains to the causal model linking all three meta constructs together (relatedness, proactive self, and positive human functioning). Thus, one can expect all the tribulations and limitations that

accompany first attempts. Constructs may not have been as refined as they could have been. Furthermore, measures were borrowed, thus precluding the assessment of all the facets of the constructs under study. Most importantly, as a first step one seeks to establish the presence of a relationship among the constructs, thus possibly precluding at this point the inclusion of other variables that may mediate the effects noted between the constructs. However, it is important to first establish the presence of a relationship that could be mediated before addressing mediation itself (Kenny, Kashy, & Bolger, 1998).

The final limitation to be addressed pertains to statistical limitations that precludes, for example, the study of the effects of certain variables at different levels in the model, rather than only at one point in the model. For example, general well-being was measured within the positive human functioning construct. It was one of the indicators used to assess positive human functioning. General well-being, however, does not simply occur at this point in time. General well-being may also be a determinant in addition to being a consequence of the proactive agentic self. Given the nature of SEM, it could not be measured as both and as such, it was only used as an indicator of positive human functioning. This may lead to the wrong theoretical and statistical conclusion as to general well-being and its relationship to the proactive self.

Future research

Several directions for future research can be garnered from the results of the three studies presented in this dissertation. The first and most immediate step pertains to the development of a measure of the proactive self. While the borrowed measures proved to be valid and reliable, they are, however, lengthy, which could be an impediment in survey research. Furthermore, a measure developed specifically for the purpose of measuring the proactive self will include items that will allow the assessment of varied facets of the dimensions of the proactive self. Thus, it will allow further differentiation within the same dimensions. It is recommended that the development of the measure be guided by the theoretical conceptualization of the proactive self as well as by the borrowed measures used in the present research. Another alternative, given the validity and reliability of the borrowed measures, would be to generate a shorter version of these measures to form a proactive self-index.

Second, it is recommended that the definition of the proactive self be tested across cultures and ages. There is a lingering accusation in the literature that the notion of the self is a Western creation (Baumeister, 1987). Testing the definition across cultures allows the discounting of such a statement. Furthermore, it will attest that the proactive self does in fact reflect the innate nature of human beings. With a construct like the proactive self, generalizability of results is not sufficient. It is the universality of results that matters, hence, the need to test across cultures. It is also recommended that the definition be tested across ages to document the growth and changes and even the stability of the dimensions

across time. Would the dimensions be differentially active at different stages of life and under different circumstances and levels of stress? Or would the pattern of activity of a dimension remains the same under all circumstances? After all, every stage of life brings with it its challenges, which may require the same dimensions such as the organismic integration dimension and Self as CEO to be consistently active. What about the intrinsic motivation dimension? Would people be more inclined to pursue intrinsically motivated activities when stress levels are low? Does intrinsic motivation emerge more when life challenges and demands subside? These are exciting questions that only future research can address.

Third, it is important to conduct research that will help delineate how the three dimensions of the proactive self facilitate and enhance each other's functions. Furthermore, it is important to identify what variables in the interpersonal and intrapersonal domains facilitate or forestall the development and functioning of self as CEO. There is quite a bit of knowledge on how to foster intrinsic motivation and organismic integration. This is not the case for self as CEO. Furthermore, research is needed on how to help reinstate an impaired proactive self.

Fourth, the influence of the proactive self was linked to another meta construct: positive human functioning. Future studies can look at the effect of the proactive self on specific areas of positive human functioning such actualization. Furthermore, one can study how the display of proactivity in a specific domain transcends to the global level and vice-versa.

Fifth, it is important to put the proactive self back in self-determination research. Even though human beings are portrayed as proactive and agentic, most of the past research has focused on how the environment influences self-determination. While this constitutes worthwhile research, it left the very essence of self-determination theory (Deci & Ryan, 1985) relatively untapped. With the proactive self defined, it becomes possible to study the proactive self in action and examine how it influences its environment. A possible study would be to place proactive participants in a controlling environment and observe if in line with self-determination theory, they are going to succeed at remaining the origin of behavior? What types of strategies do they use? And if they fail at their efforts to remain the origin of behavior, how do they cope? Equally interesting would be to explore how participants whose proactive self is impaired, react to an autonomy supportive environment. Will they be able to benefit from it? Or would they flee it the same way people with negative self-concepts flee environment that view them positively (e.g., Swann & Pelham, 1988)?

Sixth, even though the vitality of the need for relatedness to human functioning can no longer be denied, very little is known about the need itself. What does the need for relatedness mean? The definitions available are rather broad and vague. For example, Baumeister and Leary (1995) speak of interactions occurring in the framework of long-term relationships characterized by caring and concern. What exactly does that mean? What does it take for the need to be met? What are its contours and dimensions? The need for relatedness needs to be defined and measured in future research. The dimensions of the need must be identified, not simply for empirical purposes but also for applied

purposes. If parents, for example, are encouraged to meet the need for relatedness of their children, they need clear empirically-based guidelines to assist them in their effort.

Finally, the present research clearly pointed to a strong association between the need for relatedness and the proactive self. However, it is not clear how the satisfaction of the need for relatedness or lack thereof influences the self aside from the fact it is an innate organismic need of the self. How does it cause the impairment of the proactive self? What variables mediate the impairment? Future research is needed to identify the possible mediating variables between the need for relatedness and the proactive self.

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APPENDIX A

Questionnaire used in Study 1

Cover Page

We are currently conducting a study in order to have a better understanding of the behaviors, opinions, and attitudes of people in general. We are particularly interested in understanding the reasons why people do the different activities of their lives, how they feel in general, how they perceive themselves, and finally what are their attitudes and experiences in the interpersonal domain. In the following pages you will find several questionnaires aimed at measuring these variables. You are invited to indicate to which extent each of the statements contained herein corresponds to what you actually feel, think or do.

