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*The Mediating Role of Self Orientations on the Relationship  
between Psychological Needs Satisfaction and Values*

Nebojsa Majstorovic

School of Psychology

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## ABSTRACT

Psychological needs are innate strivings that are theorized to relate to personal values, which are elaborate acquired cognitive structures. It seems plausible to infer that an intermediate process intervenes between these two end states. The main goal of the present thesis was to examine the possible mediating role of self-orientation in the relationship between the satisfaction of basic psychological needs, and the endorsement of intrinsic and extrinsic values. This project rests on manifold theoretical foundations. Psychological needs are conceptualized according to Self-Determination Theory (Deci & Ryan, 1985a, 2002). Values are approached using Schwartz's Theory of Universal Values (1992, 1994). The theoretical underpinnings for self-orientation are provided by the taxonomy of self-systems proposed by Hodgins and Knee (2002). As postulated by many key authors in humanistic psychology (e.g., Maslow, 1970), it was hypothesized that a fundamental association between psychological need satisfaction and personal values would be observed. Self-orientation (integrated, ego-invested, or impersonal) was hypothesized to mediate this relationship. Specifically, psychological needs satisfaction was expected to display a high positive association with the integrated self, a modest negative association with the ego-invested self, and a high negative association with the impersonal self. The integrated self was expected to be positively associated with intrinsic values and unrelated to extrinsic values. Conversely, the ego-invested self was expected to be positively associated with extrinsic values and unrelated to intrinsic values. The impersonal self was expected to be unrelated to both intrinsic and extrinsic values. The present project comprised three studies. Study 1 (N=333) consisted of a preliminary undertaking in which an instrument to measure self orientation was developed and successfully validated. The Ego Functioning Questionnaire presented a clean factorial structure, meaningful construct validity, and satisfactory internal properties (i.e., reliability, homogeneity, and representativeness). The hypothesized network of associations between the variables under study was tested using cross-sectional surveys and structural equation models in Studies 2 and 3. Results of Study 2 (N=300) provided clear support for all research hypotheses. Model fits were satisfactory. The fundamental association between need satisfaction and values was successfully documented. Moreover, self-orientation did indeed mediate this relationship. The pattern of associations between psychological need satisfaction, self orientation (integrated, ego-invested, and impersonal), and values (intrinsic and extrinsic) was exactly as anticipated. The goal of Study 3 was to provide a cross cultural validation of the results of Study 2, using a sample of participants from Serbia and Monte Negro (N=300). Structural equation models were generated and results from Studies 2 and 3 were compared using multigroup invariance testing. Model fits were adequate. As for the expected pattern of relationships between the variables under study, all results corroborated research hypotheses, with two minor exceptions. Specifically, when testing the fundamental relationship between needs satisfaction and values, a significant association was obtained for intrinsic, but not for extrinsic, values. Also, within the full structural equation model designed to test for the mediating effect of self orientation, a modest positive association between need satisfaction and ego-invested self was obtained, rather than a negative one. All other expected paths were in the anticipated direction. To summarize, interesting initial support was obtained for research hypotheses. Yet, future studies are necessary to further our understanding of the mediating role of self orientation in the relationship between psychological needs satisfaction and personal values.

## RÉSUMÉ

La satisfaction des besoins psychologiques est un antécédent théorique des valeurs personnelles. Ces besoins sont considérés comme des instances innées tandis que les valeurs sont des structures cognitives sophistiquées qui ont été acquises. Il semble plausible de proposer l'existence de processus intermédiaires susceptibles d'expliquer l'évolution d'un état à l'autre. L'objectif principal de cette thèse est d'examiner le rôle médiateur de l'orientation du soi dans la relation entre la satisfaction des besoins psychologiques et l'adoption de valeurs intrinsèques et extrinsèques. Ce projet repose sur des assises théoriques multiples. Les besoins psychologiques sont conceptualisés grâce à la théorie de l'autodétermination (Deci & Ryan, 1985a, 2002), les valeurs grâce à la théorie des valeurs universelles (Schwartz, 1992, 1994) et l'orientation du soi grâce à la taxonomie tridimensionnelle proposée par Hodgins et Knee (2002). Les hypothèses de ce projet sont les suivantes. Tel que proposé par plusieurs auteurs importants en psychologie humaniste (p.ex : Maslow, 1970), une association est anticipée entre la satisfaction des besoins psychologiques et les valeurs personnelles. De plus, il est prévu que l'orientation du soi (intégrée, investie par l'ego et impersonnelle) agira à titre de médiateur de cette relation. Le réseau spécifique d'associations attendues se définit comme suit. La satisfaction des besoins psychologiques sera associée positivement à l'orientation intégrée, négativement à l'orientation investie par l'ego et très négativement à l'orientation impersonnelle. L'orientation intégrée sera à son tour associée positivement aux valeurs intrinsèques et elle ne sera pas reliée aux valeurs extrinsèques. À l'inverse, l'orientation investie par l'ego sera associée positivement aux valeurs extrinsèques et elle ne sera pas reliée aux valeurs intrinsèques. L'orientation impersonnelle ne sera pas reliée aux valeurs intrinsèques et extrinsèques. Cette thèse comporte trois études. Lors de l'Étude 1 (N=300), un instrument destiné à la mesure de la taxonomie d'orientation du soi de Hodgins et Knee (2002) a développé et validé avec succès. Le Questionnaire d'Ajustement de l'Ego a présenté une structure factorielle impeccable ainsi qu'une validité de construit et des propriétés métriques internes (i.e., fidélité, homogénéité et représentativité) satisfaisantes. Les Études 2 et 3 adoptent une méthodologie de sondage corrélational. Des modèles structurels réunissant l'ensemble du réseau d'associations entre les variables à l'étude ont été mis à l'épreuve lors de ces études. Les résultats de l'Étude 2 (N=300) ont corroboré sans ambiguïté les hypothèses de recherche. L'adéquation des modèles structurels était satisfaisante. Les associations fondamentales prévues entre la satisfaction des besoins psychologiques et le développement des valeurs intrinsèques et extrinsèques ont été documentées avec succès. Le rôle médiateur de l'orientation du soi a également été conforté. Le patron des associations obtenues entre la satisfaction des besoins psychologiques, l'orientation du soi et les valeurs corrobore parfaitement les hypothèses de recherche. L'objectif de l'Étude 3 était de procéder à une validation transculturelle des hypothèses de recherche en répliquant les résultats de l'Étude 2 auprès d'un échantillon de participants provenant de la Serbie et du Monte Negro (N=300). Des modèles structurels identiques à ceux de l'Étude 2 ont été générés et les résultats des Études 2 et 3 ont été comparés au moyen d'analyses d'invariance multigroupes. L'adéquation des modèles de l'Étude 3 était satisfaisante. Les relations obtenues ont corroboré les hypothèses de recherche à deux exceptions près. La relation prévue entre la satisfaction des besoins et les valeurs extrinsèques n'était pas significative. De plus, une faible association positive a émergé de façon inattendue entre la satisfaction des besoins et le soi orienté vers l'ego. En conclusion, les hypothèses de recherche ont été largement corroborées par les résultats obtenus mais des études ultérieures sont nécessaires pour approfondir notre compréhension du phénomène à l'étude.

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## CHAPTER ONE

### INTRODUCTION

#### *Statement of the Problem*

Psychological needs energize and direct behaviours intended to fulfill essential organismic necessities and foster growth and development (Deci & Ryan, 2000). People thrive in environments which provide ample opportunities for the gratification of these constitutive impulses. Conversely, contexts that thwart basic psychological needs curtail growth, and may even steer personal development in unnatural directions. For instance, a person who is given many occasions to make choices, to increase his or her competence, and to engage in warm and meaningful interactions, will most likely flourish. Conversely, surroundings where agency, competence, and interpersonal affiliation are stymied are liable to stunt and distort one's functioning and evolution. The extent to which basic psychological needs are satisfied can therefore have far reaching consequences, and may even affect one's world view.

Values are based on experiential and philosophical considerations and represent higher level aspirations that provide overarching life guidelines (Schwartz, 1992). Several authors theorized that the development of values is tied to the satisfaction of basic psychological needs (e.g., Kasser, 2002; Maslow, 1970; Schwartz, 2004). For instance, Kasser, Ryan, Zax, and Sameroff (1995) suggested that poor autonomy and relatedness during childhood may be conducive to the adoption of materialistic values. However, the association between need satisfaction and value orientation has never been tested empirically. This is one of the goals of the present project. Yet, its main objective is to further develop our understanding of the needs/value relationship. Psychological needs are

innate, whereas values are acquired and cognitively elaborated structures. It seems plausible to infer that intermediate processes intervene between these two end states. It is proposed herein that self orientation acts as a mediator of the relationship between needs and values.

The present project rests on manifold theoretical foundations. Psychological needs are conceptualized according to Self-Determination Theory (Deci & Ryan, 1985a, 2002). Values are approached using Schwartz's Theory of Universal Values (1992, 1994). The theoretical underpinnings for self orientation are provided by the taxonomy of self-systems proposed by Hodgins and Knee (2002). These three theories are delineated and situated within their respective literature domains in subsequent sections.

The thesis project itself will comprise three studies. Study 1 ascertains the psychometric properties of the Ego-Functioning Questionnaire (EFQ), an instrument designed to evaluate the three types of self proposed by Hodgins and Knee (i.e. integrated, ego-invested, and impersonal self).

In Study 2, the newly developed instrument (EFQ) is given to a sample of 300 undergraduate university students along with valid pre-existing instruments measuring psychological needs (Deci & Ryan, 2002b) and values (Schwartz, 1992). The goal of this study is to assess the mediating role of self orientation on the interrelation between needs and values.

The purpose of Study 3 is to perform a cross-cultural validation of the results from Study 2. The measurement instruments used in Study 2 are given to a sample of 300 adults from Eastern Europe, and the invariance of associations between needs, self-systems, and values is examined.

Together, these three studies are expected to yield interesting contributions to our understanding of the influence of need satisfaction on selfhood and personal values.

Therefore, the main goal of this thesis is to examine the associations between basic psychological needs, self orientations, and universal human values, across two different cultures.

### ***Basic Human Needs***

Historically speaking, scholars recognized driving forces within human nature a long time before psychology was born. Needs played a key role in Plato's dualistic conceptualization of humanity, dividing it into two separated worlds – strivings of the human soul and needs of the human body (Melling, 1988). Thomas Aquinas also believed in the duality of human nature – body and mind (Copleston, 1976), while Descartes offered a place where body and mind meet – the pineal gland (Hall, 1972). Evolutionists, such as Darwin (1872), argued that the same principles that govern animal behaviour hold in humans, too. Since early psychology was under the strong influence of 19<sup>th</sup> century biology, instincts appeared to be the main driving force in motivational explanations (e.g., McDougall, 1908). Sigmund Freud (1949) also adopted the instinctivistic doctrine, but instead of making a long list of specific instincts, he defined only two – Eros and Tanatos. These instances became sources of non-specified energy that needed to be socially adjusted in order to reach appropriate objects of satisfaction. Thanks to psychoanalysis, instincts lost their specificity (direction) and became understood as global sources of energy which led to related new concepts, such as drives and needs.

Early drive theories were concerned with physiological needs (e.g., hunger, thirst, sex, and sleep). Hull (1943), for example, proposed that organisms learned behaviours that

were associated with drive reduction in order to optimize the restoration of psychological equilibrium. However, certain authors started to think more creatively about the nature of drives. For instance, Angyal (1958) became interested in the exploratory drive, Berlyne (1954) investigated the curiosity drive, and Hendrick (1942) examined the mastery drive.

Drive theories paved the way for the development of various conceptualizations of basic human needs. An important and most noteworthy characteristic of this evolution is that such theories grew to include, and eventually to focus predominantly, on psychological needs. That is, whereas biological needs are thought to motivate behaviours that aim to foster physical integrity, psychological needs are conceived as inner sources of energy responsible for initiating and sustaining personal growth and development. Early works in this area include Murray's extensive taxonomy of human needs which comprises twenty psychological components, such as power, acquisitiveness, or achievement (1938).

Abraham Maslow (1943) is also considered a key author and his pyramid of basic human needs is possibly the best known theory on this topic. Interestingly, Maslow distinguished between deficiency needs (i.e., physiological needs and lower level psychological needs) and needs for growth (higher-order psychological needs, such as self-actualization). More recent contributions can be exemplified by White's landmark paper on the effectance motive (1959), or by McClelland's personality approach which focuses on achievement, affiliation and power needs (1985).

### ***Needs within Self-Determination Theory***

Self-Determination Theory (Deci & Ryan, 1985a, 2002) represents a model of human motivation and personality that adopts an organismic conceptualization of human development in which needs are considered instrumental to psychological growth and

behavioural self-regulation. According to Ryan (1995), psychological needs fuel self-integration, self-renewal, and self-expansion. This conceptual framework posits that humans inherit three basic psychological needs: autonomy, competence and relatedness. Chronologically, these needs were progressively integrated within Self-Determination Theory over a span of almost twenty years of research and theoretical work.

Initial studies on intrinsic motivation (Deci, 1971) indicated the existence of a strong inner drive for competence that played an important role in the preference for a given activity. Deci (1975) also interpreted these findings in terms of changes in the locus of causality, and Fisher (1978) and Ryan (1982) thereafter proposed that feelings of competence must be accompanied by a sense of autonomy in order to enhance intrinsic motivation. Finally, Ryan and Grolnick (1986) suggested relatedness as a third need following a series of studies that revealed that intrinsic academic motivation can be significantly diminished if students are taught by cold and uncaring teachers. Numerous subsequent studies demonstrated that if the social environment fails to foster the fulfillment of psychological needs, people will suffer consequences in their mental health, performance, social functioning, and personal well-being (e.g., Filak & Sheldon, 2003; Kasser & Ryan, 1999; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000; Ryan, Plant, & O'Malley, 1995; Ryan, Sheldon, Kasser, & Deci, 1996; Sheldon & Elliot, 1999; Williams, McGregor, Zeldman, Freedman, & Deci, 2004; or see Deci & Ryan, 2002, or Sheldon & Niemic, 2006, for literature reviews on this topic).

The *autonomy need* is defined as 'the organismic desire to self-organize experience and behaviour and to have activity be concordant with one's integrated sense of self' (Deci & Ryan, 2000, p. 231). Autonomy implies self-governance, and does not represent

independence, individualism, detachment or selfishness (Koestner & Losier, 1996).

Autonomy is considered an extension of a universal human tendency toward optimal functioning that is based on the integration of one's behavioural aims. SDT claims that autonomy is one of the fundamental psychological needs because it has been shown that if this need is stymied by external coercion and rewards, it precludes holistic functioning, and lowers self-coherence (Kuhl & Fuhrmann, 1998; Ryan & Deci, 2000a; Ryan & Deci, 2000b).

The *competence need* refers to 'a propensity to have an effect on the environment as well as to attain valued outcomes within it' (Deci & Ryan, 2000, p. 252). It represents an organismic tendency towards the mastery of one's surroundings and of one's own motor, cognitive and social skills. It prompts individuals to look for optimally challenging opportunities to exercise and enhance their capabilities. Effective behaviours provide pleasure and equip the person with skills that are adaptive in the physical and social worlds. Intrinsic motivation for a certain activity will increase if useful information and positive feedback are given to an individual for his/her achievement in that activity (Deci & Ryan, 2002). Interfering with the fulfillment of the competence need is theorized to thwart achievement, task persistence and personal well-being (Hardre & Reeve, 2003; Levesque, Zuehlke, Stanek & Ryan, 2004; Williams; McGregor; Zeldman; Freedman; & Deci, 2004).

Finally, the *relatedness need* 'refers to the desire to feel connected to others - to love and care, and to be loved and cared for' (Deci & Ryan, 2000, p. 231). It is a reflection of our striving for emotional and interpersonal contact, and for community with others (Baumeister & Leary, 1995; Ryan & Powelson, 1991). Interactions that possess the experiential qualities required to foster relatedness contribute to the well-being and self-

cohesion of all involved parties (Ryan & Powelson, 1991). Conversely, if relatedness needs go unmet, alienation and self-fragmentation may ensue. Many studies revealed that secure, warm and caring relationships with significant others facilitate self-determined behaviour regulation and enhances self-determined motivation for activities in which those others are involved. For instance, Grolnick and Ryan (1989) found that children internalized more school-related values if their parents showed high support for their relatedness need.

Levesque, Blais, and Hess (2004), reported a positive association between the satisfaction of the need for relatedness, work motivation and well-being in high school teachers.

The satisfaction of the needs for competence, autonomy and relatedness have been investigated as predictors of subjective well-being in different domains, such as work (Ryan & Deci, 2000b), education (Levesque et al., 2004), social roles (Bettencourt & Sheldon, 2001), or as a function of daily fluctuations in needs fulfillment (Sheldon, Ryan & Reis, 1996). Also, Filak and Sheldon (2003) found that students' evaluation of college courses were associated with the satisfaction of their psychological needs during classes. The same was discovered with psychiatric hospital workers who were ready to internalize and to implement a treatment program inasmuch as their needs were met (Lynch, Plant & Ryan, 2005). Initial findings from comparisons across different cultures indicated that the basic model of dialectical relationship between contextual support for needs and motivational regulation is applicable to groups from Japan (Hayamizu, 1997), Bulgaria (Deci, Ryan, Gagne, Leone, Usunov & Kornazheva, 2001), Russia (Ryan, Chirkov, Little, Sheldon, Timoshina, & Deci, 1999), Brazil (Chirkov, Ryan & Willness, 2005), and Germany (Schmuck, Kasser & Ryan, 2000).

Albeit basic psychological needs are theorized to be universal, the manner in which these needs are expressed and fulfilled is expected to differ from one culture to another. Iyengar and Lepper (1999), for instance, examined differences between Americans and Asians in ways of expressing their autonomy in a decision making situation. Results revealed that highest levels of intrinsic motivation in the American group were obtained when individuals made a decision for themselves. In the Asian group, highest levels of intrinsic motivation occurred when a decision was adopted from a trusted group member. This was explained by the propensity of Americans to feel autonomous when they enact individualistic values, and by the tendency of Asians to feel volitional when they endorse the values of those they respect (Deci & Ryan, 2000).

### *Human Values*

Human values are approached from four main disciplines: philosophy, anthropology, sociology, and psychology. Within philosophy, values are tied to human morality, or to aesthetic judgement. Anthropology treats culture as the core of every human society and analyzes differences in how people organize their lives in accordance with values from their home culture. In sociology, demographic status, individual and family education levels, income and other social variables are examined in relation with how they build, maintain, and change values. As a scientific concept in psychology, values came on the wings of the anti-behaviourism movement that gained strength during the 1940s and 1950s, and its evolution was tied to the development of personality and attitude research.

Gordon W. Allport (1937) developed a theory of human motivation in which values played an important role. Allport described two levels of functional autonomy: perseverative and propiariate. The former refers to behaviours that have lost their initial

organismic meaning (e.g., addictions, habit and repetitious acts), whereas the later comprises 'acquired interests, values, sentiments, intentions, master motives, personal dispositions, self-image, and life style' (Hall & Lindzey, 1978, pp. 451-452). Allport, Vernon and Lindzey (1951) further offered a categorization of values and created an instrument for its estimation. This taxonomy comprises six categories: political, aesthetic, economic, religious, theoretical, and social values. In order to explain how values develop, Allport (1961) suggested that their integration was driven and directed by the formation of one's self- image.

Almost at the same time, Clyde Kluckhohn (1951), one of the most influential anthropologists of his time, published his Values Orientation Theory. He defines a value as 'a conception, explicit or implicit, distinctive of an individual or characteristic of a group, of the desirable that influences the selection from available modes, means and ends of action' (Kluckhohn, 1951, p. 395). Kluckhohn and Strodtback (1961) further proposed that people respond to universal life issues by looking for solutions within alternatives that are present in each society and at all times. Preferred solutions indicate what values are endorsed by a given society.

According to these authors, there are five basic issues that every society needs to resolve: time (focus on past, present or future?), relationships between humanity and the natural environment (mastery, submission, or harmony?), relationships among individuals (hierarchical, equal, or individual merits?), prime motivation for behaviour (to express one's self, to grow, or to achieve?), and the nature of human nature (is it good, bad, or a mixture of both?). The three possible answers to each of these issues (given above in brackets) represent value orientations. Kluckhohn and Strodtback (1961) developed an

interview tool designed to evaluate value orientations. Participants from several cultural groups within the USA were consulted and value profiles were generated for each group. The results of this study had a very significant impact on subsequent research pertaining to universal human values (e.g., the works of Rokeach and Schwartz in social psychology, and Hofstede in industrial psychology).

In a seminal text, Rokeach (1973) defined values as ‘an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence’. This author classified values as instrumental or terminal. Instrumental values were theorized to delineate specific modes of behaviour (e.g., honest, ambitious, broadminded, capable, etc.), and terminal values were seen as oriented toward desirable future end-states (e.g., a comfortable life, an exciting life, mature love, happiness, etc.). In agreement with the extant documentation on this topic, Rokeach’s (1973) conceived values as criteria for higher level guiding principles. However, he further extended this notion by proposing that values as criteria are recalled during self-evaluation, and are utilized while evaluating others and social events as well. This cognitive development increased the scientific credibility and usefulness of values, which augmented their suitability for various research undertakings.

Rokeach (1973) created a qualitative questionnaire (Rokeach Value Survey; RVS) that required the ranking of an extensive list of attributes (36) according to one’s preference for both instrumental and terminal values. This instrument was extensively used in social studies on equality and civil rights (Rokeach, 1973), in personality research (e.g., Furnham, 1984), in education research on teaching practices (Greenstein, 1976), in the analysis of smoking and non-smoking behaviour (Grube, Rokeach, Getzlaf, 1990), and in many other

domains. Rokeach is thus often considered as one of the key founders of value research in psychology. However, his work on the dimensionality of values has been criticized for its lack of theoretical underpinnings (i.e., factorization of the RVS to obtain groupings of values that are as different as possible conceptually, while remaining statistically independent; e.g., Debats & Bartelds, in press). In an attempt to remedy this problem, Schwartz (1992) took on the task of developing a conceptually sound value theory that could be linked to a global motivational system.