Your participation in the study is completely voluntary. If you choose to participate please be mindful of the following:

- A) You can terminate your participation at any moment.
- B) Your anonymity and the confidentiality of your answers are completely guaranteed. We do not ask you to identify yourself in any shape or form. Please do not write your name or student number on the questionnaire booklet provided. As for your individual answers they will be pooled with the answers of many students, and they will be used for research purposes only. Only the global aggregated results will be published and discussed. As for individual results they are only accessible to the two researchers listed below. No one else is allowed access to individual results.
- C) Please read carefully the instructions provided with each questionnaire. Make sure for each of them you understand what the numbers you are circling refer to. The meaning of the numbers may vary from one questionnaire to another. Please answer every item. Although many items may seem similar it is important to answer each one of them within the context you are asked about. Given that there are many items to answer, we are asking you to answer spontaneously. There is no right or wrong answer. The only thing of interest to us is your own personal opinion and experience. Your honesty is vital, without it results will be invalid.
- D) If for any reason you feel discomfort while you are filling out the questionnaires, please stop and inform the researcher present in the room. Below you will find the phone numbers of referral agencies including Career and Counseling Services here in Ottawa University that you may contact for further assistance in dealing with the discomfort triggered by the questionnaires. Thank you, your participation is greatly appreciated.

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ERS SCALE

Please respond to each statement by indicating how much it is true of you or not. Circle the number in the space provided, using the following rating scale.

Not True At All		M o d e r a t e l y T r u e					Totally True					
1	2	3	4	5	6	7						
1.	I often feel that I made a wrong choice in my studies.					1	2	3	4	5	6	7
2.	Several times a week I feel as if something dreadful is about to happen.					1	2	3	4	5	6	7
3.	A strong person does not show his/her emotions and feelings.					1	2	3	4	5	6	7
4.	I doubt whether I would make a good leader.					1	2	3	4	5	6	7
5.	It is hard for me to start a conversation with strangers.					1	2	3	4	5	6	7
6.	It often seems that my life has no meaning.					1	2	3	4	5	6	7
7.	I have more trouble concentrating than others seem to have.					1	2	3	4	5	6	7
8.	It is very hard for me to tell anyone about myself.					1	2	3	4	5	6	7
9.	When in a group of people I have trouble thinking of the right things to talk about.					1	2	3	4	5	6	7
10.	I am certainly lacking in self-confidence.					1	2	3	4	5	6	7
11.	I feel like giving up quickly when things go wrong.					1	2	3	4	5	6	7
12.	I have not lived the right kind of life					1	2	3	4	5	6	7
13.	I am often bothered by useless thoughts that keep running through my mind.					1	2	3	4	5	6	7
14.	In school I find it very difficult to talk before a class.					1	2	3	4	5	6	7
15.	I usually don't like to talk much unless I am with people I know very well.					1	2	3	4	5	6	7
16.	My daily life is full of things that keep me interested.					1	2	3	4	5	6	7

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 17. The future seems hopeless to me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. Most of the time I feel unhappy. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. I often loose my temper. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. I often feel as if the world was just passing me by. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. I am embarrassed with people I do not know very well. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. I have a tendency to give up easily when I meet difficult problems. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. People seem naturally to turn to me when decisions have to be made. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. With things going as they are, it's pretty hard to keep up hope of amounting to something. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. I certainly feel useless at times. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. Sometimes I just can't seem to get going. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 27. I must admit I have a bad temper, once I get angry. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28. I liked school. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 29. I don't think I'm quite as happy as others seem to be. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

GMS SCALE

Please list the activities you most frequently engage in throughout your daily life.

- | | |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

Now, indicate to what extent each of the following statements corresponds generally to the reasons why you do the different activities you have just listed:

Does not correspond at all		Corresponds Moderately					Corresponds Completely	
1	2	3	4	5	6	7		

In general, I do things...

1.	...in order to feel pleasant emotions	1	2	3	4	5	6	7
2.	...because I do not want to disappoint certain people	1	2	3	4	5	6	7
3.	...in order to help myself become the person I aim to be	1	2	3	4	5	6	7
4.	... because I like making interesting discoveries	1	2	3	4	5	6	7
5.	...because I would beat myself up for not doing them	1	2	3	4	5	6	7
6.	...because they reflect the essence of who I am	1	2	3	4	5	6	7
7.	...because of the pleasure I feel as I become more and more skilled	1	2	3	4	5	6	7
8.	...because of the sense of well-being I feel while I am doing them	1	2	3	4	5	6	7
9.	...because I want to be viewed more positively by certain people	1	2	3	4	5	6	7
10.	...because I chose them as means to attain my objectives	1	2	3	4	5	6	7
11.	...for the pleasure of acquiring new knowledge	1	2	3	4	5	6	7
12.	...because otherwise I would feel guilty for not doing them	1	2	3	4	5	6	7
13.	...because by doing them I am living in line with my deepest principles	1	2	3	4	5	6	7
14.	...for the pleasure I feel mastering what I am doing	1	2	3	4	5	6	7
15.	...for the pleasant sensations I feel while I am doing them	1	2	3	4	5	6	7
16.	...in order to show others what I am capable of	1	2	3	4	5	6	7
17.	...because I chose them in order to attain what I desire	1	2	3	4	5	6	7

18. ...for the pleasure of learning new, interesting things	1	2	3	4	5	6	7
19. ...because I force myself to do them	1	2	3	4	5	6	7
20. ...because of the satisfaction I feel in trying to excel in what I do	1	2	3	4	5	6	7
21. ...because they are an extension of me	1	2	3	4	5	6	7
22. ...for the enjoyable feelings I experience	1	2	3	4	5	6	7
23. ...in order to attain prestige	1	2	3	4	5	6	7
24. ...because I choose to invest myself in what is important to me	1	2	3	4	5	6	7
25. ...for the pleasure of learning different interesting facts	1	2	3	4	5	6	7
26. ...because I would feel bad if I do not do them	1	2	3	4	5	6	7
27. ...because by doing them I am fully expressing my deepest values.	1	2	3	4	5	6	7
28. ...because of the pleasure I feel outdoing myself	1	2	3	4	5	6	7

ACS SCALE

Please read each of the following items listed below and indicate to what extent each of A and B is true or not of you.