### ***Circumplex Model of Universal Human Values***

Schwartz (1992) was concerned about how social experiences create an individual's value priorities, about how prevalent values affect choice and behaviour, and he was interested in cross-cultural differences in prevailing values. To address these questions, he dealt first with issues such as value content, comprehensiveness of a value set, value structure (dimensions that underline conflicts and compatibility among values), and equivalence of meaning across social groups. Schwartz (1992, p. 2) defines values 'as desirable, transsituational goals, varying in importance, that serve as guiding principles in people's lives'. He delineated ten types of human values, each of them estimated by several specific values (Schwartz & Bilsky, 1987; Schwartz, 1992). These values are as follows: *benevolence* (helpful, responsible, forgiving, honest, loyal, mature love, true friendship), *universalism* (equality, unity with nature, wisdom, a world of beauty, social justice, broad-minded, protecting the environment, a world at peace), *self-direction* (freedom, creativity, independence, choosing one's own goals, and curiosity), *stimulation* (an exciting life, a varied life, daring), *hedonism* (pleasure, enjoying life), *achievement* (ambitious, influential, capable, successful, intelligent, self-respect), *power* (social power, wealth, authority,

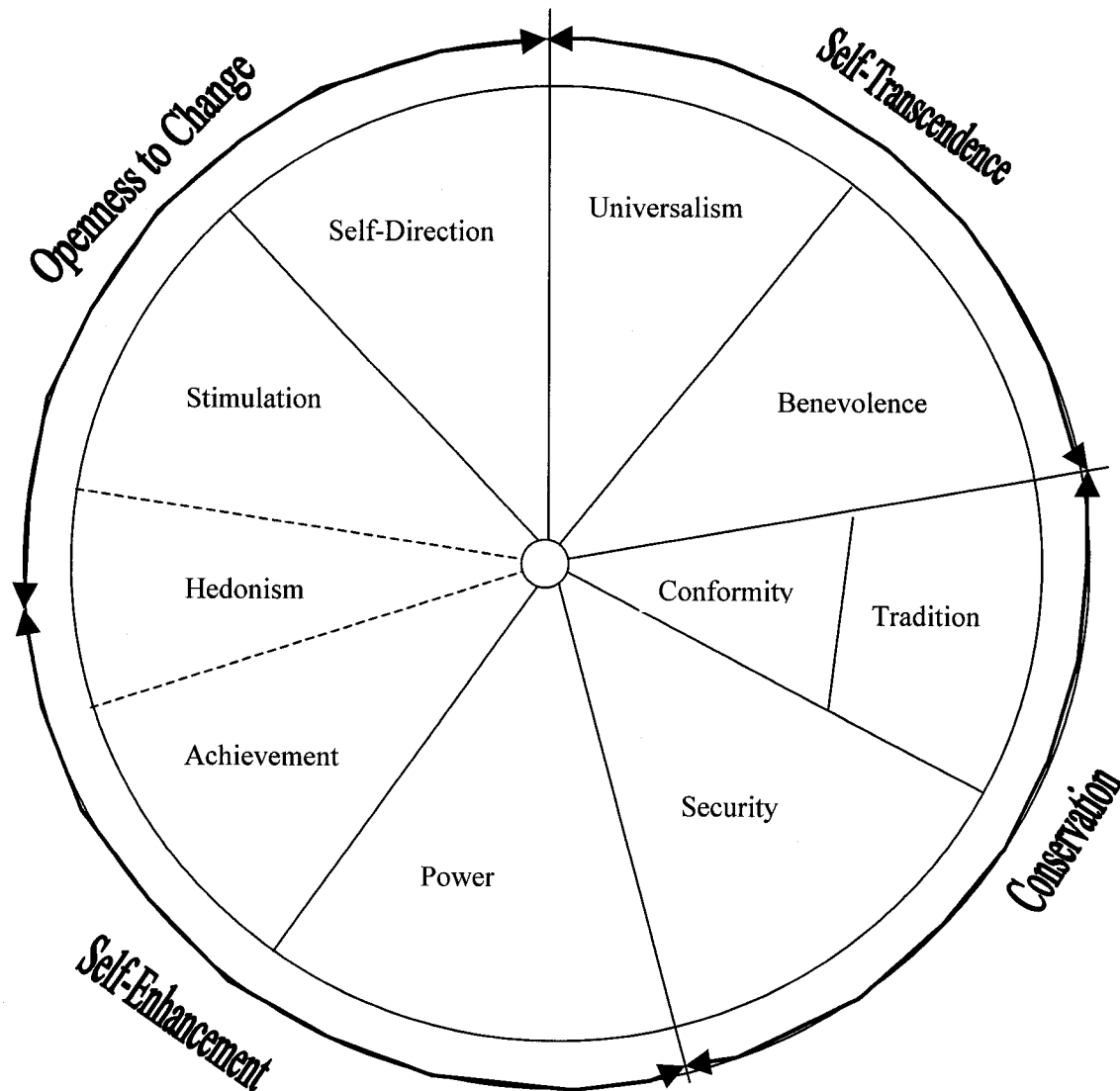
preserving my public image, social recognition), *security* (national security, reciprocation of favours, family security, sense of belonging, social order, healthy, clean), *conformity* (obedient, self-discipline, politeness, honoring of parents and elders), and *tradition* (respect for tradition, devout, accepting my portion in life, humble, moderate).

Schwartz (1992, 1994) also proposed that values expressed motivational goals.

Benevolence is theorized to be motivated by the desire to preserve and enhance the welfare of others; universalism's goal is to foster the objective appreciation, respect and protection of all people and of the natural world; self-direction is motivated by the need for autonomous thought and action; stimulation is prompted by the need for optimal activation and variety; hedonism's motivational goal is obtaining pleasure and sensuous gratification; achievement is driven by the desire to succeed according to socially defined standards; power's motivational goal is to gain social control over people and resources, and to increase social status and prestige; security's goal is the preservation of personal safety; conformity aims to curtail behaviours that can upset or hurt others by transgressing social norms; finally, tradition intends to foster adhesion and respect for cultural or religious standards.

Schwartz was intrigued by the conceptual structure of individual values and he surmized that some values shared compatible motivational orientations, while others conflicted with one another. For example, universalism and benevolence complement each other harmoniously, whereas achievement and benevolence are conflicting values that are not likely to determine a person's behaviour simultaneously. This analysis led Schwartz to define a circumplex model of values that comprised two fundamental bipolar dimensions:

openness to change vs. conservation, and self-transcendence vs. self-enhancement (see Figure 1).



*Figure 1. Schwartz's Model of Universal Human Values*

These poles define four quadrants wherein values are classified. Values adjacent to each other on this circular structure are said to share similar characteristics, whereas values that are in opposition (across the center) possess conflicting features. Moreover, values are theorized to cluster within each quadrant to form four higher level value dimensions.

Openness to change encompasses self-direction and stimulation, while conservation, its opposite, combines security, conformity, and tradition. Self-transcendence is composed of benevolence and universalism, while self-enhancement, its contrary, comprises power and achievement. The only exception within this model is the individual value of hedonism which shares attributes with two higher-level dimensions: openness to change and self-enhancement.

Schwartz's model of universal values received significant empirical support from a wide array of cross-cultural studies. Specifically, the proposed circumplex structure of values was successfully identified, using a multidimensional scaling technique named Smallest Space Analysis (Guttman, 1968) in 97 independent samples that came from 44 countries (Schwartz, 1992, 1994; Schwartz & Sagiv, 1995). Confirmatory factor analyses were also performed using 23 samples from 27 countries and fit indices indicated a satisfactory adjustment between Schwartz's theoretical model and the data from each subsample (Schwartz & Boehnke, 2004). Schwartz's (1996) utilized his value theory to explain different forms of social behaviour, such as interpersonal co-operation, voting behaviour, or readiness for outgroup social contacts. Moreover, Sagiv and Schwartz (2000) analyzed associations between universal values and subjective well-being, and discovered that values such as achievement, stimulation, and self-direction correlated positively with general mental health and positive affect.

Cross-cultural differences in prevailing values were also scrutinized by Schwartz and his colleagues. Schwartz and Bardi (2001) compared the value hierarchies of schoolteachers and college students across more than 50 nations. Results revealed a universal pattern of value priorities in which benevolence, self-direction, and universalism

were estimated as most important, whereas power, tradition, and stimulation were considered of least importance. In such a pan-cultural hierarchy, values such as security, conformity, achievement, and hedonism were rated somewhere in between the two aforementioned groupings of extreme values. In addition, Struch, Schwartz, and Kloot (2002) examined possible cross-cultural differences in the meaning (i.e., content) of individual and higher-order value dimensions. No discrepancies were identified. Bardi and Schwartz (2003) also made a significant effort to address the controversial association between values and behaviour in a series of three studies. Results revealed that correlations between values and behaviours were stronger for certain values (e.g., tradition and stimulation) than for others (e.g., security, conformity, benevolence and achievement).

### ***Needs – Values Relationship***

Many authors proposed links between psychological needs and values, and have argued that values must, at least partially, originate from basic needs satisfaction (e.g., Kasser, 2002; Maslow, 1970; Schwartz, 2004). For instance, Schwartz (1992, p. 4) stated that values represent an answer to ‘universal requirements of human existence to which all individuals and societies must be responsive: needs of individuals as biological organisms, requisites of coordinated social interaction, and survival and welfare needs of groups’. Ryan and Deci (2000a) theorized that values represent avenues for needs satisfaction. Ryan (1995) proposed that values do not simply reflect psychological needs, but rather stem from the interaction of cultural inputs and basic needs. He further raised the question of the degree of congruency between cultural contents and human nature, indicating that incongruence between the two can negatively affect personal integration and well-being during development.

Needs and values represent constructs with different origins and different times of appearance during development that predict different sorts of behaviour. Needs appear in their original form much earlier in one's life (childhood), while values demand higher abstract reasoning abilities at a more mature age. While needs are innate to the organism and represent 'nutriments or conditions that are essential to an entity's growth' (Ryan, 1995, p. 410), values are rather 'cognitive representations and transformations of needs' (Rokeach, 1973, p. 20) or 'cognitive representations of motivations in the form of goals and objectives' (Roccas, Sagiv, Schwartz & Knafo, 2002, p. 793). Values can also be considered as the accumulated experience of socially acceptable behavioural schemes that are pursued to reach an object of interest (Majstorovic, 1996). The only precondition for this scenario is that the person had the time in the past to acquire and integrate values from it's social environment, which also includes the opportunity to build a value system through cognitive development and organization of learning experiences. Therefore, values are considered as cognitive upgrades of needs, as guidelines that were created through the situational elaboration of organismic developmental necessities.

The theoretical association between basic psychological needs and values largely remains to be systematically investigated. A single study explicitly addressed this question by analyzing the link between a unique value orientation (materialism) and the gratification level of basic psychological needs (Kasser, Ryan, Zax, and Sameroff, 1995). Results revealed that a materialistic orientation was associated with low levels of psychological needs satisfaction.

Previous studies largely examined associations between needs and values, on one hand, and various aspects of psychological well-being, on the other. Their goal was to

analyze the role of needs and values as predictors of life satisfaction, rather than to deal with the structure of relationships between needs and values. Still, findings from these studies are relevant for the present research because they suggest that the dynamic interaction between needs and values is a significant determinant of the quality of one's life. Specifically, certain values were assumed to imply a greater satisfaction of basic needs, and their association with well-being were examined subsequently. For instance, extrinsic life goals (such as money, fame, and image) were negatively related to well-being indicators (such as vitality and self-actualization), and positively associated with measures of depression and anxiety (Kasser & Ryan, 1993, 1996). Similarly, longitudinal studies revealed that striving for intrinsic goals (e.g., affiliation, personal growth, community involvement), as well as pursuing goals that are concordant with one's main interests and values, was beneficial for psychological well-being. Conversely, extrinsic and self-discrepant goals produced little or no benefits (Oishi, Diener, Suh, & Lucas, 1999; Sheldon & Elliot, 1999; Sheldon & Kasser, 1998). Sheldon et al. (1996) successfully showed that changes in the satisfaction of autonomy and competence needs predicted within-individual daily changes in well-being indicators. Lastly, the relationship between needs satisfaction and subjective well-being was documented cross-culturally by Chirkov, Ryan, and Willness (2005) who found that measures of subjective well-being did increase when internalized cultural practices and values were more autonomously regulated (i.e., linked with the satisfaction of main psychological needs).

To summarize, there is a wealth of theoretical information pertaining to the alleged importance of need satisfaction on value orientation, as well as numerous empirical findings that document the association between value orientation and subjective well-being.

What is missing, however, is the fundamental structural analysis of relationships between basic psychological needs and universal human values. Exploring this issue is one of the key goals of the present project. More specifically, its aim is to determine how the satisfaction of basic psychological needs is tied to the structure of universal values when this association is mediated by different forms of self orientation.

### *The Self Concept*

The self has been a dominant topic in psychological science for more than a century now. The main questions that researchers have been trying to answer are: What is the central instance that integrates and co-ordinates all the particulars of our psychological profile? How is this function developed? What improves its efficiency and what hinders its central managing role? Before it became a scientific topic, the self was intuitively regarded by philosophers and theologians as one of the most complex issues of human development and spirituality. For instance, several hundred years BC, Eastern writers and Greek Philosophers 'dealt extensively with questions about self, reflexive consciousness, and identity' (Leary & Tangney, 2003). However, more than two thousand years elapsed before the first detailed scientific discussion of the self emerged, when William James offered his conceptualization and classification of self, and when Sigmund Freud conceptualized his views of ego dynamics.

Today, there is widespread agreement that the self exists as a unique psychic state, even though researchers are still struggling to provide firm evidence of its existence as a detectable structure. Also, some researchers disagree about the existence of a single hierarchical system, and argue for a flat organisation of relatively independent selves activated under different circumstances (e.g., Fiske & Taylor, 1991). In general, it is fair to

say that three traditions in psychology took a stand on the self as a phenomenon: psychoanalysis, social cognitive psychology, and organismic-humanistic psychology.

Freud was first to examine the nature of dynamics at work in the process of ego development (*On Narcissism: An Introduction*, 1914). His initial idea was that the ideal self (conscience) arises from a regression toward narcissism that occurs to protect the infant's state of omnipotence from the frustrations and limitations of the external world. Freud further developed this notion by introducing the mastery principle: an urge to master one's inner and outer reality (*Beyond the Pleasure Principle*, 1920). Based on the mastery principle, he developed the well-known structural theory of the id, ego and super-ego (*The Ego and Id*, 1923). This model states that the ego stands between drives, moral demands, and reality, and its function is to harmonize the three. Finally, Freud formulated a third principle that described ego development as the transposition of external schemas into internal functioning. According to this principle, children develop through identification with important figures, thereby separating the part of the self that controls impulses from its other constituents.

One departure from psychoanalytic orthodoxy that is especially important for the current study is the Adlerian's notion that the ego possesses an authentic force, defined as a 'great upward drive' (Hall & Lindzey, 1978). This authentic force, not energized from the id, spontaneously strives to reach a state of perfect completion that represents a superior form of the self. This is very similar to Goldstein's idea of self-actualization, a key term in the humanistic approach to the development of the self concept.

Object relations and Self psychology departed further from the Freudian drive model by explaining ego development in terms of interpersonal relationships that are

established with important others. The child is said to possess an urgent need to communicate with the external world in order to satisfy his/her elementary needs. There is no self at the infant stage, but non-traumatic frustrations due to failures in parental care prompt the child to develop a core self in which the inner structures act to protect the initial narcissistic equilibrium. The child's core self emerges from the joining of the narcissistic omnipotent 'grandiose self' and the internalized parental figure as an 'idealized parental image' (Kohut, 1971). The internalization of the parent-object also leads to the creation of a parent-self-object that modifies the grandiosity of the infant's self into a more realistic and healthy personality. According to Kohut, this modified grandiose self will remain a component of personality, supplying it with 'energy, ambition, and self-esteem'.

Social psychologists' views of the self developed largely outside psychoanalytical influence. Social cognitive theorists attempted to explain human social behaviour by abandoning drive theory (instincts) and by turning to human cognition. For instance, consistency theories (Festinger, 1957; Heider, 1958) declared that humans are congruency seekers who organise cognitions about others and themselves according to their need for coherence. People use their own personal characteristics, social roles, previous experiences, and future goals to build self-schemas, that is, mental representations of their (consistent) functioning in different circumstances. Fiske and Taylor (1991) suggested that these schemas comprise 'cognitive-affective structures that represent one's experience in a given domain'. They contain information about personal functioning in that domain and influence the individual's current perception, memory, and inference. Furthermore, individuals can have positive/negative self-schemas on certain characteristics (schematics), while lacking them on others (aschematics). Markus and Nurius (1986) proposed that people also develop

hypothetical (future) self-conceptions. These authors defined possible selves as ‘future-oriented components of the self-system’ that ‘include ideas of what people may become, what they would like to become, and what they are afraid of becoming’. In a similar vein, Higgins (1989) classified people’s cognitions about themselves into an ‘actual self’, an ‘ideal self’, and an ‘ought self’, emphasizing that the discrepancy between these states can become a source of motivation to harmonize them. He proposed that unresolved discrepancies between actual and ideal selves would generate emotions related to sadness or dejection, whereas perceived gaps between actual and ought selves were liable to produce anxious feelings.

A personal system that is comprised of several relatively independent self structures has also been suggested in multivariate factorial studies. According to Rummel (1975), Cattell and Gorsuch identified three mutually independent latent structures and labelled them as structural (acting) self, super-ego, and cognitive self-concept (self-sentiment). The acting ego is responsible for the regulation of behaviour in terms of the individual’s needs and existing demands from reality. The super-ego is a moral ruler and regulates behaviour on the basis of adopted ethical imperatives. Self-concept, as a more static state, provides a sense of being, as well as a sense of uniqueness and of collective belonging.

From the organismic-humanistic perspective, the self is conceptualized as a major dynamic force that unifies the personality in a single, coherent, and highly organized system. This approach rests on works from many authors, such as Adler, Goldstein, Maslow, Rogers, Deci, and Ryan. The main idea is that the self acts consistently from inherited and early developed structures, which in turn set up goals toward their own actualization. The core self, which incorporates some basic active mechanisms, also

includes more complex dispositions with self-developing programs and self-actualizing energy. By comparison with social-cognitive approaches that promote self as a concept and as an object perceived by oneself or by others, organismic models view selfhood as an active system whose function is to process experience and regulate behaviour. That is, self is construed as an agent, not as an object (Ryan, Kuhl & Deci, 1997).

### ***Self-Functioning According to Self-Determination Theory***

The present study relies heavily on a conceptualization of self that was devised by Holly S. Hodgins and Raymond Knee (2002) and that is derived from Self-Determination Theory (Deci & Ryan, 1985a, 2002). These authors posit that humans are proactive beings striving for psychological growth and integration. This postulate can also be found in psychodynamic personality theory (e.g., Adler's 'Einheit' of personality), humanistic theories (Angyal, Maslow, and Rogers), as well as Piagetian and Wernerian concepts of endogenous development and integration of cognitive structures.

In accordance with Self-Determination Theory, Hodgins and Knee (2002) proposed that human beings possess an inherited organismic core self, which is comprised of a main motivation apparatus and of cognitive developmental dispositions. The developmental process is initiated by three basic psychological needs: relatedness, competence, and autonomy. However, the social environment can foster or hinder the core self's natural inclination to fully actualize its potential. The actual self develops and operates in circumstances that either facilitate or prevent the actualization of the core self by fostering or precluding the fulfilment of any or all of the three main psychological needs. According to Hodgins and Knee (2002), support from the social environment affects the nature of ego-functioning by making it more or less open to life experiences, and more or less self-

determined in the regulation of behaviour. Supportive social contexts provide conditions for the self to develop an experiential openness and to exercise behaviour regulation autonomously. Stifling social conditions have the opposite effect. The quality of ego functioning then becomes dependent on how successful the system is when integrating external and internal experiences into its existing structures, and how adaptive these structures are when faced with incoming novelties.

Differential scenarios during development are theorized to yield three broad types of ego-systems that vary according to the level of integration of actual cognitive and affective structures with the self's overarching needs and values. These three ego-systems include the integrated self, the ego-invested self, and the impersonal self (Hodgins & Knee, 2002).

The *integrated self* describes the harmonious self-system of individuals who have received the social support required to fully satisfy all three basic psychological needs. According to Hodgins and Knee (2002), such individuals learn to value who they really are, and place importance on their authentic inner impulses. They develop unconditional self-worth. They are intrinsically motivated towards most of their actions. Compared to other types of ego functioning, their perception is more objective and more accurate. These individuals enjoy social contacts and they are spontaneous in their reactions. This self system is open to change and novelty, and willing to explore and experience inner and outer reality.

The *ego-invested self*, on the other hand, develops when a person experiences a lack of autonomy support during childhood (Hodgins & Knee, 2002). When this occurs, internalized social pressures and constraints are likely to lead to the development of a sense

of self-worth based on a constructed (false) self-image that is contingent on social approval. As a result, such individuals are predominantly energized by extrinsic goals such as money, power, and popularity. They behave rigidly, perceive reality selectively, are eager to earn approval for their actions, and need recognition for their achievements. Striving for self-promotion in such a way is a fruitless task, since it involves the actualization of imposed, rather than authentic, qualities. This kind of success is therefore not conducive to a fulfilling sense of self-worth.

Finally, the *impersonal self* represents the lowest level of self-integration. This type of self is the product of a development in which the three basic psychological needs have gone critically unmet (Hodgins & Knee, 2002). Here, vitality is low, which indicates a general absence of motivation. Such individuals experience a lack of intention to act and, if they do act, their intention is to finish that action as quickly as possible. Individuals with an impersonal self may be easily aroused, overwhelmed by information, and flooded by negative thoughts and feelings. Consequently, such people tend to withdraw from novel experiences, adhering to routine and repetitive activities, and engaging in social auto-isolation, in order to placate an unstable subsistence.

Several studies conducted during the 1990's indirectly revealed specific manifestations of these three ego-systems. For instance, Kasser and Ryan (1993, 1996) found that the importance of intrinsic aspirations correlated positively with self-actualization and vitality, and negatively with depression, narcissism and physical symptoms. Extrinsic aspirations displayed opposite patterns of association with measures of individual well-being. Knee and Zuckerman (1996, 1998) also examined causality orientations as moderators of self-serving biases (i.e., taking more responsibility for

success then for failure) and they found no evidence of this type of bias for participants that displayed a high autonomy orientation, which is assumed to be a characteristic of the integrated self. Conversely, controlled functioning (assumed to characterize the ego-invested and impersonal selves) was positively correlated with the use of self-serving biases, defensive coping mechanisms, and self-handicapping strategies. Hodgins, Koestner, and Duncan (1996) also discovered that controlled functioning led to more defensiveness in social behaviour. Thus, individuals with a non-autonomous regulation tend to experience less enjoyment, and tend to be less honest and less disclosing in their interactions compared to those with an autonomous self-regulation. Furthermore, Hodgins, Liebeskind and Schwartz (1996) found that stronger autonomy regulation among adults was associated with taking responsibility for wrongdoing, while according to Hodgins and Knee (2002), Hixon, Hodgins and Otto found the same trend among 5<sup>th</sup> and 6<sup>th</sup> graders. Hixon et al. also indicated that both controlling and impersonal regulation were related to greater defensiveness (i.e., fewer apologies for wrongdoing, and more lies in order to avoid consequences).