Not True At All		M o d e r a t e l y T r u e					Totally True
1	2	3	4	5	6	7	

1. When I have lost something that is very valuable to me and I can't find it anywhere:

A. I have a hard time concentrating on something else.	1	2	3	4	5	6	7
B. I put it out of my mind after a little while.	1	2	3	4	5	6	7

2. When I know I must finish something soon:

- A. I have to push myself to get started. 1 2 3 4 5 6 7
- B. I find it easy to get it done and over with. 1 2 3 4 5 6 7
- 3. If I've worked for weeks on one project and then everything goes completely wrong with the project:**
- A. It takes me a long time to adjust myself to it. 1 2 3 4 5 6 7
- B. It bothers me for a while, but then I don't think about it anymore. 1 2 3 4 5 6 7
- 4. When I don't have anything in particular to do and I am getting bored:**
- A. I have trouble getting up enough energy to do anything at all. 1 2 3 4 5 6 7
- B. I quickly find something to do. 1 2 3 4 5 6 7
- 5. When I'm in a competition and have lost every time:**
- A. I can soon put losing out of my mind. 1 2 3 4 5 6 7
- B. The thought that I lost keeps running through my mind. 1 2 3 4 5 6 7
- 6. When I am getting ready to tackle a difficult problem:**
- A. It feels like I am facing a big mountain that I don't think I can climb. 1 2 3 4 5 6 7
- B. I look for a way that the problem can be approached in a suitable manner. 1 2 3 4 5 6 7
- 7. If I had just bought a new piece of equipment (for example, a tape deck) and it accidentally fell on the floor and was damaged beyond repair:**
- A. I would manage to get over it quickly. 1 2 3 4 5 6 7
- B. It would take me a long time to get over it. 1 2 3 4 5 6 7
- 8. When I have to solve a difficult problem:**
- A. I usually don't have a problem getting started on it. 1 2 3 4 5 6 7
- B. I have trouble sorting out things in my head so that I 1 2 3 4 5 6 7

can get down to working on the problem.

9. If I have to talk to someone about something important and, repeatedly, can't find her/him at home:

A. I can't stop thinking about it, even while I'm doing something else. 1 2 3 4 5 6 7

B. I easily forget about it until I can see the person again. 1 2 3 4 5 6 7

10. When I have to make up my mind about what I am going to do when I get some unexpected free time:

A. It takes me a long time to decide what I should do during this free time. 1 2 3 4 5 6 7

B. I can usually decide on something to do without having to think it over very much. 1 2 3 4 5 6 7

11. When I've bought a lot of stuff at a store and realize when I get home that I paid too much - but I can't get my money back:

A. I can't concentrate on anything else. 1 2 3 4 5 6 7

B. I easily forget about it. 1 2 3 4 5 6 7

12. When I have work to do at home:

A. It is often hard for me to get the work done. 1 2 3 4 5 6 7

B. I usually get it done right away. 1 2 3 4 5 6 7

13. When I am told that my work has been completely unsatisfactory:

A. I don't let it bother me for too long. 1 2 3 4 5 6 7

B. I feel paralyzed. 1 2 3 4 5 6 7

- 14. When I have a lot of important things to do and they must all be done soon:**
- A. I often don't know where to begin. 1 2 3 4 5 6 7
- B. I find it easy to make a plan and stick with it. 1 2 3 4 5 6 7
- 15. If I'm stuck in traffic and miss an important appointment:**
- A. At first, it's difficult for me to start doing anything else at all. 1 2 3 4 5 6 7
- B. I quickly forget about it and do something else. 1 2 3 4 5 6 7
- 16. When there are two things that I really want to do, but I can't do both of them:**
- A. I quickly begin one thing and forget about the other thing I couldn't do. 1 2 3 4 5 6 7
- B. It's not easy for me to put the thing that I couldn't do out of my mind. 1 2 3 4 5 6 7
- 17. When something is very important to me but I can't seem to get it right:**
- A. I gradually lose heart. 1 2 3 4 5 6 7
- B. I just forget about it and go do something else. 1 2 3 4 5 6 7
- 18. When I have to take care of something important but which is also unpleasant:**
- A. I do it and get it over with. 1 2 3 4 5 6 7
- B. It can take a while before I can bring myself to do it. 1 2 3 4 5 6 7
- 19. When something really gets me down:**
- A. I have trouble doing anything at all. 1 2 3 4 5 6 7
- B. I find it easy to distract myself by doing other things. 1 2 3 4 5 6 7
- 20. When I am facing a big project that has to be done:**

- A. I often spend too long thinking about where I should begin. 1 2 3 4 5 6 7
- B. I don't have any problems getting started. 1 2 3 4 5 6 7
- 21. When several things go wrong on the same day:**
- A. I usually don't know how to deal with it. 1 2 3 4 5 6 7
- B. I just keep on going as though nothing had happened. 1 2 3 4 5 6 7
- 22. When I have a boring assignment:**
- A. I usually don't have any problem getting through it. 1 2 3 4 5 6 7
- B. I sometimes just can't get moving on it. 1 2 3 4 5 6 7
- 23. When I have put all my effort into doing a really good job on something and the whole thing doesn't work out:**
- A. I don't have too much difficulty starting something else. 1 2 3 4 5 6 7
- B. I have trouble doing anything else at all. 1 2 3 4 5 6 7
- 24. When I have an obligation to do something that is boring and uninteresting:**
- A. I do it and get it over with. 1 2 3 4 5 6 7
- B. It usually takes a while before I get around to doing it. 1 2 3 4 5 6 7

GENERAL INFORMATION

Age _____

Sex: ☐ Male ☐ Female

Program of studies _____

Year you are in _____

Full-time _____ **Part-time** _____

How many siblings do you have? _____

What is your position in your family? Oldest ____ Youngest ____ other(specify)

Thank you very much

APPENDIX B

Covariance Matrix (Study 1)

COVARIANCE MATRIX TO BE ANALYZED

	IMA -----	IMK -----	IMS -----	OII1 -----	OII2 -----	OII3 -----
IMA	25.51					
IMK	16.20	24.19				
IMS	14.04	12.39	21.26			
OII1	9.86	10.07	10.62	33.41		
OII2	6.83	8.89	5.30	15.16	26.27	
OII3	5.28	8.83	6.67	15.43	13.43	28.19
OII4	7.54	9.67	7.06	14.86	13.65	16.29
ER	60.10	64.64	34.16	81.79	71.69	56.66
AOF	17.61	32.02	14.70	31.51	33.67	27.43
AOD	32.62	41.49	20.78	41.72	39.70	33.23

COVARIANCE MATRIX TO BE ANALYZED Cont'd

	OII4 -----	ER -----	AOF -----	AOD -----
OII4	26.57			
ER	59.72	849.93		
AOF	28.34	235.53	439.68	
AOD	41.66	352.69	257.70	474.04

APPENDIX C

Questionnaire used in Study 2 and Study 3

Cover Page

We are currently conducting a study in order to have a better understanding of the behaviors, opinions, and attitudes of people in general. We are particularly interested in understanding the reasons why people do the different activities of their lives, how they feel in general, how they perceive themselves, and finally what are their attitudes and experiences in the interpersonal domain. In the following pages you will find several questionnaires aimed at measuring these variables. You are invited to indicate to which extent each of the statements contained herein corresponds to what you actually feel, think or do.