## *The Present Project*

### *Goals*

The main goal of this project is to examine the possible mediating role of self orientation in the relationship between psychological needs and values. To this end, psychological needs (autonomy, competence, and relatedness) are conceptualized using Self-Determination Theory (Deci & Ryan, 1985a, 2002), Schwartz (1992) circumplex model constitutes the theoretical framework for universal human values, and self orientation (integrated, ego invested, and impersonal) is delineated conceptually by the means of the self taxonomy proposed by Hodgins & Knee (2002). The present project comprises three studies. The goal of Study 1 is to develop and validate a measure designed to evaluate the three types of selves (i.e., the integrated, ego-invested, and impersonal self). The goal of Study 2 is to test the hypothesized networks of associations between the variables under study (i.e., need satisfaction, self orientations, and values). Finally, Study 3 aims to provide a cultural cross-validation of the results from Study 2.

### *Hypotheses*

1. Study 1 constitutes a preparatory step within the present project. As its objective is to develop and validate a useful measure for the tripartite taxonomy of self proposed by Hodgins & Knee (2002), it is hypothesized in a straightforward manner that this new instrument, the Ego Functioning Questionnaire (EFQ), will present satisfactory psychometric properties. Specifically, the EFQ is expected to display a clean structure wherein three factors clearly portray the integrated, ego-invested and impersonal selves. Moreover, the internal properties (such as reliability, homogeneity and representativeness) of the EFQ subscales, as well as its construct (convergent) validity, are expected to be satisfactory.

2. Study 2 is designed to test the structure of associations between basic psychological needs satisfaction, self orientation, and universal human values. It is hypothesized that self orientation will act as a mediator in the relationship between needs satisfaction and values. The detailed hypotheses outlined below follow the process analysis procedure devised to formally assess mediation that is advocated by Judd & Kenny (1981).

- (a) Need satisfaction (i.e., autonomy, competence, and relatedness) will be associated positively with intrinsic values (i.e., self-transcendence and openness to change). Need satisfaction will also be associated positively with extrinsic values (conservation, self-enhancement, and hedonism<sup>1</sup>). However, the magnitude of this association will be much lower.
- (b) When self orientation is inserted in addition to need satisfaction as a predictor of values, the associations between self orientation and values will be significant and the association between needs and values will disappear.
  - (b<sub>1</sub>) The integrated self will be associated positively with intrinsic values, and unrelated to extrinsic values.
  - (b<sub>2</sub>) The ego-invested self will be associated positively with extrinsic values, and unrelated with intrinsic values.
  - (b<sub>3</sub>) The impersonal self will be unrelated to intrinsic and extrinsic values.
- (c) Need satisfaction will be associated with self orientation in the following way.
  - (c<sub>1</sub>) Need satisfaction will be positively associated with the integrated self orientation.

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<sup>1</sup> At first glance, self-enhancement and hedonism may appear to be intrinsic values. However, please recall that within Schwartz's model (1992, 1994), they refer to social success and selfish gratification, respectively.

(c<sub>2</sub>) Need satisfaction will display a mild negative association with the ego-invested self orientation.

(c<sub>3</sub>) Need satisfaction will be negatively and substantially associated with the impersonal self orientation.

3. The third and last study aims to test the entire array of hypotheses from Study 2 in a different cultural context (i.e., using a sample from Yugoslavia). Deci and Ryan's basic psychological needs perspective (2000), as well as Hodgins's and Knee's conceptualization of self orientation (2002), are theorized to describe organismic processes that are inherent to human development. Schwartz's circumplex model of values is also purported to be universal (1992, 1994). The processes at work in the Canadian and Yugoslav samples are therefore hypothesized to be syntonic.

(a) Patterns of association between need satisfaction, self orientation and values are expected to be equivalent across cultural groups. That is, hypotheses 2a to 2c are expected to hold in the Yugoslav sample, and will be tested by means of multigroup structural equation modeling.

However, while the structure of relationships between the variables under study is theorized to be universal, cross-cultural psychology would incite us to expect dissimilarities in prevailing values across cultures.

(b) It is hypothesized that the magnitude of endorsement of individual values will vary between the Canadian and the Yugoslav groups. Specific expected divergences are based on socio-historical considerations that will be detailed at the onset of the section pertaining to Study 3, along with point by point hypotheses.

## CHAPTER TWO

### STUDY 1

#### *Construction and Validation of the Ego Functioning Questionnaire*

The objective of this study was to develop a measure that would provide an extensive and valid representation of the three ego types specified by Hodgins and Knee (2002). This instrument, termed the Ego Functioning Questionnaire (EFQ), thus comprises three subscales designed to measure the integrated, ego-invested, and impersonal selves. It was hypothesized that it would be possible to retain 6 items per subscale, that the EFQ would display a clear factorial structure, and that its subscales would demonstrate acceptable levels of reliability (Study 1 A), as well as satisfactory level of construct (convergent) validity (Study 1 B).

### STUDY 1 A

#### *Method*

##### *Participants and Procedure*

The data was gathered using a sample of 202 undergraduate students that were recruited at the University of Ottawa. The sample comprised 160 females and 41 males aged 17 to 50 years ( $M = 20.5$  years;  $SD = 4.35$ ). Students were told that the EFQ assessed various behavioural, emotional, cognitive, and social aspects of their self-perceptions, and that they should indicate on a 7 – point scale how accurately each item reflected their self-views. It was emphasized that their participation in the study was voluntary, anonymous, and strictly confidential. The questionnaire was completed at home and picked up one week later, at the beginning of the participants' next class.

## *Measures*

The Ego Functioning Questionnaire (EFQ) is a self-report measure developed to provide information on the behavioural, affective, cognitive, and social dimensions that are characteristic of the three types of self identified by Hodgins and Knee (2002): the integrated self, the ego-invested self, and the impersonal self. The pilot version of the EFQ comprised 130 statements presented in random order. Examples of items are presented in Table 1. The research questionnaire is presented in Appendix A.

Table 1

### *Examples of Items for Each Subscale of the Ego Functioning Questionnaire (Study 1A)*

Subscale	Example
Integrated self	I enjoy learning all sorts of new things.
Ego-Invested Self	When I work hard, it is important that others notice.
Impersonal Self	I feel like I am prone to negative feelings.

## *Analyses*

In order to examine the construct validity of the EFQ, a factor analysis was performed using Maximum Likelihood extraction and Direct Oblimin rotation. To determine the number of components, Velicer's Minimum Average Partial Test ('MAP'; e.g., O'Connor, 2000) was utilized. The psychometric properties of the EFQ subscales were assessed using classical and image measurement procedures (SPSS macro RTT12G; Knežević & Momirović, 2003). From a broad list of psychometric indices provided by this

program, the following were selected and evaluated in this report: ten reliability coefficients, two measures of homogeneity, and one coefficient of representativeness.

Using the classical model, six reliability coefficients were calculated: three coefficients for which the test score is given as a sum of items ( $\alpha$ ,  $\lambda_1$  and  $\lambda_6$ ), and three coefficients for which the test score is obtained as a projection on the first main component of standardized items ( $\beta_1$ ,  $\beta$ , and  $\beta_6$ ). Cronbach's  $\alpha$  coefficient of internal consistency was selected because it is used most often. Guttman's  $\lambda_1$  provides the lowest possible reliability of the test score, while Guttman's  $\lambda_6$  was chosen to represent the most reasonable estimation of the summative test reliability because its error component is assessed using the sum of unique variances for all items in the set. Lord-Kaiser-Caffrey  $\beta$ , Momirović-Dobrić-Gredelj lowest bound  $\beta_1$ , and Momirović higher bound of reliability  $\beta_6$ , were also called upon to estimate the reliability of the component test scores.

Under Guttman's image model (1953), two reliability indicators of the image component score and two coefficients for the universal component score were compared. In the first case, Momirović – Knežević  $\gamma$  and Momirović lower bound  $\tau$  were calculated, while Guttman-Nicewander's  $\rho$  and Momirović – Dobrić lowest bound of  $\rho_1$  were used to compute the coefficients for the universal component score.

In addition to the aforementioned reliability measures, two indices portraying the homogeneity of subscales were evaluated: the average value of the item intercorrelations ( $h_1$ ), and the number of main components with positive reliability coefficients ( $h_4$ ; Momirovic & Wolf, 1997) that is determined by Lord-Kaiser-Caffrey's formula. Homogeneity coefficient  $h_4$  equals 1 if one component is sufficient to explain the valid variance and less than 1 if more components are needed.

Finally, the representativeness indicator was calculated as the ratio of total anti-image (error) covariance to total covariance among items. This coefficient is known as Kaiser-Meyer-Olkin normalized measure of sampling adequacy. Formulas for these coefficients are given in Appendix B.

## ***Results***

### ***Preliminary Analyses***

Following the criterion for univariate outliers ( $z > 3.29$ ; Tabachnick & Fidell, 2007), 41 extreme values from 17 variables were removed from the analysis. Since none of the 130 variables had more than 1.5% missing values, and because all items correlated substantially, all missing values in the variable set were replaced using the regression technique ('linear trend at point') offered by the SPSS software. No multivariate outliers were identified using Mahalanobis distance as a criterion. Also, there was no indication of multicollinearity among observed variables, nor was there evidence of departure from the assumptions of normality, linearity and homoscedasticity.

### ***Exploratory Factor Analysis***

An explanatory factor analysis was first performed using the 130 items of the pilot version of the EFQ. With the goal of creating three subscales comprised of the 6 best items for each of the three types of self, a data reduction approach was utilised. Items were considered only if their loading on their home factor was .32 or higher (Tabachnick & Fidell, 2007), and if they had no substantial crossloadings. The MAP program detected that three components were indeed sufficient to explain shared variance within the matrix of item intercorrelations. Once a clean solution was obtained, the items displaying the six highest loadings on each subscale were retained. In repeated analysis, it was found that the

three dimensions explained 41.4% of the common variance shared among EFQ items. The first factor explained 24.1% of the total variance and was comprised of items representing the impersonal self. The second dimension was responsible for 15.7% of the total variance and consisted of ego-invested self items. Finally, the third factor, which contained items assigned to the theoretical concept of integrated self, accounted for an additional 11.2% of the total variance. The final outcome of this analysis is presented in Table 2.

Table 2

*Factor Loadings and Item Communalities of the EFQ (Study 1A)*

Item	Impersonal Self	Ego-Invested Self	Integrated Self	$h^2$
Overwhelmed by negative feelings	.85	.00	.00	.74
Prone to negative feelings	.85	.00	.00	.72
Feel empty	.83	.00	.00	.68
Feel disconnected from others	.73	.00	.12	.50
Lot of anger toward others	.66	.00	-.11	.49
Always at risk of failure	.60	.00	.00	.40
Others see success	-.12	.67	.00	.46
Others should notice my hard work	.00	.66	.00	.46
Enjoys when contribution is highlighted	.00	.64	.11	.41
Praise and recognition always important	.12	.60	.00	.37
Change profession for more money	.00	.48	.00	.27
Partner must be attractive and wealthy	.00	.47	-.16	.24
Learns peoples' views	.00	.00	.57	.36
Bad situations are growth	.00	-.13	.56	.35
Likes to visit art galleries	.00	-.16	.51	.28
Enjoys challenges	-.21	.00	.47	.32
Likes to read anything new	.00	.00	.45	.19
Engaged in favorite activities	.00	.23	.41	.23

The correlations among factor scores suggested that self-orientations were mutually independent with the exception of a modest negative correlation between the integrated and impersonal selves (see Table 3).

Table 3

*Pearson Correlations between the Factors of the EFQ (Study 1A)*

	Integrated Self	Ego-Invested Self	Impersonal Self
Integrated Self			
Ego-Invested Self	-.00		
Impersonal Self	-.26	.00	

Generally speaking, these results indicate the EFQ's structure is composed of three factors that represent the three distinct types of self orientation propose by Hodgins and Knee (2002). The next section provides a multifaceted evaluation of the efficiency and accuracy of the EFQ's subscales.

***Reliability of Subscales in Classic and Image Metrics***

Reliability indices are summarised in Table 4. The first six coefficients in this table (from Alpha to Beta6) represent the test's reliability within the classical measurement model in which the test score is calculated as a simple sum of raw item scores, or as a factor score on the first main component of previously standardized items. The last four reliability coefficients in Table 4 are derived from the image measurement model. Please note that this model is different from the classical model in regard to the type of transformations undertaken for the raw item scores. Raw scores are either transformed into their partial images (Guttman), or transformed into universal metric (Harris).

Table 4

*Reliability, Homogeneity and Representativeness of Subscales in Classical and Image Metrics (Study 1A)*

Coefficients	Scales		
	<i>EFQ - In</i>	<i>EFQ - Ei</i>	<i>EFQ - Im</i>
Reliability			
<i>Classical Summative Score</i>			
Alpha ( $\alpha$ )	.67	.76	.89
Lambda1 ( $\lambda_1$ )	.56	.63	.74
Lambda6 ( $\lambda_6$ )	.64	.73	.88
<i>Classical Component Score</i>			
Beta1 ( $\beta_1$ )	.31	.40	.55
Beta ( $\beta$ )	.67	.76	.89
Beta6 ( $\beta_6$ )	.64	.74	.88
<i>Guttman's Component Score</i>			
Tau ( $\tau$ )	.42	.55	.79
Gamma ( $\gamma$ )	.65	.74	.89
<i>Harris's Component Score</i>			
Rho1 ( $\rho_1$ )	.42	.55	.79
Rho ( $\rho$ )	.65	.74	.89
Homogeneity			
$h_1$ (average inter-item correlation)	.25	.34	.57
$h_4$ (based on no. of components with positive $\lambda$ )	1.00	1.00	1.00
Representativeness			
MSA (KMO)	.79	.88	.98

*Note.* EFQ-In: Integrated Self subscale; EFQ-Ei: Ego-Invested Self subscale; EFQ-Im: Impersonal Self subscale.

Altogether, the results in Table 4 offer support for the reliability of the EFQ's subscales. Albeit results are somewhat lower for the EFQ-In and EFQ-Ei than for the EFQ-Im subscale, classic and image model reliability indices generally fall within acceptable ranges (lower values are normal for lower bound indices).

In regard to the conventional  $\alpha$  coefficient, participation of error variance in total variance declined across subscales (from EFQ-In to EFQ-Im). Also, within the classical model, reliability could not be lower than 'Lambda1' ( $\lambda_1$ ) or higher than 'Lambda6' ( $\lambda_6$ ) for each of the three subscales. Simply,  $\lambda_1$  is calculated by taking the number of items as a measure of total error variance, which is the maximized error term in the system. In the case of  $\lambda_6$ , the error component is calculated as an exact sum of unique variances of raw items, which is the best possible estimation of the test's error variance. In the case of classical component scores, the lowest bound  $\beta_1$  and the highest bound  $\beta_6$  provide a range of reliability estimates, with the Lord-Kaiser-Caffrey  $\beta$  in the middle. Using Image metrics, minimum reliability bounds are represented by 'Tau' ( $\tau$ ) and 'Rho1' ( $\rho_1$ ) whereas maximum boundaries are defined by 'Gamma' ( $\gamma$ ) and 'Rho' ( $\rho$ ). As we can see, the lowest bounds of reliability increased when switching from the classical to the image model (compare  $\beta_1$  and  $\tau$  in Table 4).

The homogeneity of the EFQ subscales was maximal (i.e., 1.00), each generating one component with eigenvalues greater than one ( $\lambda > 1$ ). Since each of the subscales is designed to measure one aspect of the self, it is desirable that the variance of its first object of measurement participates largely in the total valid (image) variance of the test. In all subscales, the first component was sufficient to explain the total image covariance,

demonstrating maximal homogeneity within each of them (see  $h_4$  in Table 4). The average inter-item correlations ( $h_1$ ) were moderate.

Regarding representativeness, the Kaiser-Meyer-Olkin normalized measure of sampling adequacy (KMO) refers to the ratio between the amount of anti-image covariance shared between items (excluding their own unique variances) and the total covariance shared between items. It indicates the quality of item selection for the measured domain. As can be observed in Table 4, the KMOs for measures of the integrated self (EFQ-In) and the ego-invested self (EFQ-Ei) are lower, indicating that they provide less information about their constructs than does the measure of impersonal self (EFQ-Im). Still, all three subscales cover their domains sufficiently.

## STUDY 1 B

### *Construct (Convergent) Validity of the Ego Functioning Questionnaire*

To complement Study 1 A, an independent sample was surveyed to examine the construct (convergent) validity of the EFQ, by evaluating associations between the subscales of the EFQ and conceptually related constructs. Levels of socially desirable responding were also examined. It was hypothesized that the subscales of the EFQ would display meaningful associations with a variety of cognitive, affective, and social variables.

More specifically, expected associations with the motivational personality constructs portrayed by the GCOS were as follow. Each self-orientation subscale was hypothesize to covary highly and positively with its corresponding GCOS motivational subscale (i.e., integrated with autonomy, ego-invested with control, and impersonal with impersonal). In addition, a positive association was expected between impersonal self (EFQ) and control (GCOS). Negative interrelations were anticipated as well between the integrated self (EFQ), on one hand, and the control and impersonal scales (GCOS), on the other.

As for positive well-being variables (i.e., locus of control, life satisfaction, vitality, and self-esteem), positive associations were expected with the integrated self, and high negative associations were anticipated with the impersonal self. No interrelations were expected with the ego-invested self. A reverse pattern of associations was hypothesized for depression. This variable was expected to correlate highly and positively with the impersonal self, and to display a modest negative association with the integrated self. No effects were expected for the ego-invested self. Three socially oriented variables were scrutinized: normlessness, machiavellianism, and self-consciousness. Normlessness and

machiavellianism were hypothesized to be negatively associated with the integrated self, and positively associated with the ego-invested and impersonal self orientations. The integrated self was hypothesized to be negatively associated with the social anxiety and public subscales of self-consciousness. The ego-invested self was expected to be highly and positively associated with public self-consciousness. The impersonal orientation was not expected to covary with self-consciousness dimensions.

Finally, interrelations with three cognitive variables were examined (i.e., mindfulness, cognitive failure, and need for cognition). The integrated orientation was hypothesized to correlate highly and positively with mindfulness, and highly and negatively with cognitive failures and need for cognition. The ego-invested self was expected to covary negatively with mindfulness, and positively with cognitive lapses. The interpersonal self was hypothesized to be highly and negatively associated with mindfulness.

As a complement to construct validity associations, social desirability was assessed to ascertain whether this methodological bias affected the EFQ. It was hypothesized that the levels of social desirability would be within acceptable parameters.

### ***Participants and Procedure***

In order to examine the EFQ's construct validity, a list of well-established instruments was selected and administered to 132 undergraduate students from the University of Ottawa. The sample was composed of 27 men and 104 women and the average age was 22 years ( $SD = 2.65$ ). With the permission of professors, students completed questionnaires during class time. Participants received an instruction sheet and a questionnaire package that comprised the EFQ, a wide array of measures liable to

interrelate positively and negatively with its subscales, as well as an instrument designed to assess desirable responding. It was emphasized that participation in the study was voluntary, anonymous and strictly confidential.

### ***Measures***

In addition to the 18 items version of the EFQ that was developed in Study 1 A, the research questionnaire comprised a battery of instruments evaluating the following constructs: overall personal motivation, depression, perception of control, life satisfaction, normlessness, machiavellianism, self-consciousness, vitality, mindfulness, self-esteem, cognitive lapses, need for cognition, and socially desirable responding. Because of time and space constraints, two versions of the questionnaire were created (A and B). Each of these versions comprised the EFQ and half of the aforementioned measures. The distribution of instruments within versions A and B of the questionnaire is synthesized in Table 5. The psychometric properties of individual measures are presented thereafter.

*The General Causality Orientation Scale* (Deci & Ryan, 1985b; 36 items) assesses overall motivational orientation as a personality variable. It comprises three subscales that measure whether behaviour regulation is usually autonomous (12 items), controlled (12 items), or absent (i.e., impersonal; 12 items). This scale has shown satisfactory convergent, divergent and discriminant validity, as well as temporal stability. Its internal consistency (Cronbach alpha) is acceptable (autonomy = .74; control = .69; impersonal = .74; Deci & Ryan, 1985b). Items were rated on a 7-point Likert scale (1 = Very unlikely, 4 = Moderately likely, 7 = Very likely).

Table 5

*Instruments within Versions A and B of the Research Questionnaire (Study 1 B)*

Version A	Version B
EFQ (18 items version)	EFQ (18 items version)
General Causality Orientation Scale	Self-Consciousness Scale
Depression Scale	Vitality
Locus of Control Scale	Mindfulness Scale
Life Satisfaction Scale	Self-Esteem Scale
Normlessness Scale	Cognitive Failure Questionnaire
Machiavellianism Scale	Need for Cognition Scale
Balanced Inventory of Desirable Responding	

*The Depression Scale* (Hakstian & McLean, 1989; 4 items) is a short but effective depression measure that evaluates depressed affect, anxiety, work performance, and efficiency in performing domestic chores. The internal consistency (Cronbach's  $\alpha$ ) of this scale was reported to be 0.77. Items were rated on a 10-point Likert scale that evaluates the frequency of depression symptoms (1 = Not at all, 4 = Frequently, 7 = Most of the time, 10 = All the time).

*The Locus of Control Scale* (adapted from Levenson, 1974; 4 items) estimates the feeling of being in control of the events in one's life. The internal consistency of this scale was reported to be 0.81 (Cronbach's  $\alpha$ ). Items were rated on a 7-point Likert scale (1 = Do not agree at all, 4 = Agree moderately, 7 = Totally agree).

*The Life Satisfaction Scale* (Diener, Emmons, Larsen & Griffin, 1985; 4 items) aims to estimate one's general level of satisfaction with his or her life. Cronbach's  $\alpha$  for this scale was 0.88. Items were rated on a 7-point Likert scale (1 = Do not agree at all, 4 = Agree moderately, 7 = Totally agree).

*The Normlessness Scale* (adapted from Neal & Groat, 1974; 4 items) assesses the belief that socially undesirable behaviours (such as coercion or deception) are necessary to achieve one's goals. The internal consistency of this scale was reported to be 0.69, and its test-retest reliability 0.40. Items were rated on a 7-point Likert scale (1 = Strongly disagree; 7 = Strongly agree).

*The Machiavellianism Scale* (adapted from Christie & Geis, 1970; 5 items) measures the propensity to manipulate others in interpersonal relationships. The average split-half reliability of this scale has been reported to be 0.79. Items were rated on a 7-point Likert scale (1 = Strongly disagree; 7 = Strongly agree).

*The Self-Consciousness Scale* (Scheier & Carver, 1985; 22 items) measures a person's tendency to be aware of himself/herself. This scale comprises three subscales: private self-consciousness, public self-consciousness, and social anxiety. The internal consistency of these subscales (Cronbach's  $\alpha$ ) ranged between .75 and .84, while the test-retest reliability was reported to vary from .74 to .77. Items were rated on a 7-point Likert scale (1 = Strongly disagree; 7 = Strongly agree).