Your participation in the study is completely voluntary. If you choose to participate please be mindful of the following:

A) You can terminate your participation at any moment.

B) Your anonymity and the confidentiality of your answers are completely guaranteed. We do not ask you to identify yourself in any shape or form. Please do not write your name or student number on the questionnaire booklet provided. As for your individual answers they will be pooled with the answers of many students, and they will be used for research purposes only. Only the global aggregated results will be published and discussed. As for individual results they are only accessible to the two researchers listed below. No one else is allowed access to individual results.

C) Please read carefully the instructions provided with each questionnaire. Make sure for each of them you understand what the numbers you are circling refer to. The meaning of the numbers may vary from one questionnaire to another. Please answer every item. Although many items may seem similar it is important to answer each one of them within the context you are asked about. Given that there are many items to answer, we are asking you to answer spontaneously. There is no right or wrong answer. The only thing of interest to us is your own personal opinion and experience. Your honesty is vital, without it results will be invalid.

D) If for any reason you feel discomfort while you are filling out the questionnaires, please stop and inform the researcher present in the room. Below you will find the phone numbers of referral agencies including Career and Counseling Services here in Ottawa University that you may contact for further assistance in dealing with the discomfort triggered by the questionnaires. Thank you, your participation is greatly appreciated.

Najwa K. Haddad
 Doctoral candidate
 School of Psychology
 University of Ottawa
 562-5800, Ext: 4179

Luc G. Pelletier, Ph.D.
 Thesis supervisor
 School of Psychology
 University of Ottawa
 562-5800, Ext: 4201

Career and Counseling Services:	562-5200
Centre des Services Psychologiques	562-5289
Center Town Community Health Center	: 238-8210

SLS SCALE

Please indicate to what extent **each** of the following items is true or not by circling the appropriate number. Please be open and honest in your responding.

Not True At All	Moderately True						Totally True
1	2	3	4	5	6	7	
1. In most ways my life is close to my ideal.	1	2	3	4	5	6	7
2. The conditions of my life are excellent.	1	2	3	4	5	6	7
3. I am satisfied with my life.	1	2	3	4	5	6	7
4. So far I have gotten the important things I want in my life.	1	2	3	4	5	6	7
5. If I could live my life over, I would change almost nothing.	1	2	3	4	5	6	7
6. Every day I take action steps aimed at improving areas of my life I am dissatisfied with.	1	2	3	4	5	6	7
7. I work hard everyday to maximize and develop my potential in <u>all</u> areas of my life (e.g., physical, social, moral, intellectual etc.....).	1	2	3	4	5	6	7
8. I make the most of my qualities and strengths.	1	2	3	4	5	6	7
9. I am passionate about my life.	1	2	3	4	5	6	7

PHF SCALE

Please read each of the following statements and indicate to what extent they are true or not of you.

Not True At All		M o d e r a t e l y T r u e					Totally True					
1	2	3	4	5	6		7					
1.	In general I feel I am in charge of the situation in which I live.					1	2	3	4	5	6	7
2.	Maintaining close relationships has been difficult and frustrating for me.					1	2	3	4	5	6	7
3.	When I look at the story of my life I am pleased with how things turned out.					1	2	3	4	5	6	7
4.	The demands of everyday life often get me down.					1	2	3	4	5	6	7
5.	People would describe me as a giving person, willing to share my time with others.					1	2	3	4	5	6	7
6.	I like most aspects of my personality.					1	2	3	4	5	6	7
7.	I am quite good at managing the many responsibilities of my daily life.					1	2	3	4	5	6	7
8.	I have not experienced many warm and trusting relationships with others.					1	2	3	4	5	6	7
9.	In many ways, I feel disappointed about my achievements in life.					1	2	3	4	5	6	7

Note. PHF Scale contains the items of the following scales
Environmental Mastery, Self Acceptance, and Positive Relations with Others

DMS SCALE

Using the scale below, circle the number which best describes how often you felt or behaved this way
DURING THE PAST WEEK

Rarely	o c c a s i o n a l l y					All the time	
1	2	3	4	5	6	7	

During the past week:

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1. I was bothered by things that usually do not bother me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I did not feel like eating my appetite was poor. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I felt that I could not shake off the blues even with the help from my family and friends | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I felt that I was just as good as other people. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I had trouble keeping my mind on what I am doing. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. I felt depressed. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. I felt that everything that I did was an effort. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. I felt hopeful about the future. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. I thought my life has been a failure. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. I felt fearful. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. My sleep was restless. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. I was happy. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. I talked less than usual. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. I felt lonely. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. People were unfriendly. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

16. I enjoyed life.	1	2	3	4	5	6	7
17. I had crying spells.	1	2	3	4	5	6	7
18. I felt sad.	1	2	3	4	5	6	7
19. I felt that people disliked me.	1	2	3	4	5	6	7
20. I could not get going.	1	2	3	4	5	6	7

ERS SCALE

Please respond to each statement by indicating how much it is true of you or not. Circle the number in the space provided, using the following rating scale.

Not True At All		Moderately True					Totally True					
1	2	3	4	5	6	7						
1.	I often feel that I made a wrong choice in my studies.					1	2	3	4	5	6	7
2.	Several times a week I feel as if something dreadful is about to happen.					1	2	3	4	5	6	7
3.	A strong person does not show his/her emotions and feelings.					1	2	3	4	5	6	7
4.	I doubt whether I would make a good leader.					1	2	3	4	5	6	7
5.	It is hard for me to start a conversation with strangers.					1	2	3	4	5	6	7
6.	It often seems that my life has no meaning.					1	2	3	4	5	6	7
7.	I have more trouble concentrating than others seem to have.					1	2	3	4	5	6	7
8.	It is very hard for me to tell anyone about myself.					1	2	3	4	5	6	7
9.	When in a group of people I have trouble thinking of the right things to talk about.					1	2	3	4	5	6	7
10.	I am certainly lacking in self-confidence.					1	2	3	4	5	6	7
11.	I feel like giving up quickly when things go wrong.					1	2	3	4	5	6	7

12.	I have not lived the right kind of life	1	2	3	4	5	6	7
13.	I am often bothered by useless thoughts that keep running through my mind.	1	2	3	4	5	6	7
14.	In school I find it very difficult to talk before a class.	1	2	3	4	5	6	7
15.	I usually don't like to talk much unless I am with people I know very well.	1	2	3	4	5	6	7
16.	My daily life is full of things that keep me interested.	1	2	3	4	5	6	7
17.	The future seems hopeless to me.	1	2	3	4	5	6	7
18.	Most of the time I feel unhappy.	1	2	3	4	5	6	7
19.	I often loose my temper.	1	2	3	4	5	6	7
20.	I often feel as if the world was just passing me by.	1	2	3	4	5	6	7
21.	I am embarrassed with people I do not know very well.	1	2	3	4	5	6	7
22.	I have a tendency to give up easily when I meet difficult problems.	1	2	3	4	5	6	7
23.	People seem naturally to turn to me when decisions have to be made.	1	2	3	4	5	6	7
24.	With things going as they are, it's pretty hard to keep up hope of amounting to something.	1	2	3	4	5	6	7
25.	I certainly feel useless at times.	1	2	3	4	5	6	7
26.	Sometimes I just can't seem to get going.	1	2	3	4	5	6	7
27.	I must admit I have a bad temper, once I get angry.	1	2	3	4	5	6	7
28.	I liked school.	1	2	3	4	5	6	7
29.	I don't think I'm quite as happy as others seem to be.	1	2	3	4	5	6	7

ACS SCALE

Please read each of the following items listed below and indicate to what extent each of A and B is true or not of you.

Not True At All		M o d e r a t e l y T r u e					Totally True	
1	2	3	4	5	6	7		
1. When I have lost something that is very valuable to me and I can't find it anywhere:								
A.	I have a hard time concentrating on something else.					1	2	3 4 5 6 7
B.	I put it out of my mind after a little while.					1	2	3 4 5 6 7
2. When I know I must finish something soon:								
A.	I have to push myself to get started.					1	2	3 4 5 6 7
B.	I find it easy to get it done and over with.					1	2	3 4 5 6 7
3. If I've worked for weeks on one project and then everything goes completely wrong with the project:								
A.	It takes me a long time to adjust myself to it.					1	2	3 4 5 6 7
B.	It bothers me for a while, but then I don't think about it anymore.					1	2	3 4 5 6 7
4. When I don't have anything in particular to do and I am getting bored:								
A.	I have trouble getting up enough energy to do anything at all.					1	2	3 4 5 6 7
B.	I quickly find something to do.					1	2	3 4 5 6 7
5. When I'm in a competition and have lost every time:								
A.	I can soon put losing out of my mind.					1	2	3 4 5 6 7
B.	The thought that I lost keeps running through my mind.					1	2	3 4 5 6 7
6. When I am getting ready to tackle a difficult problem:								
A.	It feels like I am facing a big mountain that I don't think I can climb.					1	2	3 4 5 6 7

B. I look for a way that the problem can be approached in a suitable manner. 1 2 3 4 5 6 7

7. If I had just bought a new piece of equipment (for example, a tape deck) and it accidentally fell on the floor and was damaged beyond repair:

A. I would manage to get over it quickly. 1 2 3 4 5 6 7

B. It would take me a long time to get over it. 1 2 3 4 5 6 7

8. When I have to solve a difficult problem:

A. I usually don't have a problem getting started on it. 1 2 3 4 5 6 7

B. I have trouble sorting out things in my head so that I can get down to working on the problem. 1 2 3 4 5 6 7

- 9. If I have to talk to someone about something important and, repeatedly, can't find her/him at home:**
- A. I can't stop thinking about it, even while I'm doing something else. 1 2 3 4 5 6 7
- B. I easily forget about it until I can see the person again. 1 2 3 4 5 6 7
- 10. When I have to make up my mind about what I am going to do when I get some unexpected free time:**
- A. It takes me a long time to decide what I should do during this free time. 1 2 3 4 5 6 7
- B. I can usually decide on something to do without having to think it over very much. 1 2 3 4 5 6 7
- 11. When I've bought a lot of stuff at a store and realize when I get home that I paid too much - but I can't get my money back:**
- A. I can't concentrate on anything else. 1 2 3 4 5 6 7
- B. I easily forget about it. 1 2 3 4 5 6 7
- 12. When I have work to do at home:**
- A. It is often hard for me to get the work done. 1 2 3 4 5 6 7
- B. I usually get it done right away. 1 2 3 4 5 6 7
- 13. When I am told that my work has been completely unsatisfactory:**
- A. I don't let it bother me for too long. 1 2 3 4 5 6 7
- B. I feel paralyzed. 1 2 3 4 5 6 7
- 14. When I have a lot of important things to do and they must all be done soon:**
- A. I often don't know where to begin. 1 2 3 4 5 6 7
- B. I find it easy to make a plan and stick with it. 1 2 3 4 5 6 7
- 15. If I'm stuck in traffic and miss an important**

appointment:

- | | | | | | | | | |
|----|--|---|---|---|---|---|---|---|
| A. | At first, it's difficult for me to start doing anything else at all. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| B. | I quickly forget about it and do something else. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
- 16. When there are two things that I really want to do, but I can't do both of them:**
- | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|
| A. | I quickly begin one thing and forget about the other thing I couldn't do. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| B. | It's not easy for me to put the thing that I couldn't do out of my mind. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
- 17. When something is very important to me but I can't seem to get it right:**
- | | | | | | | | | |
|----|--|---|---|---|---|---|---|---|
| A. | I gradually lose heart. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| B. | I just forget about it and go do something else. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
- 18. When I have to take care of something important but which is also unpleasant:**
- | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|
| A. | I do it and get it over with. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| B. | It can take a while before I can bring myself to do it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
- 19. When something really gets me down:**
- | | | | | | | | | |
|----|--|---|---|---|---|---|---|---|
| A. | I have trouble doing anything at all. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| B. | I find it easy to distract myself by doing other things. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
- 20. When I am facing a big project that has to be done:**
- | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|
| A. | I often spend too long thinking about where I should begin. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| B. | I don't have any problems getting started. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
- 21. When several things go wrong on the same day:**
- | | | | | | | | | |
|----|--|---|---|---|---|---|---|---|
| A. | I usually don't know how to deal with it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| B. | I just keep on going as though nothing had happened. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