*The Vitality Scale* (Ryan & Frederick, 1997; 7 items) evaluates subjective perceptions of energy, vigour and alertness. Authors reported Cronbach's  $\alpha$  for this scale to be .85. Items were rated on a 7-point Likert scale (1 = Not true, 4 = Somewhat true, 7 = Very true).

*The Mindfulness Scale* (Brown & Ryan, 2003; 15 items) assesses one's awareness of what is taking place at the present time. It aims to evaluate how much an individual's behaviour is determined by present events, as opposed to events that occurred in the past, or events that are expected in the future. The internal consistency for this scale (Cronbach's  $\alpha$ ) ranged from .80 to .87. Items were rated in terms of their frequency in participant's everyday life using a 6-point Likert scale (1 = Almost never, 4 = Somewhat frequently, 6 = Almost always).

*The Self-Esteem Scale* (Rosenberg, 1965; 10 items) was administered to measure positive or negative self regard. Self-esteem, as measured by this scale, has been widely recognized as a stable personal characteristic that is not significantly affected by external conditions (Blascovich & Tomaka, 1993). It was reported that the test-retest reliability for this scale ranged from .82 to .88, and Cronbach's  $\alpha$  for various samples varied between .77 and .88. Items were rated on a 7-point Likert scale (1 = Not true, 4 = Somewhat true, 7 = Very true).

*The Cognitive Failures Questionnaire* (Broadbent, Cooper, Fitzgerald & Parkes, 1982; 25 items) examines the frequency of occurrence of a list of cognitive mishaps over the past six months. The internal consistency for this instrument (Cronbach's  $\alpha$ ) was reported to be .91. Items were rated in terms of their frequency of occurrence in participant's everyday life using a 5-point Likert scale (0 = Never, 2 = Occasionally, 4 = Very often).

*The Need for Cognition Scale* (Cacioppo, Petty, & Kao, 1984; 18 items) was used in order to estimate the inclination to seek out and enjoy effortful cognitive endeavours. Authors reported Cronbach's  $\alpha$  for this scale to be .90. Items were rated in terms of the

extent to which they accurately describe the participants' cognitive preferences using a 5-point Likert scale (0 = Extremely uncharacteristic, 3 = Uncertain, 5 = Extremely characteristic).

Finally, the *Balanced Inventory of Desirable Responding* (BIDR; Paulhus, 1988; 40 items) estimates two mechanisms that are used to intentionally present a socially positive self-image: self-deception (SDE; positive self-bias), and impression management (IM; controlled self-presentation to others). Both of them target one's tendency toward self-deception in the form of ego-enhancement (i.e., overconfidence) rather than ego-defensiveness (i.e., denying). Initial validation studies showed that the BIDR possesses satisfactory convergent and discriminant validity, as well as acceptable internal consistency (Cronbach's  $\alpha$ ) for both subscales (ranging from .68 to .80 for SDE, and from .75 to .86 for IM). Items were rated on a 7-point Likert scale (1 = Not true, 4 = Somewhat true, 7 = Very true). The scoring first involves reversing all the negatively worded items. All responses are recoded thereafter by replacing all scores rated between 1 and 5 with 0, and all extreme scores (i.e., 6 and 7) with 1. The total score for each participant is the sum of the number of extreme scores within the SDE and IM subscales. The theoretical range for each of these subscales is 0 to 20.

## ***Results***

### ***Construct (Convergent) Validity***

As can be noticed from the first three rows in Table 6, each type of self correlated the most with its corresponding type of motivational orientation, as measured by the GCOS scale. Also, it is essential to notice that these expected associations were not too high, thereby indicating that the EFQ dimensions are not redundant with GCOS subscales.

Furthermore, remaining correlations in the first three rows of Table 6 indicated that the integrated self was associated negatively with the impersonal motivational orientation and was unrelated to the controlled orientation. The ego-invested self was unrelated to both autonomous and impersonal orientations. Finally, the impersonal self was correlated positively with the control subscale and negatively with the autonomy subscale in GCOS.

The three EFQ subscales correlated meaningfully with depressive symptoms. As expected, results revealed that the impersonal self was highly correlated to a depressed functioning, while the integrated self was negatively associated with it. The ego-invested self was unrelated to depression.

Table 6

*Correlations between the Ego Functioning Questionnaire and Relevant Motivational, Affective, Social, and Cognitive Variables (Study 1B)*

	Integrated Self	Ego-Invested Self	Impersonal Self
(n=104)			
GCOS-autonomy	.59**	-.06	-.28**
GCOS-control	-.08	.49**	.29**
GCOS-impersonal	-.24**	.12	.55**
Depressiveness	-.25**	.10	.46**
Locus of Control	.32**	-.10	-.72**
Life Satisfaction	.34**	-.06	-.55**
Normlessness	-.30*	.25**	.20*
Machiavellianism	-.30**	.35**	.34**
(n=27)			
SC-private	.33	.22	.09
SC-social anxiety	-.42*	.31	.23
SC-public	-.37*	.65**	.25
Vitality	.49**	-.28	-.63**
Self-Esteem	.40*	-.22	-.55**
Mindfulness	.62**	-.46**	-.45**
Cognitive Failures	-.50**	.41*	.29
Need for Cognition	.44*	-.25	-.27

*Note.* GCOS = General Causality Orientation Scale; SC = Self-Consciousness Scale.

\*  $p < .05$ ; \*\*  $p < .01$

The three types of self also demonstrated interesting associations with a sense of control over outcomes. As hypothesized, the integrated self was correlated positively and the impersonal self negatively with personal locus of control. The ego-invested self displayed no association with the extent to which the locus of control is perceived as internal.

Life satisfaction presented the same pattern of correlations with the three types of self as locus of control. It correlated positively with the integrated self, negatively with the impersonal self, and was uncorrelated with the ego-invested self. Thus, results revealed that the integrated self orientation covaries with the sense of achieving life goals. There was no association between the ego-invested self and a sense of living a fulfilling life, whereas the impersonal orientation covaried highly with the perception of having led a disappointing life.

Correlations with normlessness and machiavellianism revealed that social cynicism of this kind was positively endorsed by the ego-invested and the impersonal self orientations. The integrated self orientation was negatively associated with both normlessness and machiavellianism. These associations indicate that the ego-invested and impersonal orientations were more highly associated with questionable personal standards for socially acceptable and moral behaviours.

The integrated self correlated negatively with social anxiety and public self-awareness, while the ego-invested self was strongly associated with public self-consciousness. The impersonal self did not show any substantial link to self-consciousness dimensions. This supports the notion that the integrated self is a socially receptive system that is open to spontaneous communication with others, while the ego-invested self is to be

self-concerned and very much aware of its own public image. The impersonal self orientation was not associated with concern about its social functioning and public appearance.

Relationships with the vitality scale indicated that the level of energy varied across the three types of self. The integrated self was positively associated with high energy levels, while the impersonal self correlated with diminished perceived energy. These findings are in agreement with the idea that the integrated self is a fully functional and energetic system, whereas the impersonal self struggles to produce its inner energy.

The results also indicated that the integrated self correlated with a high awareness of what is going on in the present (i.e., a greater mindfulness). The other two self orientations (ego-invested and impersonal) were equally non-attentive to the present reality, and were more preoccupied with the past or the future.

Correlations with self-esteem revealed, as expected, that as systems became more closed and externally regulated, they also became less self-regarding. The integrated self displayed a positive self-attitude, there was no significant association between the ego-invested orientation and self-esteem, and the impersonal self covaried with a feeling of personal dislike.

Finally, interesting associations were uncovered between the three types of self and two aspects of cognitive functioning. The integrated self orientation was positively correlated with the need for cognition and negatively associated with cognitive failures. Conversely, the ego-invested self was correlated positively with cognitive lapses. No associations were identified between cognitive functioning and the impersonal self orientation.

### ***Social Desirability***

An important consideration in the validation of any instrument is the evaluation of the extent to which the information provided is independent from socially desirable reactions. As previously mentioned, the Balanced Inventory of Desirable Responding (Paulhus, 1988) comprises two main measures of social desirability: self-deception (SDE) and impression management (IM). These subdimensions tap the tendency of an individual to overreport success (SDE) or underreport failures (IM). The results indicated that the average number of self deceptive items was 5.18 for females and 5.11 for males, whereas the average number of items targeting impression management was 4.94 for females and 3.84 for males. These scores are low considering that their theoretical range is 0 to 20. Comparing these scores with the norms gathered by Paulhus (1988) on 433 college students (7.3 for female and 7.6 for males – SDE and 4.9 for females and 4.3 for males - IM), the average values obtained in the present study are quite acceptable.

### ***Discussion***

The main goals of Study 1A and Study 1B were to analyze the factorial structure of the Ego Functioning Questionnaire (EFQ), and to examine its construct validity. After a three-factor structure was extracted from the data in Study 1A, it was found that three dimensions, as anticipated by Hodgins and Knee's theory of self functioning (2002), accounted for the covariance among items. Indeed, it was possible to retain 6 items per subscale that displayed a clean structure that clearly portrayed the integrated self, ego-invested self, and impersonal self orientations.

The three subscales of the EFQ were subsequently analyzed in order to examine their internal properties (i.e., reliability, homogeneity and representativeness) using two

measurement models. The reliability of the proposed subscales within the classical measurement model was acceptable when the scale score was calculated as a sum of raw item scores, and when the scale score was given as a component score of standardized raw item results. However, when the scale results were given as a component of scores transformed into image or universal metrics, the upper bounds of reliability dropped slightly for the integrated and ego-invested self subscales. This was explained by the fact that the integrated and ego-invested selves are more complex dynamic entities than the impersonal self that is characterized by a homogeneous lack of functioning in all domains. It may thus have been more difficult to capture the true variance pertaining to the integrated and ego-invested selves. The homogeneity indicator ( $h_4$ ) revealed that EFQ subscales possessed an adequate homogeneity, indicating that each of the three subscales generated only one component that exhausted all valid variance in the system.

The representativeness of EFQ's subscales is influenced by the amount of anti-image covariance participating in the total item covariance. The 'EFQ-Im' subscale represented its domain slightly better than do the 'EFQ-In' and 'EFQ-Ei' subscales, even though all three KMO indices are acceptable.

Study 1B was undertaken to examine the construct validity of the Ego Functioning Questionnaire (EFQ) developed in Study 1A. A wealth of corroborating evidence was obtained. The three EFQ subscales correlated substantially with a large number of motivational, emotional, cognitive and social constructs. As hypothesized, meaningful associations were obtained between the subscales of the EFQ and the three overall motivational orientations provided by the General Causality Orientation Scales (i.e., autonomy, control, impersonal). Interesting correlations were also obtained with locus of

control and vitality. Several interesting associations occurred with psychological functioning constructs, such as life satisfaction, depression, and self-esteem, as well as with social variables like normlessness, machiavellianism, social anxiety and public self-consciousness. Significant correlations between the EFQ's subscales and cognitive focus were found with mindfulness, cognitive failures and need for cognition. Ample evidence was thus gathered for the construct validity of the EFQ. The results also suggest that the EFQ is not influenced by socially desirable responding.

To summarize, strong overall support was obtained for the validity and reliability of the EFQ. In the present studies, this instrument displayed a sound factorial structure, as well as satisfactory convergent validity and internal properties (i.e., reliability, homogeneity and representativeness). Moreover, the EFQ was not susceptible to desirable responding.

However, it is also necessary to acknowledge the limitations of the present validation studies. First, the factorial structure was examined using an exploratory factor analysis. It would be interesting in future studies to cross-validate these results by means of a confirmatory factor analysis, which is a more rigorous procedure. A confirmatory factor analysis of the EFQ will thus be included as part of the preliminary analyses in Studies 2 and 3.

Second, the sample size of both subgroups of participants in Study 1B is fairly modest ( $n = 104$  for questionnaire A and  $n = 27$  for questionnaire B). This did not seem to affect results overly much, as a wide array of interesting construct validity correlations were obtained. Nonetheless, a few intriguing unexpected associations of modest magnitude failed to reach significance, possibly because statistical power was low. For instance,

private self-consciousness displayed positive associations with the integrated and ego-invested orientations. The ego-invested orientation correlated positively with social anxiety and negatively with need for cognition. The impersonal self orientation also interrelated significantly with social anxiety, public self-consciousness, cognitive lapses, and need for cognition (negatively). Because of time constraints, it was not possible to further document the aforementioned associations. Yet, these correlations make theoretical sense and it would be interesting, in future studies, to verify whether they are stable and meaningful or merely spurious.

Another concern is the demographic structure of the present samples. Around 87% of the participants were between 17 and 23 years of age in both studies; above 80% were female; and all were students. Since the development of the self extends into adulthood, future validation studies should target more diversified samples. For instance, it would be interesting to replicate the present findings with working adults in a variety of professional settings, or even with elderly people.

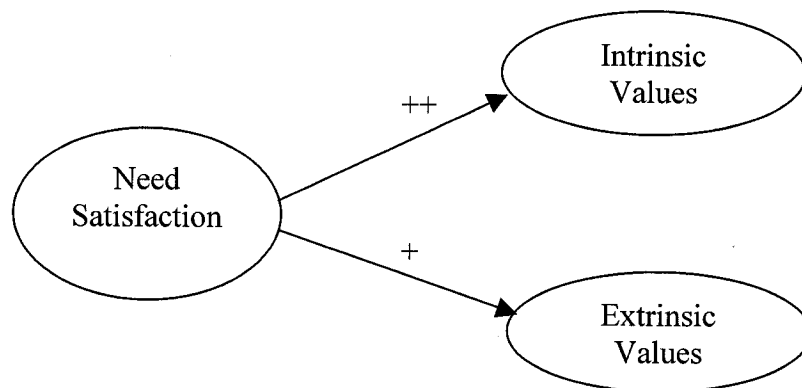
### CHAPTER THREE

#### STUDY 2

#### *Relationships between Universal Human Values, Self Orientation, and Basic Psychological Needs*

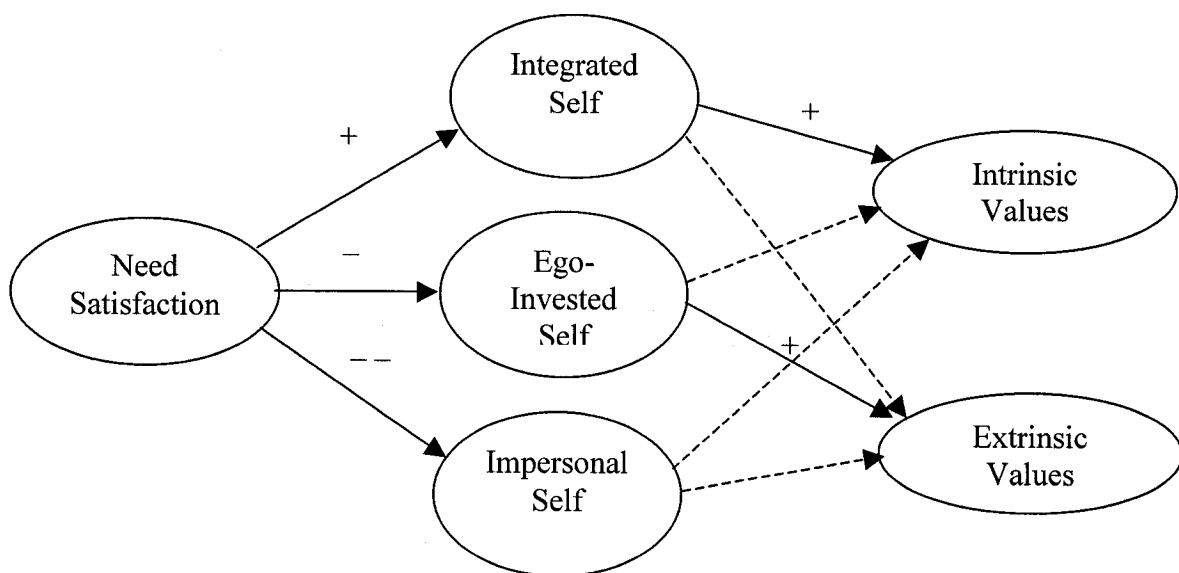
The main goal of Study 2 is to test the hypothesized network of associations between universal human values, basic psychological needs, and self orientations. As already noted, self orientation is hypothesized to mediate the associations between needs and values.

Firstly, the alleged relationship between need satisfaction and values will be ascertained. As illustrated in Figure 2, need satisfaction is hypothesized to be associated positively with intrinsic and extrinsic values. However, this association is expected to be of higher magnitude for intrinsic values than for extrinsic values.



**Figure 2.** *Hypothesized Model of Needs-Values Relationships (Study 2)*

Secondly, the mediating impact of self orientation will be assessed. All three forms of self orientation will be inserted in a single structural equation model that will test hypotheses 2b and 2c simultaneously (see p. 27). To reiterate, it is hypothesized that the associations between needs satisfaction, on one hand, and intrinsic and extrinsic values, on the other hand, will disappear when the three self orientations are added as significant predictors of intrinsic and extrinsic values. Moreover, because the impact of needs on values is hypothesized to be channelled through self orientations, needs satisfaction will also relate to the types of self. For ease of interpretation, the final hypothesized model, describing the precise network of associations between the variables under study, is presented in Figure 3.



**Figure 3.** *Hypothesized Relationships between Needs Satisfaction, Self Orientations, and Values (Study 2)*

Specifically, need satisfaction is expected to display a positive association with the integrated self, a negative association of low magnitude with the ego-invested self, and a negative association of high magnitude with the impersonal self. In turn, the integrated self

is hypothesized to covary positively with intrinsic values, and to be unrelated to extrinsic values. The ego-invested self is hypothesized to covary positively with extrinsic values and to be unrelated to intrinsic values. The impersonal self is hypothesized to be unrelated to both intrinsic and extrinsic values.

### ***Method***

#### ***Participants and Procedure***

This study was conducted on 309 participants recruited among English-speaking undergraduate students who attended the University of Ottawa. The sample consisted of 209 women, 98 men, and 2 participants who did not report their gender. The average age was 19.9 years ( $SD = 2.98$ ). With the permission of professors, data were collected during class time.

Students received a questionnaire package that contained an information sheet clarifying the goal of the study, the Basic Psychological Needs Scale (Deci & Ryan, 2000), the Ego Functioning Questionnaire that was developed in Study 1, the Cultural Values Survey (Schwartz, 1994), and a few demographic questions (see Appendix A). Participants were told that this package measured psychological needs, self orientation, and universal human values. It was emphasized that participation in the study was voluntary, anonymous, and strictly confidential.

#### ***Measures***

*Basic Psychological Needs.* This construct was measured by the Basic Psychological Needs Scale (BPNS; Deci & Ryan, 2000). This scale consists of 21 items devised to indicate the level of satisfaction of needs for autonomy (7 items), competence (6 items) and relatedness (8 items). Items are rated on a 7-point Likert scale (1 = Not at all

true; 4 = Somewhat true; 7 = Very true). Deci, Ryan, Gagné, Leone, Usunov, and Kornazheva (2001) reported that Cronbach's  $\alpha$  for the total score on this scale was .89, whereas the internal consistency for the competence, relatedness, and autonomy subscales was .73, .84, and .79, respectively. In the current study, however, internal consistency (Cronbach's  $\alpha$ ) was a bit lower for autonomy ( $\alpha = .67$ ), competence ( $\alpha = .68$ ), and relatedness ( $\alpha = .78$ ).

*Self Orientations.* This construct was estimated using the Ego Functioning Questionnaire (EFQ) which was designed for the purposes of the present project, as described in Study 1. As also reported in Study 1, the EFQ displayed a sound factorial structure and demonstrated satisfactory construct (convergent) validity, as well as adequate internal consistency (Cronbach  $\alpha$ ). In the present study, the internal consistency of all three subscales was also acceptable ( $\alpha$  integrated self = .67;  $\alpha$  ego-invested self = .76;  $\alpha$  impersonal self = .89).

*Universal Human Values.* The Cultural Values Survey (CVS; Schwartz, 1994) was chosen to measure universal values. The CVS estimates 10 individual value subscales using 52 distinct attributes: benevolence, universalism, self-direction, stimulation, hedonism, achievement, power, security, tradition, and conformity. Items are rated using a 9-point Likert scale (-1 = Opposed to my values; 0 = Not important; 2 = Important; 5 = Very important; 7 = Of supreme importance). The structure of the CVS was validated using 97 samples obtained in 44 countries by means of smallest space analyses (Guttman, 1968) and confirmatory factor analyses. In the present study, the internal consistency of the subscales of the CVS ranged between .60 and .78.

## *Analyses*

Data analyses were performed in two steps: preliminary analyses and structural equation modeling procedures. Within preliminary analyses, descriptive statistics were generated for all measures, the data set was screened, and statistical assumptions were tested.

Structural equation modeling aims to examine if the maximized covariances among latent variables in a given model predict a fitted covariance matrix that is structurally close to the sample covariance matrix. In the present project, model adjustment was assessed by taking into consideration theoretical meaningfulness, statistical criteria, and by striving for parsimony. Several statistical criteria were included in the evaluation of model fit: the Satorra-Bentler scaled chi-square statistic (S-B $\chi^2$ ; Satorra & Bentler, 1988), the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990), the Goodness of Fit Index (GFI; Jöreskog & Sörbom, 1989), and the Comparative Fit Index (CFI; Bentler, 1990). The S-B $\chi^2$  is a robust statistic that is derived from the  $\chi^2$  likelihood ratio by providing an adjustment that corrects for deviations from multivariate normality. The CFI is an incremental fit index that provides a comparison between the  $\chi^2$  of the estimated model and the  $\chi^2$  of the independence model. The RMSEA estimates the degree of misfit between the hypothesized model and the population covariance matrix. The GFI is an absolute index that compares minimum fit functions before and after estimation, thereby providing an estimation of the proportion of sample variance explained by the model. Please note that, as recommended by Byrne (1994), the CFI and RMSEA were computed using robust S-B $\chi^2$  values for the target model and the independence model, to protect against undetected data distribution problems. In addition, the Lagrange Multiplier (LM) Test was performed to identify

individual parameters that, if freely estimated instead of being fixed, would contribute significantly to a better-fitting model. Analyses were conducted using the EQS program (v. 6.1; Bentler, 1992).

## ***Results***

### ***Preliminary Analysis***

***Outliers and Sample Size.*** The inspection of data for univariate outliers revealed that standardized scores for six cases were substantially over the critical value (i.e.,  $z > 3.00$ ). After their deletion from the file, Mahalanobis' and Cook's distances, multivariate standardized residuals, and leverage values, were calculated. Among these measures, only the Mahalanobis test detected significant multivariate outliers. Namely, three participants displayed Mahalanobis distances from the multivariate mean that were greater than the critical value for this set of variables ( $\chi^2 > 31.26, p < .001$ ). These cases were excluded from the data file bringing the final sample in Study 2 down to 300 participants. Sample size thus meets the recommended requirements for structural equation modelling (i.e., at least 200; Byrne, 2004).