22. When I have a boring assignment:

A. I usually don't have any problem getting through it. 1 2 3 4 5 6 7

B. I sometimes just can't get moving on it. 1 2 3 4 5 6 7

23. When I have put all my effort into doing a really good job on something and the whole thing doesn't work out:

A. I don't have too much difficulty starting something else. 1 2 3 4 5 6 7

B. I have trouble doing anything else at all. 1 2 3 4 5 6 7

24. When I have an obligation to do something that is boring and uninteresting:

A. I do it and get it over with. 1 2 3 4 5 6 7

B. It usually takes a while before I get around to doing it. 1 2 3 4 5 6 7

THE SES SCALE

How true is this of you?

Not True At All		M o d e r a t e l y T r u e					Totally True
1	2	3	4	5	6	7	

1. I feel that I am a person of worth, at least on an equal plane with others. 1 2 3 4 5 6 7

2. I feel that I have a number of good qualities. 1 2 3 4 5 6 7

3. All in all, I am inclined to feel that I am a failure. 1 2 3 4 5 6 7

4. I am able to do things as well as other people. 1 2 3 4 5 6 7

5. I feel I do not have much to be proud of.	1	2	3	4	5	6	7
6. I take a positive attitude towards myself.	1	2	3	4	5	6	7
7. On the whole I am satisfied with myself.	1	2	3	4	5	6	7
8. I wish I could have more respect for myself.	1	2	3	4	5	6	7
9. I certainly feel useless at times.	1	2	3	4	5	6	7
10. At times I think I am no good at all.	1	2	3	4	5	6	7

PBI INSTRUMENT

This questionnaire lists various attitudes and behaviors of parents. As you remember Your Mother/Father for your first sixteen years please circle in the most appropriate number next to each question.

	Not True At All	Moderately True					Totally True					
	1	2	3	4	5	6	7					
1.	Spoke to me with a warm and friendly voice.					1	2	3	4	5	6	7
2.	Did not help me as much as I needed.					1	2	3	4	5	6	7
3.	Let me do those things I liked doing.					1	2	3	4	5	6	7
4.	Seemed emotionally cold to me.					1	2	3	4	5	6	7
5.	Appeared to understand my problems and worries.					1	2	3	4	5	6	7
6.	Was/were affectionate to me.					1	2	3	4	5	6	7
7.	Liked me to make my own decisions.					1	2	3	4	5	6	7
8.	Did not want me to grow up.					1	2	3	4	5	6	7
9.	Tried to control everything I did.					1	2	3	4	5	6	7

10. Invaded my privacy.	1	2	3	4	5	6	7
11. Enjoyed talking things over with me.	1	2	3	4	5	6	7
12. Frequently smiled at me.	1	2	3	4	5	6	7
13. Tended to baby me.	1	2	3	4	5	6	7
14. Did not seem to understand what I needed or wanted.	1	2	3	4	5	6	7
15. Let me decide things for myself.	1	2	3	4	5	6	7
16. Made me feel I wasn't wanted.	1	2	3	4	5	6	7
17. Could make me feel better when I was upset.	1	2	3	4	5	6	7
18. Did not talk with me very much.	1	2	3	4	5	6	7
19. Tried to make me dependent on her/him.	1	2	3	4	5	6	7
20. Felt I could not look after myself unless she/he was around.	1	2	3	4	5	6	7
21. Gave me as much freedom as I wanted.	1	2	3	4	5	6	7
22. Let me go out as often as I wanted.	1	2	3	4	5	6	7
23. Was/were overprotective of me.	1	2	3	4	5	6	7
24. Did not praise me.	1	2	3	4	5	6	7
25. Let me dress in any way I pleased.	1	2	3	4	5	6	7

THE RELATIONSHIPS QUESTIONNAIRE

Please read each of the following statements and indicate to what extent they are true or not of you.

Not True At All	M o d e r a t e l y T r u e					Totally True
1	2	3	4	5	6	7

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1. It is relatively easy for me to become emotionally close to others. I am comfortable depending on others and having others depend on me. I don't worry about being alone or | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|---|---|---|---|---|---|---|

having others not accept me.

- | | | |
|----|--|---------------------------|
| 2. | I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient and I prefer not to depend on others or have others depend on me. | 1 2 3 4 5 6 7 |
| 3. | I want to be completely emotionally intimate with others, but often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others do not value me as much as I value them. | 1 2 3 4 5 6 7 |
| 4. | I am somewhat uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I sometimes worry that I will be hurt if I allow myself to become too close to others. | 1 2 3 4 5 6 7 |
-

GMS SCALE

Please list the activities you most frequently engage in throughout your daily life.

- | | |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

Now, indicate to what extent each of the following statements corresponds generally to the reasons why you do the different activities you have just listed:

Does not correspond at all	Corresponds Moderately					Corresponds Completely
1	2	3	4	5	6	7

In general, I do things...

- | | |
|--|---------------------------|
| 1. ...in order to feel pleasant emotions | 1 2 3 4 5 6 7 |
|--|---------------------------|

2.	...because I do not want to disappoint certain people	1	2	3	4	5	6	7
3.	...in order to help myself become the person I aim to be	1	2	3	4	5	6	7
4.	... because I like making interesting discoveries	1	2	3	4	5	6	7
5.	...because I would beat myself up for not doing them	1	2	3	4	5	6	7
6.	...because they reflect the essence of who I am	1	2	3	4	5	6	7
7.	...because of the pleasure I feel as I become more and more skilled	1	2	3	4	5	6	7
8.	...because of the sense of well-being I feel while I am doing them	1	2	3	4	5	6	7
9.	...because I want to be viewed more positively by certain people	1	2	3	4	5	6	7
10.	...because I chose them as means to attain my objectives	1	2	3	4	5	6	7
11.	...for the pleasure of acquiring new knowledge	1	2	3	4	5	6	7
12.	...because otherwise I would feel guilty for not doing them	1	2	3	4	5	6	7
13.	...because by doing them I am living in line with my deepest principles	1	2	3	4	5	6	7
14.	...for the pleasure I feel mastering what I am doing	1	2	3	4	5	6	7
15.	...for the pleasant sensations I feel while I am doing them	1	2	3	4	5	6	7
16.	...in order to show others what I am capable of	1	2	3	4	5	6	7
17.	...because I chose them in order to attain what I desire	1	2	3	4	5	6	7
18.	...for the pleasure of learning new, interesting things	1	2	3	4	5	6	7
19.	...because I force myself to do them	1	2	3	4	5	6	7
20.	...because of the satisfaction I feel in trying to excel in what I do	1	2	3	4	5	6	7
21.	...because they are an extension of me	1	2	3	4	5	6	7
22.	...for the enjoyable feelings I experience	1	2	3	4	5	6	7
23.	...in order to attain prestige	1	2	3	4	5	6	7

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| 24. ...because I choose to invest myself in what is important to me | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. ...for the pleasure of learning different interesting facts | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. ...because I would feel bad if I do not do them | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 27. ...because by doing them I am fully expressing my deepest values. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28. ...because of the pleasure I feel outdoing myself | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

AISGP

On a scale from one to ten:

If number 10 represents your ideal self (i.e., who you would like to be, your dreams, your aspirations) **for this stage of your life**, where do you think your actual self (i.e.. who you are right now) is in comparison?

1 2 3 4 5 6 7 8 9 10

On a scale from one to ten:

If number **10** represents the statement "I am completely living up to my full potential " (i.e. all that you are capable of being and doing) and number **1** represents the statement "I am not at all living up to my full potential", which number from one to ten best represents your current situation?

1 2 3 4 5 6 7 8 9 10

GENERAL INFORMATION

Age _____

Sex: ☐ Male ☐ Female

Program of studies _____

Year you are in _____

How many siblings do you have? _____

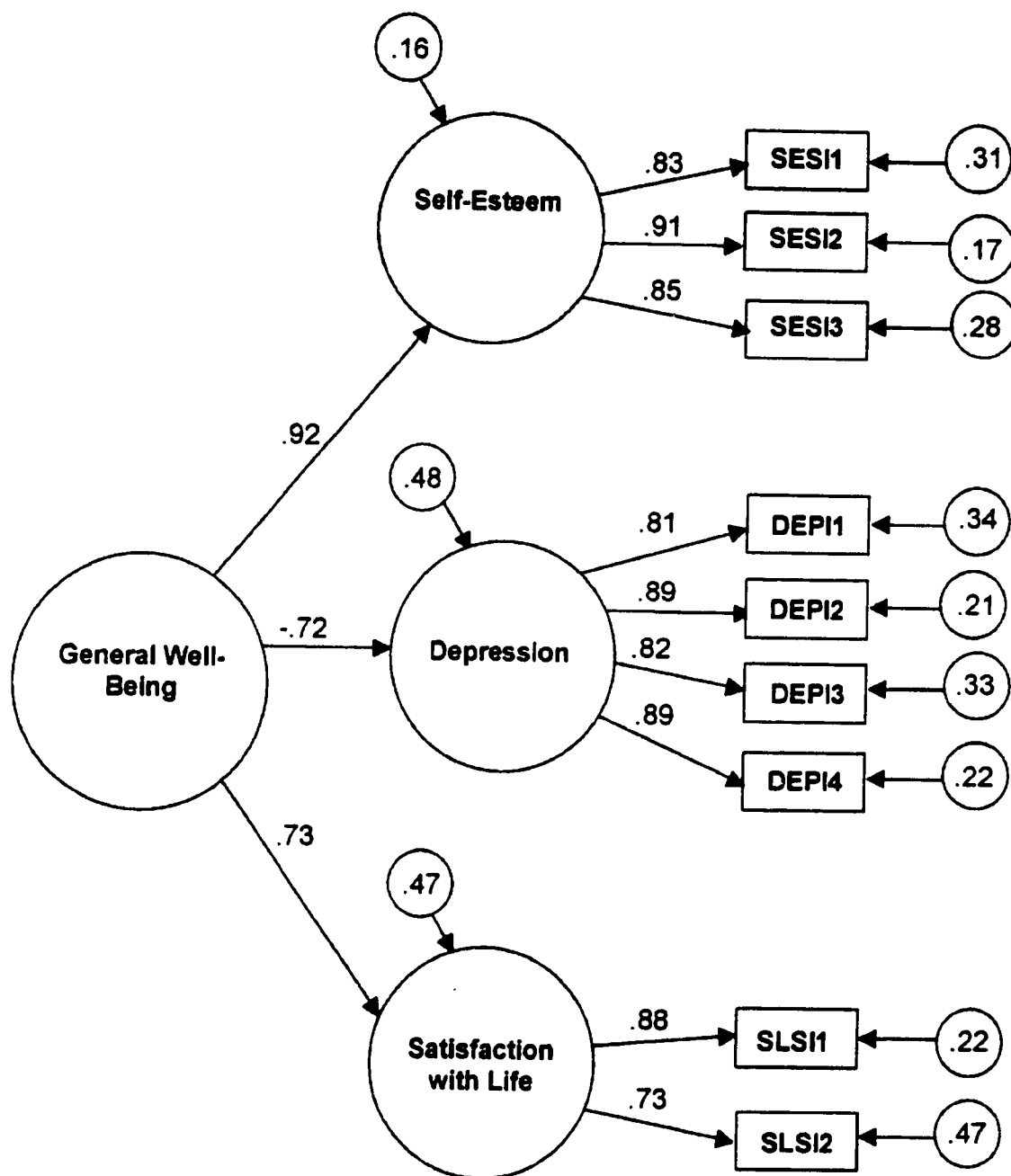
What is your position in your family? Oldest ____ Youngest ____ other(specify)

Income _____

Thank you very much

APPENDIX D

General Well-being Model



General Well-Being Model. All of the parameters in the model are standardized and significant at the .01 level. ($\chi^2_{24, N=400}=70.45, p<.001$; GFI=.96; AGFI=.93; CFI=.98; SRMSR=.032; PCFI=.64)

APPENDIX E

Covariance Matrix (Proactive Self; Study 2)