***Normality.*** The mean, standard deviation, skewness, and kurtosis of all variables under study are given in Table 7. Skewness ranged between  $-.89$  and  $.76$  ( $M = -.23$ ), whereas kurtosis varied between  $-.56$  and  $.42$  ( $M = -.13$ ). There is thus no indication of significant departures from the normality assumption, as all values fall within an acceptable range of  $-1.00$  to  $+1.00$  (Muthen & Kaplan, 1985). Also, as previously mentioned, robust measures of model fit were utilized as an additional precaution in structural equation modeling analyses.

Table 7

*Summary Statistics for Psychological Needs, Self Orientations, and Universal Human Values (Study 2)*

Variable	Mean	Standard Deviation	Skewness	Kurtosis
<b>Basic Psychological Needs</b>				
Autonomy	4.97	.76	-.35	.42
Competence	5.08	.87	-.39	-.36
Relatedness	5.81	.69	-.53	-.01
<b>Self Orientations</b>				
Integrated Self	5.03	0.71	.08	-.53
Ego-Invested Self	4.40	0.88	-.06	-.15
Impersonal Self	2.95	1.24	.76	.25
<b>Universal Human Values</b>				
Self-Transcendence	5.41	.83	-.39	-.36
Openness to Change	5.10	.97	-.39	-.01
Hedonism	5.55	1.29	-.89	.31
Self-Enhancement	4.17	1.06	-.09	-.47
Conservation	4.46	1.07	-.26	-.56

**Linearity.** Randomly selected pairs of variables were tested to assess potential deviations from linear relationships. Scattergrams displayed linear trends between pairs of variables. Moreover, the distribution of standardized multivariate residuals for all variables adopted a normal configuration.

**Homoscedasticity.** Scattergrams were also inspected to identify possible heterogeneous variance distributions. No significant heteroscedasticity was observed.

**Multicollinearity.** The inspection of correlations between all pairs of variables did not reveal any sign of multicollinearity (i.e.,  $r \geq 0.90$ ; Tabachnick & Fidell, 2007). Also, squared multiple correlations (SMC) for each variable demonstrated that condition indexes

were lower than 30 and not accompanied by two individual variables that explained a proportion of variance greater than .50 (Tabachnick & Fidell, 2007).

### ***Descriptive Statistics***

As aforementioned, average values for the variables under study are presented in Table 7.

***Basic Psychological Needs.*** Participants indicated a high level of satisfaction of the need for relatedness. Moderately high levels of gratification were reported for the needs for autonomy and competence.

***Self Orientations.*** The integrated self was endorsed to a moderately high extent and was the most prevalent of self orientations. The ego-invested self was the second most prevalent orientation and was adopted to a moderate extent. Impersonal self was the least widespread orientation and only a low number participants identified with it.

***Universal Human Values.*** Self-transcendence, openness to change, and hedonism were endorsed to a moderately high extent by the participants. Ratings for self-enhancement and conservation were moderate, thereby indicating a somewhat lower propensity towards extrinsic values.

### ***Structural Equation Modeling***

***Testing the Measurement Model.*** Establishing the tenability of the measurement model is an important preliminary step that must take place before the assessment of full structural models (Byrne, 1994). This is normally achieved by performing confirmatory factor analyses (CFA) on each component of the intended full structural model. Please note that, by comparison with CFA models that are designed to validate the factorial structure of the entire set of items comprised in an instrument, establishing the measurement model

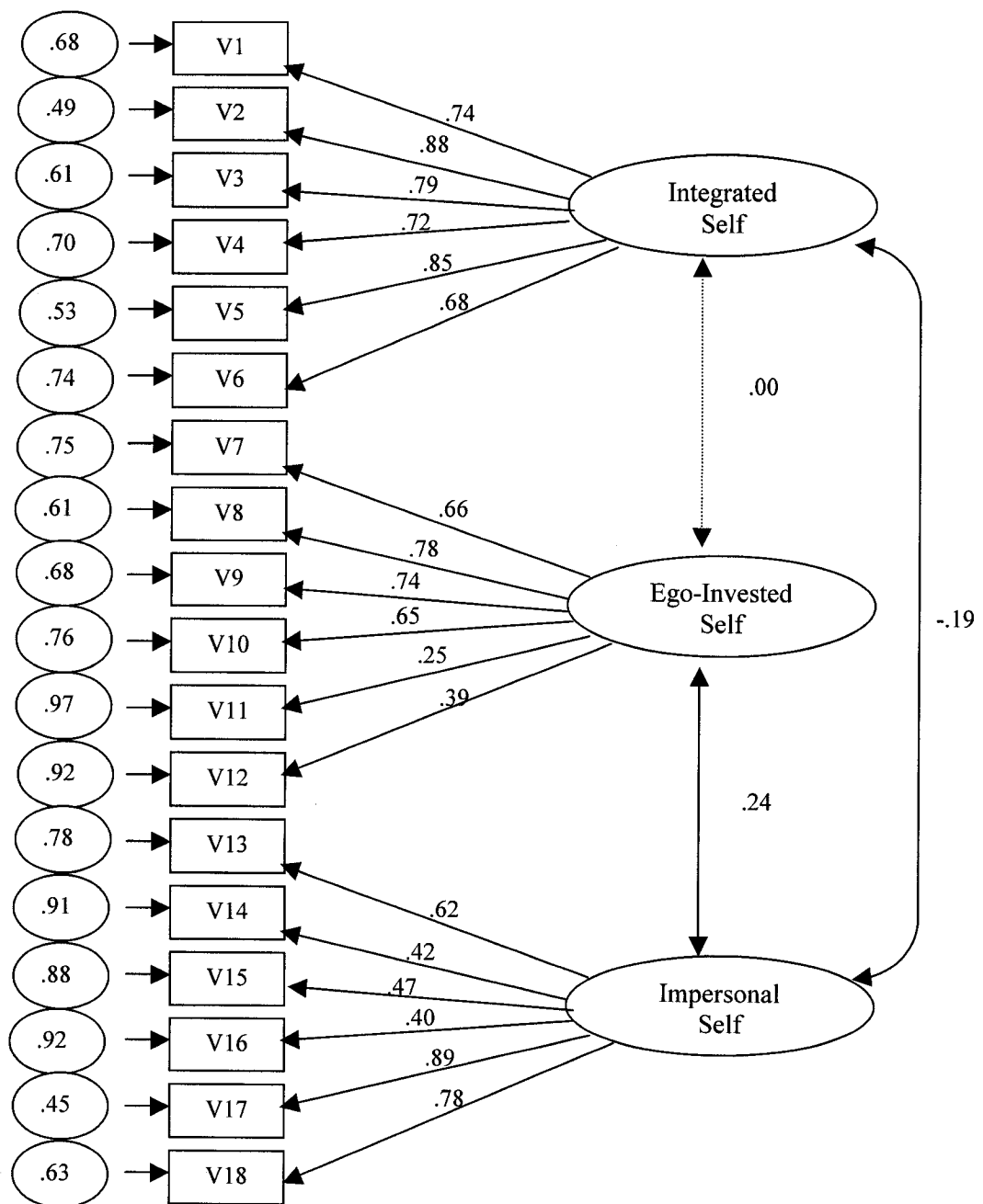
prior to a full structural equation model entails determining the number of indicators to use for each latent factor, selecting the items that will compose each indicator, and testing the resulting configuration of indicators and latent factors by means of a CFA (Byrne, 1998). Indicators (i.e., groupings of items in the form of mean values) are considered superior to individual items when testing full structural equation models. They are most commonly created by aggregating items across subscales, or by combining items into subgroups within subscales so that their reliability is evenly distributed across indicators.

***Psychological Needs Satisfaction.*** To create indicators for this construct, the items of the Basic Psychological Needs Scale (Deci & Ryan, 2000) were grouped in pairs, within subscales. Care was taken to distribute item reliability (as ascertained by item-total correlations) as evenly as possible across indicators. This procedure yielded 10 indicators (i.e., autonomy = 3 indicators; competence = 3 indicators; relatedness = 4 indicators) that were subjected to a second order confirmatory factor analysis that was specified as follow. The ten indicators were hypothesized to load on their target first order factor (autonomy, competence, or relatedness). First order factors, in turn, were hypothesized to load on a single higher order factor representing overall needs satisfaction. Estimated parameters included first and second order factor loadings and factor variances, as well as individual uniqueness values for each indicator. For statistical identification purposes, the first target loading of each first and second order factor was fixed to 1. Results indicated that this model fit the data quite well ( $S-B\chi^2_{(32, N=300)}=66.57, p<.001$ ; RMSEA=.06; GFI=.95; CFI=.95). All model parameters were significant and of satisfactory magnitude. No post hoc adjustment were required.

***Self Orientation.*** First, as a complement to the initial exploratory factor analysis reported in Study 1, a classic CFA model was performed using all 18 items of the Ego Functioning Questionnaire. Model specifications included the estimation of target loadings, factor variances and covariances, and item uniqueness values. For identification purposes, the first target loading of each factor was fixed to 1. The covariance matrix that was analyzed is given in Appendix D. Results revealed a satisfactory model adjustment ( $S-B\chi^2_{(132, N=300)}=242.23, p<.001$ ; RMSEA=.05; GFI=.90; CFI=.93). All estimated parameters were of acceptable magnitude and were statistically significant (see Figure 4 on following page). No post hoc adjustment were performed. Thus, as suggested by the exploratory factor analysis performed in Study 1, the EFQ displays a sound structure.

Second, for the purposes of the current study, indicators were created by pairing up items within subscales. Here again, care was taken to distribute item reliability evenly across indicators. The factorial structure of indicators was tested using a standard CFA model. Results revealed a satisfactory fit ( $S-B\chi^2_{(24, N=300)}=41.35, p<.015$ ; RMSEA=.05; GFI=.96; CFI=.98). All model parameters were statistically significant and of acceptable magnitude. No a posterior modifications were implemented.

***Intrinsic and Extrinsic Values.*** For the purposes of the present study, the Cultural Values Survey (Schwartz, 1994) items were first averaged for each of the individual values subscales. Means were further computed to generate four indicators representing the higher level values described by Schwartz's model (1992): openness to change (stimulation and self-direction), self-transcendence (universalism and benevolence), conservation (conformity, tradition, and security), and self-enhancement (achievement and power). The hedonism subscale, however, was treated differently.



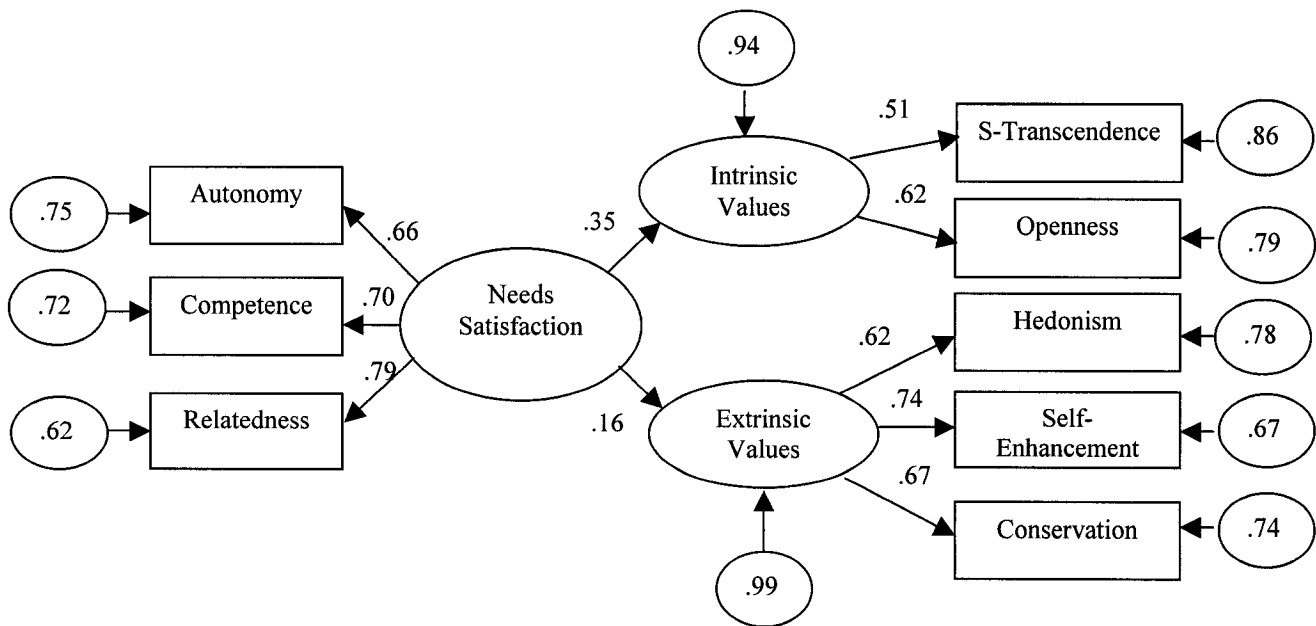
**Figure 4.** Factorial Structure of the Ego Functioning Questionnaire (Study 2;  $N=300$ ). All parameters are standardized and significant at the .01 level.

In Schwartz's model (1992), hedonism is associated with two overall value orientations: openness to change and self-enhancement. In the present study, to avoid any ambiguity in the partitioning of the variance inherent to hedonism, this specific value was

kept separate from overall value orientations, and the indicator for hedonism was created by averaging all items on this subscale. In the context of this study, openness to change and self-transcendence indicators were utilized to represent intrinsic values, whereas extrinsic values were portrayed by conservation, self-enhancement, and hedonism. A CFA was performed to test this model. This analysis included the estimation of target factor loadings, factor variances and covariances, and item uniqueness values. The first target loading of each factor was fixed to 1 for identification purposes. The adjustment of the model was acceptable ( $S-B\chi^2_{(3, N=300)}=35.42, p<.001$ ; RMSEA=.19; GFI=.95; CFI=.91). All parameters were statistically significant and of adequate magnitude. One error covariance (E16,E13) was released during post hoc model fitting.

#### ***Testing the Hypothesized Needs-Values Relationship***

The results of this analysis supported the first hypothesis of the present study, thereby documenting the alleged association between psychological needs satisfaction and values. Adjustment indices revealed that this model fit the data very well ( $S-B\chi^2_{(15, N=300)}=36.520, p<.001$ ; RMSEA=.07; GFI=.97; CFI=.97). Please note that two post hoc respecifications were performed (i.e., negative correlations between the error terms for openness/self-enhancement and self-transcendence/conservation). Model parameters are presented in Figure 5. As expected, needs satisfaction was positively associated with intrinsic and extrinsic values. This association was twice as high for intrinsic values than for extrinsic values. The covariance matrix that was analyzed herein is presented in Appendix C.



**Figure 5.** Relationships between Needs and Values (Study 2;  $N=300$ ). All parameters are standardized and significant at the .01 level.

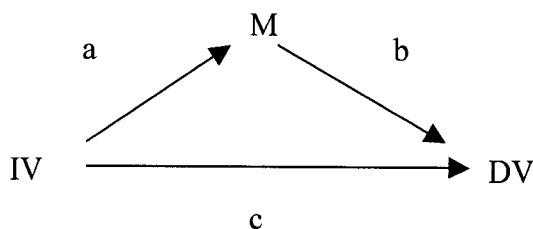
### **Testing the Mediating Effect of Self Orientation**

According to Baron and Kenny (1986), a variable mediates ‘to the extent that it accounts for the relation between the predictor and criterion’. Mediator variables (also called intervening or process variables) usually explain the intermediate process that occurs between an antecedent and a consequence. The mediator indicates how and why certain physical and/or psychological conditions (i.e., antecedents) lead toward the observed outcome. Technically speaking, mediators modify the initial association between independent and dependent variables into a lesser or, ideally, into a non-significant association when introduced into their relationship. This happens due to the fact that the shared variance between the independent and dependent variables is now accounted for by a new variable (the mediator). Thus, a variable can act as a mediator if it is correlated with

both independent and dependent variables, and if it accounts for a significant part of the unique variance that is common to their relationship.

Judd and Kenny (1981) recommended that three regression equations be considered to identify a mediation effect: (1) the regression of the mediator variable on the IV, (2) the regression of the DV on the IV, and (3) the regression of the DV on the mediator IV (see Figure 6). All regression paths must be statistically significant, while the third one should show that the mediator is significant and that the IV does not impact the DV anymore.

Mediation can also be assessed using the test of indirect effect, proposed by Sobel (1982). This test provides a significance test of indirect effects that can be interpreted as a z-score (see formula in Figure 6).



$$z\text{-value} = ab / \sqrt{b^2 S_a^2 + a^2 S_b^2},$$

**Figure 6.** Mediation Test According to Judd and Kenny (1981) and Sobel (1982) (Study 2)

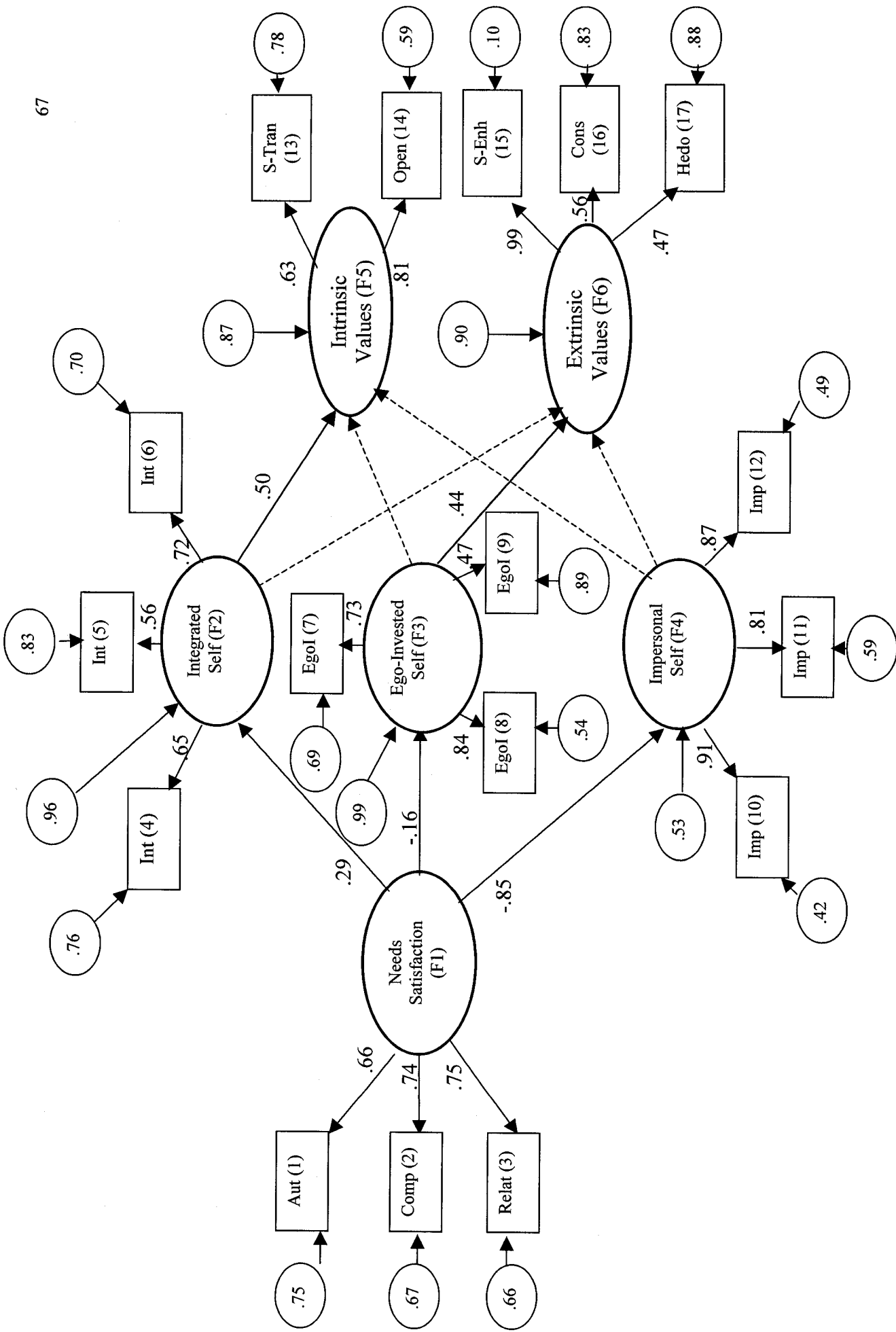
In this formula ‘a’ and ‘b’ are regression coefficients (standardized or unstandardized) and ‘S’ represents a coefficient’s error term. The EQS software performs the test of mediation effect (as an effect decomposition) by using Sobel’s formula and provides solutions with standardized and unstandardized regression coefficients for each mediated link in the model.

In the current study, the presence of an association between IV and DVs has already been established by means of the need/values model (see Figure 6). The mediating role of

self orientation, as demonstrated by its association with the IV (i.e., needs), on one hand, and with the DVs (i.e., values), on the other hand, was tested simultaneously. The resulting model supported research hypotheses, and is presented in Figure 7.

Model adjustment was satisfactory ( $S-B\chi^2_{(110,N=300)}=227.61, p<.001$ ; RMSEA=.06; GFI=.91; CFI=.93). Five post hoc respecifications were required (i.e., correlations between D6,D5; E16,E13; E11,E2; E17,E14; and E17,E13). Model parameters were of acceptable magnitude and were statistically significant. As predicted, self orientation behaved as a mediating variable. Its inclusion in the model completely eliminated the original associations between needs and values. Indirect effects were computed and tested to further document the intervening role of self-orientation in the association between psychological needs satisfaction and values. Needs satisfaction had a positive indirect effect on intrinsic values through the integrated self orientation (.14,  $p<.01$ ), as well as an indirect effect on extrinsic values through the ego invested self orientation (-.07,  $p<.05$ ).

The hypothesized network of associations between psychological needs, self orientation, and values was corroborated. As expected, need satisfaction displayed a positive association with the integrated self, a mild negative association with the ego-invested self, and a very substantial negative association with the impersonal self. Moreover, as hypothesized, the integrated self orientation covaried positively with intrinsic values, and was unrelated to extrinsic values. Conversely, the ego-invested self covaried positively with extrinsic values and was unrelated to intrinsic values. The impersonal self was unrelated to both intrinsic and extrinsic values.



**Figure 7.** Relationships between Needs Satisfaction, Self Orientations, and Values. (Study 2; N=300). All parameters are standardized and significant at the .01 level. Dashed lines represent non-significant coefficients.

## *Discussion*

The main goal of Study 2 was to test the hypothesized network of associations between universal human values, basic psychological needs, and self orientations. The hypothesized mediating role of self-orientation on the relationship between psychological needs and values was of particular interest. Two structural equation models were tested to verify this hypothesis.