COVARIANCE MATRIX TO BE ANALYZED

	IMA	IMK	IMS	OII1	OII2	OII3
	-----	-----	-----	-----	-----	-----
IMA	21.81					
IMK	15.44	21.52				
IMS	12.65	11.91	19.74			
OII1	9.04	11.52	9.74	35.82		
OII2	9.03	11.85	8.08	20.93	33.31	
OII3	5.07	8.60	8.56	18.19	18.44	28.69
OII4	8.30	12.17	9.53	18.41	20.37	17.71
ER	41.06	39.42	36.03	70.24	63.50	50.52
AOF	11.49	21.72	13.90	48.06	43.62	38.23
AOD	32.42	34.85	25.82	49.40	47.85	34.65

COVARIANCE MATRIX TO BE ANALYZED Cont'd

	OII4	ER	AOF	AOD
	-----	-----	-----	-----
OII4	32.19			
ER	55.76	581.33		
AOF	36.56	209.98	421.62	
AOD	42.64	285.13	210.22	436.09

APPENDIX F

Covariance Matrix

(Relatedness, Proactive Self and Positive Human Functioning Model, Study 2)

COVARIANCE MATRIX TO BE ANALYZED

	RQ1	RQ3	RQ4	POSREL	IM	OI
	-----	-----	-----	-----	-----	-----
RQ1	2.59					
RQ3	.53	3.08				
RQ4	1.63	.64				
POSREL	3.07	1.74	3.11	12.87		
IM	3.73	3.72	4.87	8.99	142.54	
OI	10.10	8.06	10.99	15.87	122.00	420.71
CEO	34.96	36.48	40.20	67.63	242.53	619.29
ACTUALIZ	3.43	2.70	3.46	6.63	38.74	63.00
SELFACC	1.76	1.72	1.71	5.17	11.19	26.45
ENVTMAS	1.50	1.70	1.34	3.69	14.27	29.48
GWB	22.73	24.30	23.70	49.84	152.67	355.60
OB1	1.85	2.43	2.87	6.73	13.15	25.10
OB2	2.28	1.99	2.75	7.54	15.41	23.23
OB3	2.01	2.34	3.00	8.55	18.06	27.03
OB4	2.17	.88	2.54	6.09	14.04	20.11

COVARIANCE MATRIX TO BE ANALYZED Cont'd

	CEO -----	ACTUALIZ -----	SELFACC -----	ENVTMAS -----	GWB -----	OB1 -----
CEO	2823.23					
ACTUALIZ	191.06	39.53				
SELFACC	92.39	11.78	9.93			
ENVTMAS	105.81	10.86	5.57	9.03		
GWB	1257.67	128.36	66.37	65.67	1072.45	
OB1	106.62	8.24	7.91	5.44	69.57	47.64
OB2	90.80	7.58	7.33	4.70	68.00	39.67
OB3	109.29	9.18	9.05	5.30	78.08	42.64
OB4	69.41	5.41	7.34	3.00	52.57	32.40

COVARIANCE MATRIX TO BE ANALYZED Cont'd

	OB2 -----	OB3 -----	OB4 -----
OB2	50.04		
OB3	46.96	61.24	
OB4	34.91	42.86	47.24

APPENDIX G

Covariance Matrix (Proactive Self; Study3)

COVARIANCE MATRIX TO BE ANALYZED

	IMA -----	IMK -----	IMS -----	OII1 -----	OII2 -----	OII3 -----
IMA	25.51					
IMK	16.20	24.19				
IMS	14.04	12.39	21.26			
OII1	9.86	10.07	10.62	33.41		
OII2	6.83	8.89	5.30	15.16	26.27	
OII3	5.28	8.83	6.67	15.43	13.43	28.19
OII4	7.54	9.67	7.06	14.86	13.65	16.29
ER	60.10	64.64	34.16	81.79	71.69	56.66
AOF	17.61	32.02	14.70	31.51	33.67	27.43
AOD	32.62	41.49	20.78	41.72	39.70	33.23

COVARIANCE MATRIX TO BE ANALYZED Cont'd

	OII4 -----	ER -----	AOF -----	AOD -----
OII4	26.57			
ER	59.72	849.93		
AOF	28.34	235.53	439.68	
AOD	41.66	352.69	257.70	474.04

APPENDIX H

Covariance Matrix

(Relatedness, Proactive Self, and Positive Human Functioning Model; Study 3)

COVARIANCE MATRIX TO BE ANALYZED

	RQ1	RQ3	RQ4	POSREL	IM	OI
	-----	-----	-----	-----	-----	-----
RQ1	2.91					
RQ3	.47	3.14				
RQ4	1.51	.70	3.97			
POSREL	2.36	1.47	2.52	11.40		
IM	3.12	.31	1.44	7.63	146.95	
OI	4.53	4.84	5.28	13.49	116.62	320.60
CEO	26.38	29.49	30.38	70.70	257.64	469.95
ACTUALIZ	1.98	1.08	2.12	4.39	33.02	38.39
SELFACC	1.58	1.18	1.47	3.67	12.19	16.75
ENVTMAS	1.16	1.23	1.03	3.20	14.80	21.62
GWB	12.53	18.62	16.89	38.09	132.55	254.17
OB1	.69	2.04	1.23	4.12	14.68	30.64
OB2	1.51	2.32	2.21	5.67	16.17	37.92
OB3	.82	1.89	2.49	5.04	18.71	32.88
OB4	1.22	1.35	3.06	4.68	15.17	27.58

COVARIANCE MATRIX TO BE ANALYZED Cont'd

	CEO	ACTUALIZ	SELFACC	ENVTMAS	GWB	OB1
	-----	-----	-----	-----	-----	-----
CEO	2626.10					
ACTUALIZ	174.52	37.38				
SELFACC	92.00	9.77	8.50			
ENVTMAS	108.83	10.16	5.69	9.51		
GWB	1047.55	96.05	63.97	64.30	940.73	
OB1	103.81	9.20	5.50	4.60	66.85	39.79
OB2	122.88	8.70	6.18	6.24	79.92	30.94
OB3	121.21	9.56	6.68	6.77	87.39	35.67
OB4	94.32	8.93	5.70	4.68	78.54	26.13

COVARIANCE MATRIX TO BE ANALYZED Cont'd

	OB2	OB3	OB4
	-----	-----	-----
OB2	43.89		
OB3	37.53	54.31	
OB4	28.46	35.87	40.66