As required by formal mediation testing (Baron & Kenny, 1986; Judd & Kenny, 1981), a first model was tested to verify whether the fundamental association between needs satisfaction and values was legitimate. Several authors have theorized about this relationship and have underscored its importance (e.g., Kasser, 2002, Maslow, 1970, Schwartz, 2004). However, its existence largely remained to be tested empirically. Results revealed a well fitting model. Needs satisfaction displayed a positive association with intrinsic and extrinsic values. As expected, the magnitude of this relationship was higher for intrinsic than for extrinsic values.

The entire array of associations between needs satisfaction, self orientations, and values was tested in the second model. This model also allowed for the evaluation of the mediating role of self-orientation on the relationship between psychological needs and values. Strong overall support was obtained for the hypothesized model and for the mediating effect of self orientation. Model fit was satisfactory. Models parameters were significant and of acceptable magnitude. In support of the mediation hypothesis, associations between needs satisfaction, on one hand, and intrinsic and extrinsic values, on the other hand, were nullified with the inclusion of direct effects between self orientations

and values. The occurrence of significant indirect effects of needs satisfaction and intrinsic and extrinsic values further documented this mediating effect.

The present results suggest that the degree to which psychological needs are satisfied is tied to self functioning. Positive need satisfaction covaries positively with the integrated orientation, a self-system that is characterized by unconditional self worth, as well as optimal cognitive, emotional and social functioning. It is conceivable for intrinsic values to constitute a natural extension of this autonomous self entity. Conversely, psychological needs frustration covaries with the ego-invested orientation, a self-system that is defined by conditional self-worth which is derived by the adoption of external standards that are liable to have a detrimental influence on cognitive, emotional, and social functioning. Extrinsic values are a likely extension of this contrived self entity. Severe levels of needs frustration covary with the impersonal self orientation, a self-system that is defined by fragmentation, disorganization, and helplessness. It is reasonable to infer that the high level of cognitive, emotional and social dysfunction that defines this type of self entity would preclude the elaboration of personal values altogether.

In addition to the fundamental knowledge pertaining to the aforementioned relationships between needs, self orientations, and values, the present study also contributes useful additional information regarding the psychometric properties of the Ego Functioning Questionnaire (EFQ) that was developed in Study 1. Specifically, this prior study offered preliminary support for the factorial structure of the EFQ. In the course of the elaboration of the measurement model for Study 2, the factorial structure of the EFQ was formally and successfully tested by means of a confirmatory factor analysis. The initial structure

provided by the exploratory factor analysis performed in Study 1 was perfectly replicated by the confirmatory factor analysis performed in Study 2.

However, it is important to acknowledge that the present study bears certain limitations. Firstly, its design is correlational. It is thus not possible to draw definitive conclusions regarding the direction of causality of the associations observed in structural equation models. Additional studies that entail experimental or longitudinal designs are required to clarify this ambiguity. Secondly, although optimal care was taken to select the best available instruments, it must be noted that certain reliability problems were observed. Specifically, the internal consistency of one of the subscales of the Cultural Values Survey was quite low (.60). The Basic Psychological Needs Scale also displayed two internal consistency values in the .60 to .70 range.

Lastly, the sample of the present study is composed of undergraduate students in social sciences. It would be interesting to further document the validity of the current findings using more diversified samples. Because basic psychological needs, self orientations, and human values, are conceptualized according to theoretical perspectives that argue for their universality, it would be particularly intriguing to attempt to cross-validate the present findings in a different cultural context. This is the purpose of Study 3.

## CHAPTER FOUR

### STUDY 3

#### *Cross-Cultural Examination of Relationships between Basic Psychological Needs, Self Orientations, and Values*

The goal of this study is to cross-validate results from Study 2 on a sample of participants who presently live in regions of former Yugoslavia (i.e., Serbia and Monte Negro). Basic psychological needs, self orientations and the structure of human values are theorized to be universal. It is therefore hypothesized that the structure of relationships between needs, self, and values will be the same in the Yugoslav than in the Canadian sample. Specifically, as in Study 2, a positive association is first hypothesized between needs satisfaction and values. This association is expected to be higher for intrinsic than for extrinsic values. Second, self orientation is hypothesized to mediate the relationship between needs and values. As in Study 2, this hypothesis is tested by means of a structural equation model wherein psychological needs are directly and solely associated with self orientations, which are, in turn, associated with intrinsic values. That is, the specific network of associations described by the hypothesized model illustrated by Figure 3 (see p. 52) and corroborated by the results presented in Figure 7 (see p. 67), using the Canadian sample of Study 2, are expected to hold in the Yugoslav sample.

Needs satisfaction is expected to relate positively with the integrated self orientation, and negatively with the ego-invested and impersonal self orientations. This association is expected to be much higher for the impersonal self than for the ego-invested self. The integrated orientation is subsequently hypothesized to be positively associated with intrinsic values and unrelated to extrinsic values, whereas the ego-invested self is

expected to be positively associated with extrinsic values and unrelated to intrinsic values. The impersonal self is expected to be unrelated to both intrinsic and extrinsic values. In the context of the present study, SEM models will initially be tested on the Yugoslav sample. Results will thereafter be compared to those of the Canadian sample of Study 2 by means of multigroup structural equation modeling.

Though the pattern of relationships between the variables under study is hypothesized to be equivalent, variations are expected to occur in the extent to which values are endorsed across cultures. That is, mean differences are expected to emerge in the magnitude of value scores, and prevailing values for Canadians and Yugoslavs are expected to differ.

Canada and Yugoslavia are two regions that can be distinguished in many regards. The people of Serbia and Monte Negro (the greater part of former Yugoslavia) are mostly orthodox Christians who have struggled with Turkish domination for more than 500 years, remaining a politically suppressed and undeveloped part of Europe. During World War II, this region was under German control, and was in a state of civil war between the conservative (royal) party and the radical left wing party (communists). Post-war Yugoslavia developed a self-governing socialist economy, a system in which companies were state-owned but the responsibility for their functioning was placed on local employees. The official ideology favoured internationalism, humanism, and collectivistic values, such as mutual support and altruism. The emergence of individualistic values were closely watched and controlled, but the influence of intellectuals and the partial introduction of market economy created a shift in the Yugoslav society during the 1980s. This society was very secure and politically stable until the controlling mechanisms were

weakened to an extent that allowed the nationalistic forces to offer security within national boundaries and a nationalistic type of collectivism. All these historic circumstances are reflected very well in Hofstede's (1991) cultural indexes, that describe former Yugoslavia as high on power (76) and inability to tolerate uncertainty (88), and low on individualism (27) and masculinity (21).

On the contrary, Canada did not pass through such a turbulent social history, as many European nations did during the 20<sup>th</sup> century. Steady economical development on the basis of a liberal capitalistic ideology, and the absence of substantial social changes during this period of time reinforced the value orientations of Canadians who strongly support individualism and a democratic and egalitarian social structure. Compared to Yugoslavia, Hofstede (1991) showed that Canadians positioned themselves much lower on power (39) and on uncertainty avoidance (48), but much higher on individualism (80) and on ego attainment (i.e., masculinity; 52). Also, it is very likely that the Canadian and Yugoslav cultures would be positioned differently within Triandis (1998) model of cultural orientations. This model comprises four categories that correspond to the quadrants defined by two underlying dimensions (i.e., horizontal vs. vertical, and individualism vs. collectivism). A study performed using this approach revealed that Canadian students had a high average value on the horizontal-individualism dimension, indicating an orientation toward egalitarian relations between people of different status, and personal autonomy and development (Chirkov, Lynch, & Niwa, 2005). Triandis' model was never tested using a Yugoslav sample. However, it is a historical fact that Yugoslavs have been exposed to a collectivist political doctrine for a long time, developing mainly vertical relationships in society. Considering such significant differences between Canadians and Yugoslavs, it is

useful to test for possible differences in the magnitude of prevailing values in both societies. Specific hypotheses were formulated by deriving a correspondence between Hofstede's (1991) and Triandis' (1998) sociological perspectives, and Schwartz's model of universal values (1992). Because Yugoslav society is described as a collectivistic and vertical system that is high on power and has little tolerance for uncertainty, it is hypothesized that it will display higher universalism, power, security, conformity, tradition, achievement, and lower self-direction, stimulation, hedonism, and benevolence than the Canadian society. These differences in individual values are expected to be reflected in higher order values. That is, the Yugoslav sample is hypothesized to report higher ratings than the Canadian sample for self-enhancement and conservation, and lower ratings for self-transcendence and openness to change.

### ***Method***

#### ***Participants and Procedure***

Data were gathered on 370 participants recruited among students of the University of Novi Sad who live in Serbia and Monte Negro (former Yugoslavia). The sample was comprised of 215 women and 74 men (one participant did not disclose gender). The mean age of participants was 21.3 years ( $SD = 2.24$ ). With the permission of professors, questionnaires were filled out during class time. Students were informed about the goal of the project, and were told that participation was voluntary, anonymous, and confidential.

#### ***Measures***

As in Study 2, participants were given a package that comprised an instruction sheet, the Basic Psychological Needs Scale (Deci & Ryan, 2000); the Ego Functioning Questionnaire; the Cultural Values Survey (Schwartz, 1994), and a few demographic

questions. Questionnaires were translated in Serbo-Croatian using a parallel back translation procedure (Vallerand, 1989). In the present study, the reliability (Cronbach's  $\alpha$ ) of these instruments was similar to that of Study 2. The internal consistency for the subscales of the Basic Psychological Needs Scale was .69 for autonomy, .52 for competence, and .76 for relatedness. The internal consistency of the three subscales of the Ego Functioning Questionnaire was .67 for the integrated self, .80 for the ego-invested self, and .82 for the impersonal self. Cronbach's  $\alpha$  of the ten subscales of the Cultural Values Survey ranged between .56 and .78.

### *Analyses*

***Replication of Study 2 Results.*** In accordance with the sequence of analyses that were performed in Study 2, preliminary analyses were first conducted to examine descriptive statistics and to screen for deviations from statistical assumptions. Secondly, structural equation modeling analyses were conducted. Again, as in Study 2, the factorial structure of all instruments was verified using confirmatory factor analyses to establish the validity of the measurement model. Two full structural models were tested thereafter. The first of these models was designed to test the associations between needs and values. The second model aimed to assess the mediating role of self orientation by evaluating the network of associations between needs satisfaction, self orientations, and values.

***Cross-Cultural Invariance Testing.*** To quantitatively document the similarities and differences between the Canadian sample of Study 2 and the Yugoslav sample of Study 3, multigroup invariance testing was performed on the confirmatory factor analyses devised to verify the measurement model, and on the full structural equation model. This dual approach was favoured to obtain information on the correspondence between samples for

measurement parameters (i.e., factor loadings, factor variances and covariances), as well as for structural parameters (i.e., regression coefficients that quantify the associations between needs satisfaction, self-orientations, and values).

### ***Cross-Cultural Comparison of prevailing values for Canadians and Yugoslavs***

Lastly, variations in the magnitude of value scores for Study 2 and Study 3 samples was examined using a series of t-tests. Levene's test was performed to assess the homogeneity of variance across samples and robust t-values were generated when appropriate. The Bonferroni correction was applied to the critical  $p$  value of all comparisons to control for the risk of familywise increase in type 1 error that is incurred when performing multiple comparisons.

## ***Results***

### ***Preliminary Analyses***

***Outliers.*** The inspection of data for univariate outliers revealed that standardized scores for ten cases were substantially over the critical value (i.e.,  $z > 3.00$ ). After their deletion from the data base, the Mahalanobis' and Cook's distances, leverage values, and standardized residuals were calculated to test for multivariate outliers. There were no scores above the critical value on Mahalanobis test ( $\chi^2_{(df=11)} > 31.264, p < .001$ ), and no Cook's distance or leverage value were greater than 1.00 (Tabachnick & Fidell, 2007). Multivariate standardized residuals were distributed normally.

***Sample size.*** After the deletion of 10 cases during data screening, the sample was further reduced randomly to 300 participants. Since Study 3 was devised to cross-validate the findings of Study 2, the additional 46 participants were excluded in order to equalize

sample sizes in both studies. The final sample size in Study 3 meets the criterion that is recommended for structural equation modeling (i.e., at least 200; Byrne, 2004).

**Normality.** The mean, standard deviation, skewness and kurtosis of all variables under study are given in Table 8. Skewness values ranged between -.80 and .83 ( $M = -.22$ ). Kurtosis values varied from -.56 to .42 ( $M = -.05$ ). As in Study 1, there is no indication that the data significantly depart from normality, as all values belong to the acceptable interval of  $-1.00$  to  $+1.00$  (Muthen & Kaplan, 1985). Regardless, to ensure that all possible precautions were taken, robust measures of model fit were used in structural equation modeling analyses.

**Linearity.** Pairs of variables were randomly selected and tested for potential departure from linear relationships. Scattergrams showed bivariate dispersion patterns that approximated oval shapes. Also, the distribution of standardized multivariate residuals in this study appeared normally distributed.

**Homoscedasticity.** The scattergrams were also inspected to identify potential non-homogenous distributions of variances among pairs of variables. No significant heteroscedasticity was observed in the variable set.

**Multicollinearity.** The inspection of correlations between all pairs of variables did not reveal any signs of multicollinearity (i.e.,  $r \geq 0.90$ ; Tabachnick & Fidell, 2007). Also, squared multiple correlations calculated for each variable as a DV demonstrated that condition indexes greater than 30 were not accompanied by two individual variables with a proportion of variance greater than .50 (Tabachnick & Fidell, 2007).

Table 8

*Summary Statistics for Psychological Needs, Self Orientations, and Values (Study 3)*

Variable	Mean	Standard Deviation	Skewness	Kurtosis
<b>Basic Psychological Needs</b>				
Autonomy	4.92	.93	-.29	-.60
Competence	4.85	.86	-.04	-.45
Relatedness	5.06	.88	-.28	-.20
<b>Self</b>				
Integrated Self	5.25	.78	-.45	.19
Ego-Invested Self	4.02	.97	.04	.24
Impersonal Self	2.69	1.10	.83	.33
<b>Universal Human Values</b>				
Self-Transcendence	5.41	.89	-.80	.39
Openness to Change	4.87	1.17	-.49	-.32
Hedonism	4.59	1.58	-.63	.07
Self-Enhancement	4.15	.98	.02	-.06
Conservation	4.29	1.02	-.33	-.10

***Descriptive Statistics***

As previously indicated, mean values for the variables under study are reported in Table 8.

***Basic Psychological Needs.*** Need satisfaction levels were very similar for all three psychological needs. That is, moderately high means were obtained for autonomy, competence, and relatedness.

***Self Orientations.*** The integrated self orientation was endorsed to a high extent and was the prevailing self orientation in the sample. The ego-invested self was the second most prevalent orientation and was adopted to a moderate extent. The impersonal self was the least favoured ego orientation and the magnitude of the mean for this variable was relatively low.

***Universal Human Values.*** Self-transcendence and openness to change were highly endorsed. The level of hedonism was moderately high. Self-enhancement and conservation displayed moderate averages. As in Study 2, these results suggest a more pronounced inclination towards intrinsic than extrinsic values.

### ***Structural Equation Modeling***

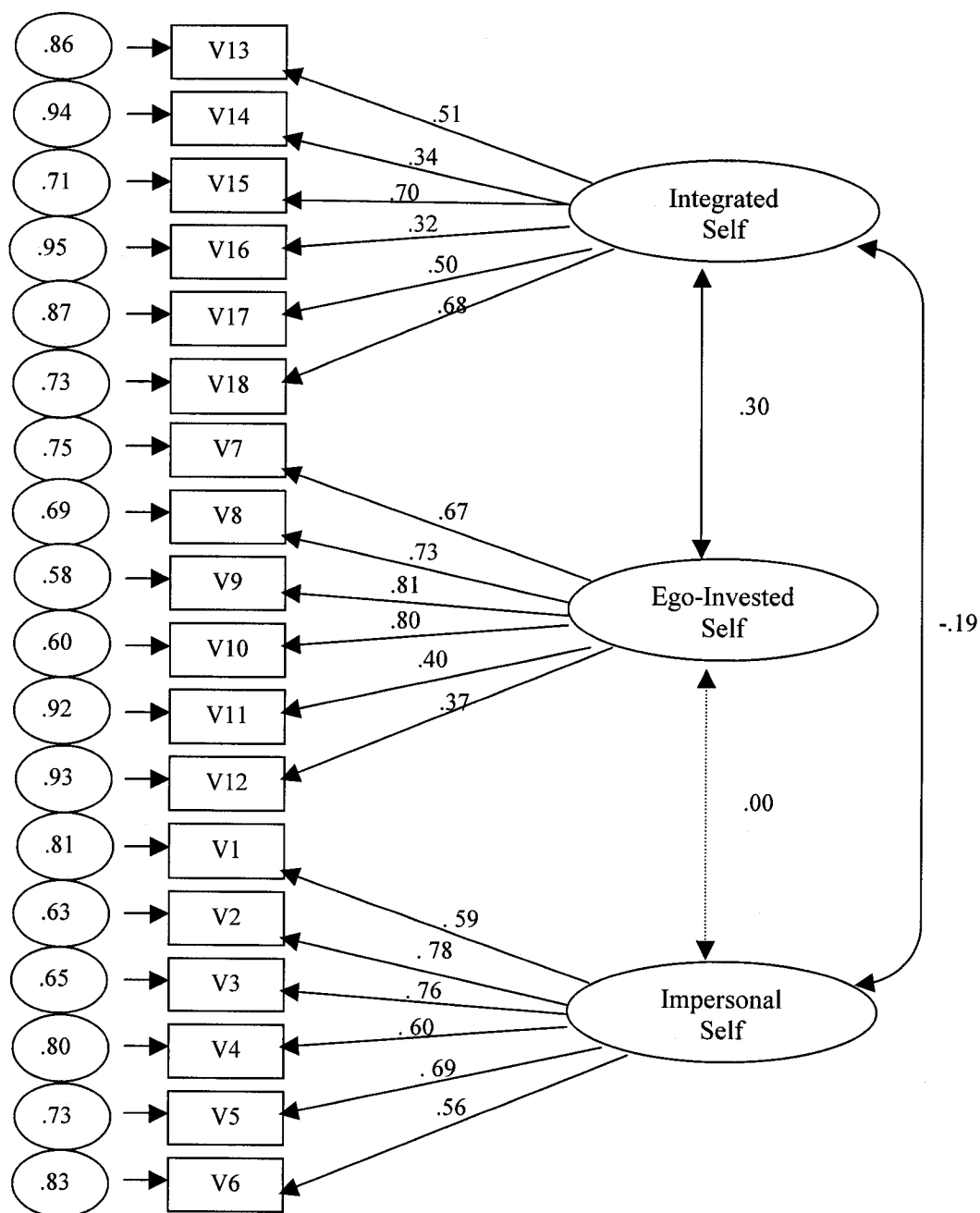
***Testing the measurement model.*** As in Study 2, the measurement model was first established by performing CFAs designed to verify whether the indicators selected for each component of the full structural equation model functioned properly. Separate CFAs were thus performed for psychological needs, self orientations, and values. Please note that, in addition to setting the stage for the full structural equation model for the Yugoslav sample, the present set of CFAs is also a necessary preliminary step in the establishment of the baseline model that will be utilized in multigroup invariance testing. Indeed, when full structural equation models are to be compared quantitatively across samples, it is first essential to pin down the specific parameters of the measurement models in both samples. This ensures that the comparison of regression coefficients between factors during multigroup testing is unaffected by unassigned variance in measurement components (Byrne, 1994).

***Psychological Needs Satisfaction.*** As in Study 2, the items of the Basic Psychological Needs Scale (Deci & Ryan, 2000) were grouped by pairs within subscales to create indicators. Items were distributed within indicators to equalize reliability (item-total correlations) as much as possible. The resulting 10 indicators were subjected to a second order CFA that comprised 3 first order factors (autonomy, competence, and relatedness) and one higher level factor (i.e., overall need satisfaction). This model included the

estimation of all first and second order factor loadings, factor variances and covariances, and indicators uniqueness values. The first target loading on each first and second order factor was fixed to 1 to ensure statistical identification. Results revealed a satisfactory model fit ( $S-B\chi^2_{(32, N=300)}=74.22, p<.001$ ; RMSEA=.07; GFI=.95; CFI=.94). All estimated parameters were statistically significant and of acceptable magnitude. No post hoc respecifications were needed.

**Self Orientation.** Firstly, to complement the information obtained in Studies 1 and 2, a classic CFA was performed to further document the factorial structure of the Ego Functioning Questionnaire. This CFA model was identical to that of Study 2 and incorporated the estimation of factor loadings, factor variances and covariances, and item uniqueness values. For identification purposes, the first target loading of each factor was fixed to 1. The covariance matrix that was analyzed is provided in Appendix E. Results revealed an adequate model fit ( $S-B\chi^2_{(132, N=300)}=211.62, p<.001$ ; RMSEA=.05; GFI=.91; CFI=.94). As can be seen in Figure 8, all estimated parameters were statistically significant and of acceptable magnitude. No a posteriori adjustments were required. The final model is represented by Figure 8.

Secondly, for the purposes of the present study, indicators were created by combining items two by two within subscales. Item reliability (item-total correlations) was distributed as evenly as possible across indicators. The factorial structure of indicators was tested using a standard CFA model. A satisfactory model fit was obtained ( $S-B\chi^2_{(24, N=300)}=64.35, p<.001$ ; RMSEA=.08; GFI=.95; CFI=.94). All model parameters were statistically significant and of acceptable magnitude. No post hoc changes were implemented.



**Figure 8.** Factorial Structure of the EFQ (Study 3)

**Intrinsic and Extrinsic Values.** As in Study 2, the items of the Cultural Values Survey (Schwartz, 1994) were first averaged for all individual value subscales (except hedonism). Means were further computed to generate four indicators representing the higher level values described by Schwartz's (1992) circumplex model: openness to change

(stimulation and self-direction), self-transcendence (universalism and benevolence), conservation (conformity, tradition, security), and self-enhancement (achievement and power). Again, as in Study 2, hedonism was not included in higher level dimensions and the items of this subscale were averaged to yield a separate indicator. Openness to change and self-transcendence were used to represent intrinsic values, whereas extrinsic values were portrayed by conservation, self-enhancement, and hedonism.

This model was tested by means of a CFA that entailed the estimation of factor loadings, factor variances and covariances, and item uniqueness values. To allow for statistical identification, the first target loading of each factor was fixed to 1. This model yielded an adequate adjustment ( $S-B\chi^2_{(3, N=300)}=24.51, p<.001$ ; RMSEA=.16; GFI=.96; CFI=.94). All parameters were significant and of acceptable magnitude. One error covariance (E16,E13) was released for post hoc model fitting purposes.

### ***Cross-Cultural Invariance Testing of Measurement Models***

The invariance of measurement components must be examined before multigroup structural models are performed. The CFAs performed to evaluate the adequacy of measurement models for psychological needs, self orientations, and values, were specified in an equivalent manner for the Canadian sample of Study 2 and the Yugoslav sample of the present study. It is now time to ascertain whether the estimated parameters in those equivalent models are invariant. Measurement invariance testing was performed in three sequential steps: estimating the baseline model, testing for the invariance of factor loadings, and testing for the invariance of factor variances and covariances (Byrne, 1998). The baseline model provides overall fit indices for a CFA where the same measurement model is imposed on two groups, but in which no parameters are constrained across groups.

Factor loading invariance was tested next by applying equality constraints across groups for all estimated loadings. Factor variance and covariance constraints were applied in the third and final step. Chi-square and CFI differences between the baseline model and subsequent models were computed and tested for statistical significance. Change in chi-square is the statistical test that has been traditionally used to evaluate invariance (Kline, 1998). However, Cheung and Rensvold (2002) recently demonstrated that change in CFI is a superior test of invariance because it is independent of model complexity and sample size. Changes in CFI smaller than or equal to 0.01 are considered non statistically significant. When factor loadings are invariant, it indicates that item content was interpreted in an equivalent manner across groups. Invariant factor covariances denote equivalent associations between constructs across groups (Byrne, 1998).

**Psychological Needs.** The results are presented in Table 9. As can be seen, multigroup models showed an excellent fit. Factor loadings were invariant across groups, as differences in  $S-B\chi^2$  and CFI were not statistically significant. Factor variances and covariances were not constrained because the covariances between first order factors were modeled by loadings with the second order factor, and there was a single higher order factor. In sum, results showed that the ten indicators for psychological needs displayed equivalent loadings on their home factors for the Canadian and Yugoslav samples.

Table 9

*Measurement Invariance of Psychological Needs Measurement Model across Canadian and Yugoslav Samples*

	S- $B\chi^2$	Df	$\Delta S-B\chi^2$	$\Delta df$	CFI	$\Delta CFI$	RMSEA
Baseline	133.148	64			0.95		0.04
Loadings Constrained	133.872	71	0.72	7	0.95	0.00	0.04

Note.  $\Delta S-B\chi^2$  and  $\Delta CFI$  were not statistically significant.

***Self Orientations.*** To complement the psychometric information pertaining to the factorial structure of the EFQ obtained in Studies 1 and 2, as well as previously in the present study, a multigroup invariance CFA was first performed using all 18 items of the Ego Functioning Questionnaire. Results are reported in Table 10. All equality constraints had a non significant impact (based on the  $\Delta S-B\chi^2$  and  $\Delta CFI$  criteria). Factor loadings, as well as factor variances and covariances, were equivalent across groups. This suggests that the items of the EFQ were interpreted in a similar manner by Canadians and Yugoslavs, and that the structure of associations between subscales was stable across groups.

A second multigroup analysis was performed to verify that the EFQ indicators also had invariant loadings, factor variances and covariances. Results revealed that all parameters of interest were indeed invariant.

***Values.*** Multigroup invariance testing was performed successfully. Results are reported in Table 11. All equality constraints had a non significant impact (based on the  $\Delta S-B\chi^2$  and  $\Delta CFI$  criteria). Factor loadings, as well as factor variances and covariances, were equivalent across groups. This indicates that value indicators loaded on their home factors (i.e., intrinsic and extrinsic values) in a very similar manner when the Cultural Values Survey was administered to Canadians and Yugoslavs, and that the covariance between intrinsic and extrinsic values was the same across groups.

Table 10

*Measurement Invariance of the Ego Functioning Questionnaire across Canadian and Yugoslav Samples*

	S-B $\chi^2$	Df	$\Delta$ S-B $\chi^2$	$\Delta$ df	CFI	$\Delta$ CFI	RMSEA
<i>Full 18 items version of EFQ</i>							
Baseline	495.108	264			0.924		0.04
Loadings Constrained	497.997	279	2.889	15	0.928	0.004	0.04
Loadings and Factor							
Covariances Constrained	497.960	282	2.852	18	0.929	0.001	0.04
Loadings, Factor							
Covariances, and Factor							
Variances Constrained	498.814	285	3.706	21	0.930	0.001	0.04
<i>Nine Indicators version of EFQ</i>							
Baseline	82.690	48			0.98		0.04
Loadings Constrained	81.564	54	1.126	6	0.98	0.000	0.03
Loadings and Factor							
Covariances Constrained	81.777	57	0.913	9	0.98	0.000	0.03
Loadings, Factor							
Covariances, and Factor							
Variances Constrained	82.694	60	0.004	12	0.98	0.000	0.03

Note.  $\Delta$ S-B $\chi^2$  and  $\Delta$ CFI were not statistically significant.

Table 11

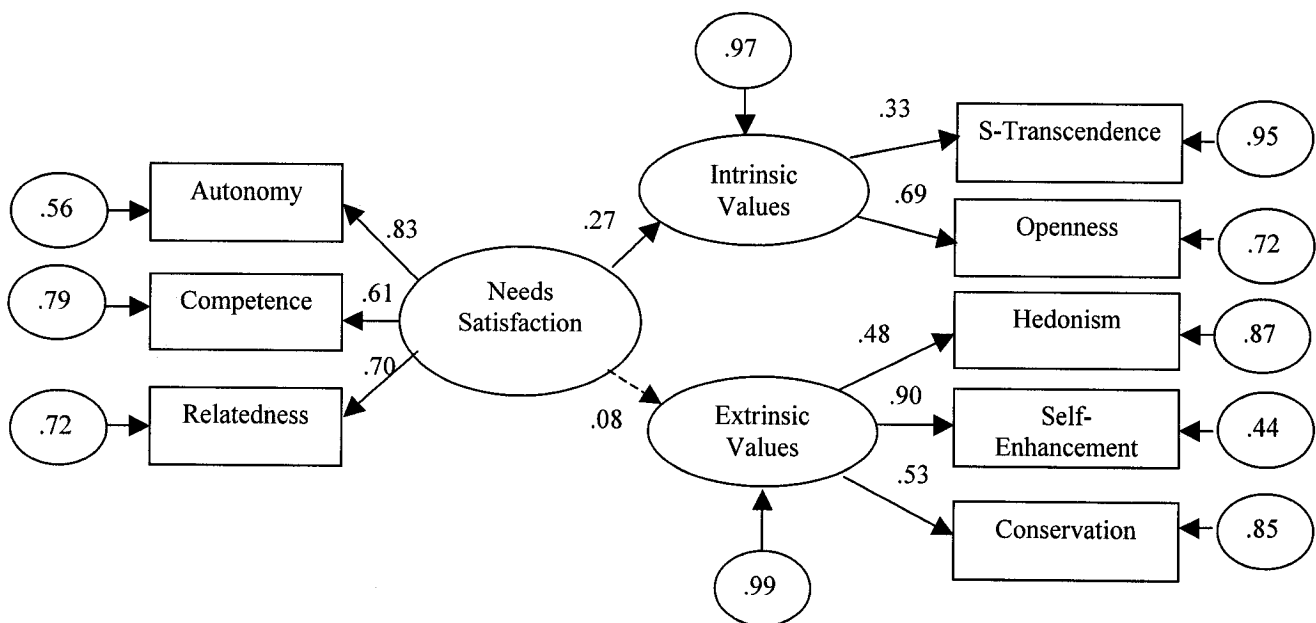
*Measurement Invariance of Values Measurement Model across Canadian and Yugoslav Samples*

	S-B $\chi^2$	df	$\Delta$ S-B $\chi^2$	$\Delta$ df	CFI	$\Delta$ CFI	RMSEA
Baseline	70.756	6			0.91		0.13
Loadings Constrained	73.118	9	2.362	3	0.91	0.00	0.11
Loadings and Factor							
Covariances Constrained	73.951	11	3.195	5	0.91	0.00	0.10
Loadings, Factor							
Covariances, and Factor							
Variances Constrained	74.686	12	3.930	6	0.91	0.00	0.09

Note.  $\Delta$ S-B $\chi^2$  and  $\Delta$ CFI were not statistically significant.

### *Testing the Hypothesized Needs-Values Relationship*

As in Study 2, results supported the hypothesized association between psychological needs satisfaction and values. This structural model (see covariance matrix in Appendix F) displayed a satisfactory adjustment to the sample covariance ( $S-B\chi^2_{(16, N=300)}=56.78, p<.001$ ; RMSEA=.09; GFI=.96; CFI=.93). Two post hoc respecifications were implemented (i.e., D3,D2 and E7,E5). Model parameters are presented in Figure 9.



**Figure 9.** Relationships between Needs and Values (Study 3;  $N=300$ ). With the exception of the association between needs satisfaction and extrinsic values, all parameters are significant at the .01 level.

As expected, needs satisfaction was positively associated with intrinsic values. However, the expected association between needs satisfaction and extrinsic values failed to materialize.

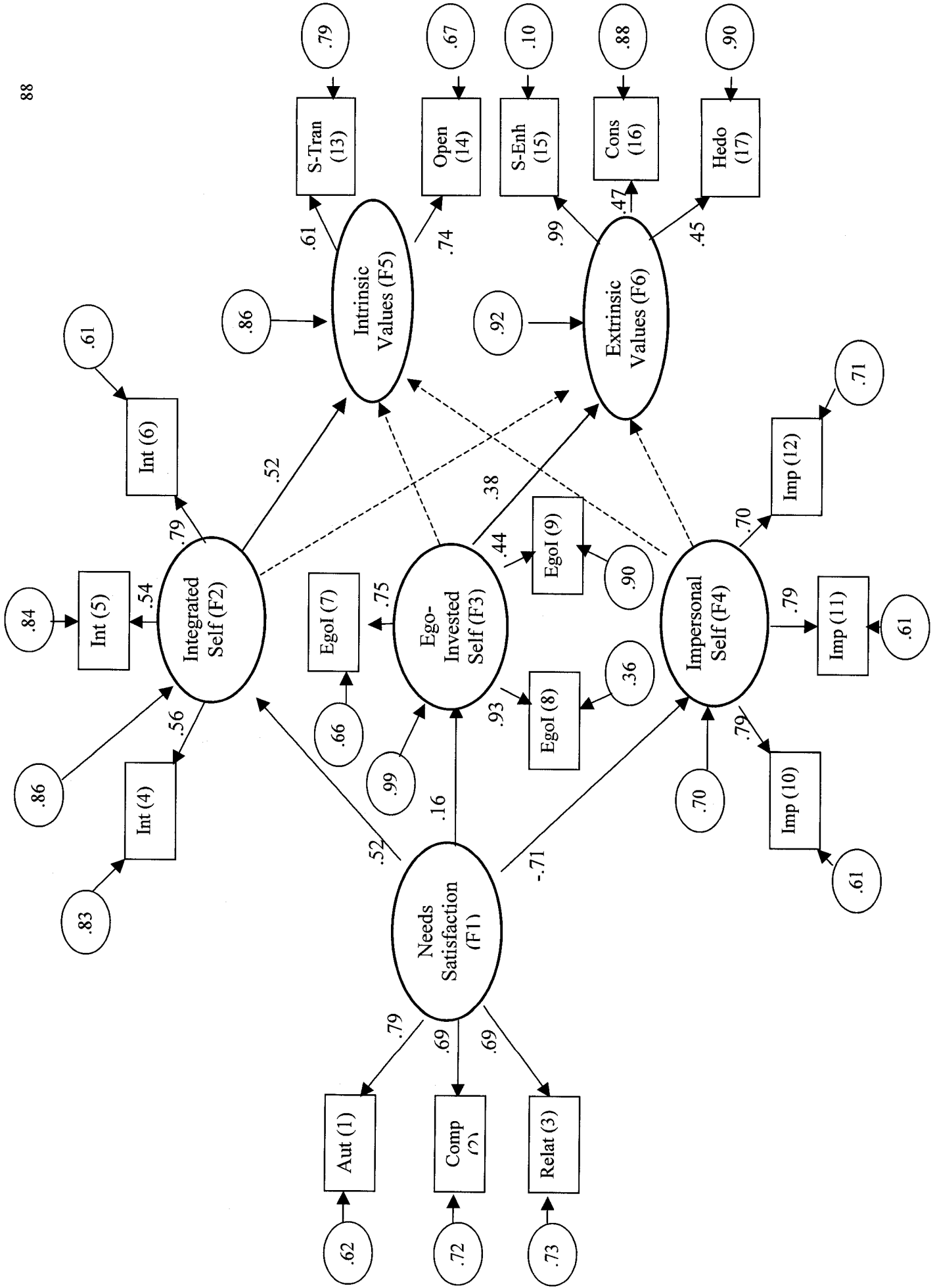
### *Testing the Mediating Effect of Self Orientation*

The previous sections tested the basic association that was hypothesized between needs satisfaction and values. This relationship was documented for intrinsic values, but

not for extrinsic values. In the current section, the hypothesized network of associations between needs, self-orientations, and values will be assessed. If the hypothesized model is corroborated, it will establish the mediating impact of the integrated self orientation on the association between needs satisfaction and values. However, no mediating effect can be found for extrinsic values because the initial required association is absent. The expected association between needs satisfaction and the ego-invested self, as well as the subsequent association between the ego-invested self and extrinsic values, may still be validated. However, if they are significant, it is important to realize that they represent two independent direct effects that do not combine to yield a mediating effect. Accordingly, the indirect effect for extrinsic values should be non-significant.

The full structural equation model devised to test the associations between needs satisfaction, self orientations, and values, displayed an acceptable adjustment ( $S-B\chi^2_{(16, N=300)}=253.43, p<.001$ ; RMSEA=.07; GFI=.90; CFI=.91). Four post hoc modifications were implemented (E16,E13; D6,D5; E17,E14; E10,E9). All model parameters were statistically significant at the .05 level. Parameter estimates are presented in Figure 10. The hypothesized network of associations was corroborated, with the exception of the association between needs satisfaction and the ego-invested self. This relationship was significant, but its valence was reversed. A modest negative association was hypothesized, yet a modest positive one was obtained.

This model corroborates the presence of a mediating effect between needs satisfaction and intrinsic values that occurs through the integrated self orientation. Indeed, this indirect effect was significant (.27;  $p<.01$ ). As expected, the indirect effect for extrinsic values (.06) was non significant.



**Figure 10.** Relationships between Needs Satisfaction, Self Orientations, and Values. (Study 3; N=300). All parameters are standardized and significant at the .01 level. Dashed lines represent non-significant coefficients.

***Cross-Cultural Invariance of the Relationships between Needs Satisfaction, Self-Orientations, and Values***

In spite of the fact that the mediation effect of self-orientation on the association between needs and values was refuted, the network of associations between the variables under study appeared relatively similar when compared qualitatively. To formally test for possible quantitative differences between the full structural equation models obtained for the Canadian and Yugoslav samples, multigroup invariance testing was performed (see Table 12). Measurement constraints had no effect. However, structural constraints yielded a significant  $\Delta S-B\chi^2$  and a non-significant  $\Delta CFI$  that suggested minor deviations between the magnitude of regression paths between factors across groups. The Lagrange Multiplier (LM) test provided specific information on the tenability of structural constraints.

Table 12

*Invariance of Relationships between Needs Satisfaction, Self-Orientations, and Values, across Canadian and Yugoslav Samples (Study 3)*

Models	S-B $\chi^2$	Df	$\Delta S-B\chi^2$	$\Delta df$	CFI	$\Delta CFI$	RMSEA
Baseline	495.108	264			0.924		0.04
Measurement Model	497.997	279	2.889	15	0.928	0.004	0.04
Constrained							
Structural Model							
Constrained	497.960	282	2.852	18	0.929	0.001	0.04
Structural Constraints		LM (df=1)					
Needs Satisfaction → Integrated Self		5.08*					
Needs Satisfaction → Impersonal Self		6.21*					
Needs Satisfaction → Ego-Invested Self		17.17***					
Integrated Self → Intrinsic Values		.01					
Ego-Invested Self → Extrinsic values		4.08*					

*Note.*  $\Delta S-B\chi^2$  and  $\Delta CFI$  were not statistically significant. \*  $p < .05$ ; \*\*  $p < .01$ , \*\*\*  $p < .001$ .

A large difference was obtained across samples for the regression path between needs satisfaction and the ego-invested self. This makes sense considering that this path was negative in the Canadian Sample and positive in the Yugoslav sample. No difference

was identified for the path between the integrated self and intrinsic values. Minor discrepancies were noted for the three remaining regression paths.

### ***Endorsement of Values across the Two Cultural Groups***

In addition to all tests of structural hypotheses in latent space, analyses were conducted to examine differences between observed scores, so that the two cultures sampled in Studies 2 and 3 could be compared according to their endorsement of human values. Mean comparisons (t-tests) were performed for all ten universal human values and all four higher grouping of values. Levene's test was first conducted to identify heterogeneous variances across groups. It was significant for self-direction, stimulation, hedonism, power, and openness to change. T-tests that correct for unequal variances were therefore utilized for these five variables.

In order to control for the familywise error that accumulates in multiple comparisons, the Bonferroni correction was applied to the critical t-test probability value. Because 14 comparisons were performed, the level of significance was calculated as  $\alpha' = \alpha/14$  (Howell, 2002), so that each *t*-value was considered significant at the .05 level if its probability was lower than 0.004. It was first hypothesized that Yugoslavs would report higher levels of universalism, power, security, conformity, tradition and achievement and lower levels of self-direction, stimulations, hedonism, and benevolence, than Canadians. Results are reported in Table 13. Modest support was obtained. As hypothesized, if the Bonferroni cut off is strictly applied, Canadians displayed a significantly higher endorsement of the following values: hedonism, stimulation, tradition, and benevolence. Yet, if a more relaxed criteria is used, a significant trend was also found for Yugoslavs who, as expected, endorsed universalism more strongly than their Canadian counterparts.

Contrary to hypotheses, Canadians rated tradition to a higher degree than Yugoslavs. No differences were identified across cultural groups for the remaining five individual values.

Table 13

*Comparison of the Observed Means for Values for Canadians and Yugoslavs (Study 3)*

Variable	Mean (SD)		<i>t</i> -Value	Df	Probability
	Canadians (n=300)	Yugoslavs (n=300)			
Universalism	5.09 (1.07)	5.32 (1.05)	-2.60	598	.009
Benevolence	5.72 (.84)	5.50 (.94)	3.02	598	.003
Self-Direction	5.41 (.90)	5.54 (1.01)	-1.73	590.6	.085
Stimulation	4.78 (1.30)	4.19 (1.62)	4.93	571.9	.000
Hedonism (H)	5.55 (1.29)	4.59 (1.58)	7.78	574.7	.000
Power	2.99 (1.42)	3.06 (1.25)	-.66	587.7	.785
Achievement	5.34 (1.00)	5.24 (.96)	1.25	598	.213
Security	5.08 (.99)	5.23 (.93)	-1.89	598	.059
Conformity	4.87 (1.27)	4.70 (1.21)	1.71	598	.088
Tradition	3.45 (1.46)	2.97 (1.51)	3.94	598	.000
Self-Transcendence	5.41 (.83)	5.41 (.89)	.01	598	.991
Openness to Change	5.10 (.97)	4.87 (1.17)	2.52	580.1	.012
Self-Enhancement	4.17 (1.06)	4.15 (.98)	.19	598	.853
Conservation	4.46 (1.07)	4.29 (1.02)	2.03	598	.043

*Note.* All *t*-values with a probability equal or lower than 0.004 were considered significant.

As for higher level values, it was hypothesized that the average level of endorsement of conservation and self-enhancement would be higher, and self-transcendence and openness lower, for participants in the Yugoslav than in the Canadian sample. Using the

Bonferroni correction, these hypotheses were refuted. Yet, if a more relaxed criteria is applied, openness to change was found to be higher in Canadians than Yugoslavs.

### *Discussion*

The goal of the present study was to provide a cross-cultural test of the relationships between need satisfaction, self orientation, and values. As in Study 2, two structural models were tested. The objective of the first one was to ascertain the presence of the alleged relationship between needs satisfaction and values. The goal of the second model was to evaluate the entire network of associations between the variables under study. Here again, the mediating role of self orientation was of focal importance. Finally, multigroup invariance testing was performed on the final full structural models of Studies 2 and 3. Partial support was obtained for research hypotheses.

The first model examined the fundamental association that is said to occur between needs satisfaction and values. Model adjustment was satisfactory. Needs satisfaction was positively associated, as expected, with intrinsic values. However, the hypothesized modest association between needs satisfaction and extrinsic values failed to occur. This is contrary to expectations, but perhaps not entirely surprising. Not much theoretical information was available, at the onset of the present project, to formulate a hypothesis for this particular association. Clearly, need satisfaction should relate positively to intrinsic values. But how should it associate with extrinsic values? Do partially satisfied needs correlate weakly but positively to extrinsic values? Is a certain degree of frustration sufficient to produce a mild negative association between need satisfaction and extrinsic values? Or, alternatively, since extrinsic values imply the adoption of external standards, could they be uncorrelated with internal processes such as psychological needs? Initially, in the absence of firm theoretical

guidelines, we opted for the first of these three possibilities. Results from Study 2 supported this choice. By contrast, the present findings suggest that needs satisfaction and extrinsic values are independent. Future studies are required to thoroughly address this issue.

In the meantime, in the present study, the absence of a relationship between needs and extrinsic values implied that, in the case of the Yugoslav sample, self orientation did not act as a mediator for extrinsic values. The second full structural equation model, representing the entire hypothesized network of associations under study, was tested nonetheless. This was done because it was still possible for self orientation to mediate intrinsic values. It was also still possible for the direct associations between need satisfaction and ego-invested self, and between ego-invested self and extrinsic values, to conform to hypotheses, even if the underlying fundamental association between needs and extrinsic values was absent. Indeed, results revealed a well fitting model wherein all hypothesized paths were largely corroborated. As expected, needs satisfaction was positively related to the integrated self orientation, which was, in turn, positively associated with intrinsic values. The fundamental relationship between needs satisfaction and intrinsic values was nullified by these associations. Sobel's test of indirect effects further substantiated the mediating role of the integrated self orientation on the relationship between needs satisfaction and intrinsic values. The remaining associations that were successfully identified included the negative association between need satisfaction and impersonal self, and the positive association between ego-invested self and extrinsic values. With respect to the hypothesized model, the sole dissonant finding consisted of the

association between needs satisfaction and the ego-invested self orientation. This association was statistically significant, but it was positive rather than negative.

To summarize, with the exception of the non significant association between need satisfaction and extrinsic values in the first model and the surprising positive association between need satisfaction and ego-invested self in the second model, Study 3 results corroborated research hypotheses and were consonant with Study 2 results. To complement these findings, formal invariance testing was performed to determine the extent of the similarity between the regression coefficients of the final structural equation models tested in Studies 2 and 3. As described above, the needs satisfactions/ego-invested self association was negative in Study 2 and positive in Study 3. This constituted an important difference that was quantitatively reflected during invariance testing. The remaining regression coefficients displayed modest discrepancies that were statistically significant according to the  $SB\chi^2$  and LM- $\chi^2$  test, but trivial according to the  $\Delta CFI$  test (Cheung & Rensvold, 2002).

Strictly following the Bonferroni criterion for reduction of Type I error (i.e.,  $p < .004$ ), comparisons of observed means revealed that Canadians and Yugoslavs significantly differed, as expected, in the endorsement of three individual values: hedonism, stimulation, and benevolence. On all these values, Canadians showed significantly higher mean values than Yugoslavs. More relaxed statistical criteria, however, also revealed that Yugoslavs endorsed universalism to a higher extent than Canadians. Thus, taking the significance of  $t$ -tests cautiously, Yugoslavs showed a stronger tendency toward concerns about respect and protection of all people and nature (i.e., a higher universalism value), but were less oriented toward such goals on a micro plan, such as helping friends and family members to enhance their well-being (i.e., a lower benevolence

value). Contrary to expectations, Canadians rated tradition higher than Yugoslavs. This puzzling finding is difficult to interpret at the moment, as it goes directly against what is known about these two cultural groups. Future research will be required to elucidate this issue. Unexpected non-significant findings were also obtained for the following values: self-direction, power, achievement, security, and conformity. Thus, for half of the individual values under study, Canadians and Yugoslavs were more alike than anticipated. As for higher level values, a trend was observed, in the expected direction, for openness to change. Canadians scored higher on this variable than Yugoslavs. For the three other higher values, cultural groups did not differ. This also suggests that Canadians and Yugoslavs hold closer values than foreseen.

Generally speaking, mean scores revealed that the two cultural groups were closer than hypothesized, and more similar than suggested by previous empirical findings (Hofstede, 1991). The values that positioned the two groups differently were mainly individualistic values (i.e., benevolence, stimulation, universalism, and openness). Moreover, the value system of Canadians appeared more elevated, aroused, and more engaged than that of Yugoslavs.

The present study extends our knowledge of associations between needs satisfaction, self orientations and values by providing cross-cultural information. However, its correlational design is a limitation that must be acknowledged, as it is not possible to fully ascertain the direction of causal relationships within models. Future studies involving designs in which the temporal sequence of independent and dependent variables can be manipulated (i.e., experimental or longitudinal studies) are required to fully document the

hypothesized causal structure. It is also necessary to note that reliability was quite low for the competence subscale of the Basic Psychological Needs Scale (i.e., .52).

A summary of the entire set of research findings of Studies 1, 2, and 3, underscoring their fundamental and applied implications, and perceived methodological strengths and weaknesses, is offered in the following chapter. Future research venues are discussed as well.

## CHAPTER FIVE

### GENERAL DISCUSSION

#### Summary of Findings

The main goal of this thesis was to examine the mediating role of self-orientation in the relationship between basic psychological needs and universal human values. It comprised three studies. Study 1 consisted of a preliminary undertaking in which an instrument to measure self orientation was developed and validated. The hypothesized network of associations between needs satisfaction, self-orientation and values was tested thereafter using structural equation models in Study 2. Study 3 provided a cross-cultural test for the results of Study 2. Moreover, it allowed for the comparison of the magnitude of prevailing values between Canadians (Study 2) and Yugoslavs (Study 3).

#### *Study 1*

The goal of this study was to develop and validate a measure designed to assess self-orientation, as conceptualized by Hodgins and Knee's (2002): the Ego-Functioning Questionnaire (EFQ). The EFQ comprised three subscales that correspond to the three forms of self-functioning proposed by these authors: the integrated, ego-invested, and impersonal self. It was hypothesized that the EFQ would display a clean factorial structure, acceptable internal properties (i.e., reliability, homogeneity, and representativeness), and satisfactory construct (convergent) validity.

Results revealed that the EFQ did indeed possess sound psychometric characteristics. In Study 1A, using an exploratory factor analysis and an item reduction approach, the six best items per subscale were retained and were found to present a clear factorial structure that explained a substantial portion of sample variance. Later on, the

results of confirmatory factor analyses performed during the preliminary analyses of Studies 2 and 3 corroborated these initial findings. The internal properties of the EFQ were also thoroughly examined in Study 1A using two measurement models (i.e., classical and image) and two scoring techniques (i.e., sums and components). Results indicated that the EFQ's subscales present acceptable reliability, optimal homogeneity and very satisfactory representativeness.

The convergent validity of the EFQ's subscales was assessed in Study 1B by means of associations with conceptually related constructs. Results revealed a wide array of meaningful associations with a variety of motivational, cognitive, affective, and social variables. The construct validity of the EFQ was thus substantiated successfully. Moreover, results also suggested that socially desirable responding did not influence the EFQ.

### ***Study 2***

The goal of Study 2 was to develop and to test the structure of associations between the satisfaction of basic psychological needs, self orientation, and human values. Self orientation was hypothesized to act as a mediator in the relationship between needs and values. Detailed hypotheses included all steps of the formal mediation test proposed by Judd and Kenny (1981). That is, needs satisfaction was hypothesized to covary with intrinsic and extrinsic values. These associations were thereafter expected to disappear once self orientations were included as predictors of values. Moreover, to fully substantiate the mediating effect of self orientation, needs satisfaction was hypothesized to be associated meaningfully with self orientations. All hypotheses were successfully corroborated.

A first structural equation model was tested to ascertain that the fundamental association between needs and values was indeed present. Model fit was satisfactory. As expected, needs satisfaction related positively to both intrinsic and extrinsic values. The magnitude of this relationship was higher for intrinsic than for extrinsic values. The impact of self orientations on intrinsic and extrinsic values, and the relationship between needs satisfaction and self orientation, were tested simultaneously in a second structural equation model. Results displayed a well fitting model. As hypothesized, associations between needs satisfaction and intrinsic/extrinsic values were nullified with the inclusion of self orientations in the model. As expected, this mediation effect was effected by the integrated and the ego-invested selves. Needs satisfaction was positively associated with the integrated self which accounted for the covariance between needs and intrinsic values. Needs deprivation was related to ego-invested functioning, which explained the variance between needs and extrinsic values. Finally, severe need deprivation was associated with the impersonal self. This form of self-system was uncorrelated with both intrinsic and extrinsic values.

### ***Study 3***

The main goal of this study was to cross-validate results from Study 2 on a sample of participants from former Yugoslavia (i.e., Serbia and Monte Negro). Because basic psychological needs, self-orientations, and the structure of human values are theorized to be universal, it was hypothesized that the relationships between these constructs would be the same in the Yugoslav than in the Canadian sample. Yet, due to significant socio-historical differences between these two cultures, it was hypothesized that the mean levels of value endorsement would differ across samples. Specifically, it was hypothesized that

the Yugoslav sample would display higher universalism, power, security, conformity, tradition, achievement, and lower self-direction, stimulation, hedonism, and benevolence, than the participants in the Canadian sample. These disparities in specific values were expected to influence higher level values. Yugoslavs were hypothesized to report higher ratings than Canadians for self-enhancement and conservation, and lower ratings for transcendence and openness to change.

As in Study 2, two models were tested in Study 3. The aim of the first of these models was to test the relationships between needs and values, and the aim of the second one was to test for the mediation effect of self orientation on that relationship. As in Study 2, this included the simultaneous assessment of associations between need satisfaction and self orientation, as well as those between self orientation and values. Finally, multigroup invariance testing was performed on the final full structural models across the Yugoslav and Canadian samples of Studies 3 and 2.

The fit of the first model (i.e., needs/values associations) was satisfactory. As expected, needs satisfaction was positively associated with intrinsic values. However, the expected association between needs satisfaction and extrinsic values was not significant. The fit for the second structural model was also satisfactory. With the exception of the interrelation between needs satisfaction and the ego-invested self orientation, the hypothesized network of associations between needs satisfaction, self orientation, and values was corroborated. Surprisingly, a weak positive association was obtained between these constructs instead of a negative one. These findings also impacted the cross-cultural invariance testing results for the final structural models across the samples from Studies 2 and 3. Indeed, the only substantial difference between models was the unexpected positive

path between need satisfaction and the ego-invested self. Measurement constraints did not produce a significant impact on model fit. Minor discrepancies were noted for the remaining structural relationships between constructs. These modest deviations can probably be attributed to the complexity of the model, as they are trivial according to the  $\Delta$ CFI test (Cheung & Rensvold, 2002).

To summarize, with the exception of the non significant association between needs and extrinsic values in the first model, and the surprising positive association between need satisfaction and ego-invested self in the second model, Study 3 results corroborated research hypotheses and were consonant with Study 2 results.

Mixed support was obtained for the hypotheses pertaining to the comparison of prevailing values across cultures. Canadians were expected to score higher on individualistic values (i.e., self-direction, stimulation, hedonism, and benevolence). With the exception of self-direction, for which no difference across groups were detected, these hypotheses were corroborated. These results were reflected in higher level values by a stronger inclination in Canadians toward openness to change. Taken together, these results suggest a higher propensity toward stimulation, variety, pleasure, and greater curiosity towards the unknown in Canadians than Yugoslavs. However, Yugoslavs were hypothesized to display higher collectivistic, hierarchical, and conservative values than Canadians. With the exception of higher ratings for universalism in Yugoslavs, these expected variations did not materialize. No differences were found for power, achievement, security, and conformity, as individual values, nor for conservation, self-enhancement, and self-transcendence, as higher level values. Thus, in this respect, both groups appear more similar than was initially anticipated.

### *Synthesis of Corroborative Evidence*

Overall, the goals of the present project were mostly achieved and the proposed hypotheses largely supported. The goal of Study 1 was to develop a measure of self orientation on the basis of the theoretical taxonomy (i.e., the integrated, ego-invested, and impersonal selves) proposed by Hodgins & Knee (2002). It was hypothesized that this instrument would present sound psychometric properties. The Ego Functioning Questionnaire was successfully developed and validated. It demonstrated an impeccable factor structure (as tested by exploratory and confirmatory analyses, as well as multi-group cross-cultural invariance testing), acceptable internal properties (reliability, homogeneity, and representativeness), and satisfactory construct (convergent) validity. EFQ results were not affected by social desirability.

The goal of Study 2 was to test two models designed to assess the proposed network of associations between need satisfaction, self orientation, and values. The first of these models aimed to test the hypothesis that need satisfaction was associated with values (intrinsic and extrinsic). The second model strived to test the complex hypothesized set of associations devised to assess the mediating role of self orientation on the relationships between need satisfaction and values. Unequivocal support was obtained for both models. Goodness-of-fit statistics indicated a satisfactory adjustment to sample covariance, all expected parameters were statistically significant and of meaningful magnitude. That is, firstly, Study 2 results documented empirically the association between psychological need satisfaction and values. Secondly, Study 2 results corroborated unambiguously the hypothesized mediating impact of self orientation on the association between need satisfaction and values.

The objective of Study 3 was to replicate the findings of Study 2 in a different cultural context, using a sample from former Yugoslavia. The entire array of hypotheses from Study 2, subsumed here again within two distinct structural models, were evaluated and tested for cross-cultural invariance. Aside from the absent relationships between need satisfaction and extrinsic values in the first model, and the unexpected positive association between need satisfaction and the ego-invested self in the second model, Study 3 results conformed to Study 2 results and offered strong support for research hypotheses. Excluding the two dissonant findings note above, which will be fully addressed in a subsequent section, final models from Studies 2 and 3 were found to be mostly invariant.

Mean levels for prevailing values across cultures were also assessed and were hypothesized to differ. As expected, Canadians displayed higher individualistic values than Yugoslavs. Yugoslavs were expected to report stronger ratings for collectivistic, hierarchical and conservative values but those mean differences mostly failed to materialize. These mixed findings will also be fully attended to further below.

The following section discusses the possible conceptual contributions of the corroborative findings of this thesis. Unexpected findings are addressed and methodological shortcomings acknowledged thereafter.

### ***Theoretical Implications***

The theoretical contributions of the present thesis are manifold. Study 1 results offer a conceptual validation for the self orientation model proposed by Hodgins and Knee (2002). Studies 2 and 3 documented empirically the association between psychological needs satisfaction and values that has long been postulated by humanistic authors. Moreover, Studies 2 and 3 expanded our understanding of this association by examining

the intervening effect of self orientation as a mediating process. Finally, Study 3 provided interesting knowledge pertaining to similarities and differences between Canadians and Yugoslavs.

### ***Self Orientation***

The self has been a central focus of social science research for a very long time. There is a wealth of theoretical and empirical information on this topic. However, it is also widely acknowledged that this field of inquiry is plagued by a variety of conceptual and methodological problems. Byrne (1996) efficiently ascribed these difficulties to five general sources of confusion within the self-concept literature: absence of universally accepted definition (Wylie, 1989), assumed synonymy of self terms (e.g., self-identity, self-image, self-perception, etc.; Hattie, 1992), assumed synonymy with self-efficacy (Bandura, 1986), low empirical support for the distinctiveness of self-concept and self-esteem (Marsh, 1986), and high prevalence of informal notions of self-concept (Blascovitch & Tomaka, 1991). Because of those extant ambiguities, Byrne (1996) urges researchers who are interested in the self to clarify the theoretical orientation that they wish to adopt and to select a measure that matches their theoretical framework as closely as possible. She further contends that conceptual frameworks that successfully underwent empirically scrutiny warrant higher credibility than the abundant and fairly speculative theories pertaining to self-concept. Multidimensional self theories that have been substantiated by the conceptual validation of closely tied instruments are preferred and are designated by the term 'theoretical models'.

In the context of the present thesis, self was conceptualized according to an organismic-humanistic perspective, and construed as an agent that processes and organizes

experience, and regulates behaviour (Deci & Ryan, 1991). Hodgins and Knee (2002) offered the ideal conceptual perspective for the purposes of the present thesis. However, their multidimensional theory of self orientation remained to be tested empirically. In the course of the present project, the Ego Functioning Questionnaire was carefully developed and validated for pragmatic methodological considerations. However, because the three dimensions of self orientation proposed by Hodgins and Knee (2002) were successfully documented in the course of this psychometric undertaking, it also contributes to the conceptual validity of this model, thereby expanding our understanding of the self concept as a proactive agent.

### *Needs-Values Relationship*

The association between the satisfaction of basic psychological needs and the development of personal values has been theorized about by humanistic authors for decades. Early works by Rogers (1964) and Maslow (1956) stated that basic psychological needs had to be fulfilled in order for an individual to evolve personalized, self-actualizing values. Rokeach (1973) expressed similar views. More recently, Schwartz (1992) proposed that values constitute abstract counterparts of the needs of individuals, groups, and societies. Ryan and Deci (2000a) suggested that the satisfaction of the needs for autonomy, competence, and relatedness is associated with the development of values that are self-congruent, whereas need deprivation interferes with self integration, fosters self fragmentation, thereby promoting contrived, external values (Ryan, 1995). Kasser (2002) reiterated this notion in a detailed review on this topic.

However, in spite of the wealth of theoretical exposition on the alleged relationship between psychological needs satisfaction and values, this association largely remained to

be empirically investigated. To our knowledge, the single study that explicitly addressed this question was conducted by Kasser and his colleagues (1995). These researchers were interested by a precise aspect of the needs/values relationship. Specifically, they aimed to demonstrate that low levels of psychological need gratification were associated with higher levels of materialism, and extrinsic value. Results corroborated this hypothesis. These authors also produced a recent theoretical chapter on the same topic (Kasser, Ryan, Couchman, & Sheldon, 2004).

Testing for the presence of the alleged association between need satisfaction and values was one of the main goal of the present project. Results for Studies 2 and 3 clearly documented a positive association between need satisfaction and intrinsic values. As proposed by humanistic authors (Deci & Ryan, 2000a; Maslow, 1970; Kasser, 2002; Rogers, 1964; Rokeach, 1973), psychological need satisfaction indeed covaried positively with the development of self-actualizing values. As for the association between needs satisfaction and extrinsic values, partial support was obtained. This ambiguous finding is discussed in a subsequent section.

### ***Mediating Role of Self Orientation***

Examining the mediating effect of self orientation in the relationship between needs and values was the central objective of this thesis. Unequivocal support was obtained in Study 2 for the model comprising the complex array of associations that was devised to test this mediation hypothesis. With the exception of a single association that will be addressed at length subsequently, Study 3 results successfully replicated the model obtained in Study 2. As expected, the interrelation between needs satisfaction and intrinsic values was mediated by the integrated self, while the interrelation between needs satisfaction and

extrinsic values was mediated by the ego-invested self. Also, as anticipated, the impersonal self was associated to high levels of needs deprivation, and was unrelated to values.

These interesting results further our understanding of the needs/value relationship by shedding light on its underlying psychological mechanisms. Psychological needs are constitutional, inborn strivings. Values are involved, acquired, cognitive structures. Clearly, intermediate processes are at play in the transformation from one end state to another. The present findings suggest that self orientation mediates the association between psychological needs and values, and shapes its manifestations.

Firstly, need satisfaction was found to covary with self functioning. Positive needs satisfaction was associated with the integrated self orientation, need deprivation was associated with the ego-invested self orientation, and severe levels of need deprivation were associated with the impersonal self orientation. These results are consonant with the contemporary documentation pertaining to psychological needs. Specifically, according to Self-Determination Theory (Deci & Ryan, 1985, 2002), satisfaction of the needs for autonomy, competence, and relatedness, is the central antecedent of personal integration. When these needs are gratified, the person's organismic inclination to assimilate, organize, and actualize his or her functioning is optimized (Ryan, 1995). It has been further argued that needs satisfaction is tied to holistic functioning and self-congruence, whereas need deprivation has been equated with contrived functioning, self fragmentation, and alienation (Deci, 2000; Deci & Ryan, 2000; Kuhl & Fuhrmann, 1998; Ryan & Deci, 2000a; 2000b; Ryan & Powelson, 1991). Hodgins & Knee (2002) explicitly stated that the frustration of intrinsic needs would cause the person to forego organismic functioning and to develop a conditional approach to reality that would result in an ego-invested self. These authors also

asserted that severely thwarted needs would result in an overwhelming sense of helplessness that would prevent the constitution of a coherent self (either integrated or contrived). The impersonal self embodies this alienated entity. Study 2 results conformed perfectly to this pattern of associations, and corroborated the central theoretical notion that needs satisfaction is an essential nutriment to the actualization of an authentic self. With the exception of the unexpected modest association between needs satisfaction and the ego-invested self, Study 3 results conformed to this pattern as well. Abundant past studies examined the importance of psychological needs to self integrity by focusing on associations between need satisfaction, psychological well-being, and physical health (e.g., Baard, Deci, & Ryan, 2004; Gagne, Ryan, & Bargmann, 2003; Kasser & Ryan, 1999; Williams et al., 2006; see Sheldon & Niemiec, 2006, for a review). In the present thesis, associations between psychological needs and self functioning were obtained directly, thereby complementing the aforementioned indirect evidence advantageously.

Secondly, a meaningful pattern of associations between self orientations and values was obtained. As expected, the integrated self was associated with intrinsic values, the ego-invested self was associated with extrinsic values, and the impersonal self was unrelated to values. These results are also consistent with prior literature. Historical papers by Maslow (1962) and Rogers (1964) alluded to the notion that self-actualization (or lack thereof) influenced the process of value development and the valence of values. More recently, the central role of self as the internalizing agent of values has been underscored by Hermans (1987), and has been presented as a key component of Self-Determination Theory (Deci & Ryan, 1985, 2002) by Ryan (1995) and by Kasser (2002). To our knowledge, the present project constitutes a first attempt to empirically tie self functioning to values. Although it is

generally recognized that values results from intrapsychic and interpersonal processes (Prentice, 2000), there is an imbalance in the extant documentation regarding the attention that has been paid to the two aspects of this phenomenon. Values can be received or conceived (Rychlak, 2003). Whereas the literature on the intrapersonal aspect of value development is scant (Grusec & Kuczynski, 1997), there is a wealth of information pertaining to the social transmission of values (e.g., Halstead & Taylor, 2000; Harris, 1995). According to this widely disseminated point of view, values derive from societal demands and are transmitted through complex systems comprising social institutions and socializing agents. They benefit society by fostering normative and moral behaviour, and benefit the individual by facilitating social adjustment and integration. The social transmission of values has been an important focus of research in social sciences (i.e., sociology, criminology, politics, education, etc.). Psychology has devoted very little attention to the topic of values, by comparison, and it has been commented upon that personality and social psychology researchers would be in a good position to contribute to this area of inquiry, in particular to its individual difference standpoint (Prentice, 2000). Hopefully, the present thesis offers conceptual and empirical contributions in this regard.

Finally, after discussing the possible contribution of the integrated and ego-invested self to our understanding of intrinsic and extrinsic values, respectively, a word must be said about the absence of association between the impersonal self and values. This null effect was expected to occur, for theoretical reasons, at the onset of the present project, and results from Studies 2 and 3 corroborated this hypothesis. These results are consistent with the original conceptualisation of the impersonal self, as provided by Hodgins and Knee (2002). It validates the notion that the impersonal self develops after a deprivation of basic

psychological needs that is so extreme that even the creation of a self concept that is contingent on external artificial criteria (i.e., an ego-invested-self) is not possible. Because the person lacks a coherent self (either integrated or contrived), and because the impersonal self is characterized by a high level of emotional, cognitive, social, and motivational dysregulation, it theoretically follows that values cannot be conceived nor received. High emotional distress, low cognitive efficiency, poor social functioning and high motivational deficits are not conducive to the formation of highly abstract and self engaging entities like values. Hodgins & Knee (2002) conceptualize the impersonal self as being overwhelmed by a reality that is too discrepant with their constitutive needs to be apprehended. This dislocation is said to induce an incapacity to process experience. The dynamic of the impersonal self is one of fragmentation.

### ***Similarities and Differences between Canadians and Yugoslavs (Study 3)***

It was first hypothesized that patterns of associations between needs satisfaction, self orientation, and values would be equivalent across cultural groups. As previously mentioned, with the exception of the need/extrinsic values association in the first model, and of the need/ego-invested self association in the final model, the complex network of associations between the variables under study was quite similar for Canadians and Yugoslavs. This was expected because Deci and Ryan's conceptualization of psychological needs perspective (2002), Hodgins and Knee's model of self orientation (2002), and Schwartz's circumplex model of values (1992, 1994), are theorized to be universal. The results of the present project thus offer support for this claim.

Secondly, dissimilarities were anticipated in prevailing values across cultures. Yugoslavs were hypothesized to display higher collectivistic values than Canadians. With

the exception of a single difference in the expected direction for universalism, no support was obtained for this hypothesis. These non significant findings are elaborated upon in the section below. However, Canadians were expected to rate individualistic values higher than Yugoslavs. This hypothesis was largely supported. Although, to our knowledge, no study has directly compared the values of Canadians and Yugoslavs using Schwartz's model (1992, 1994), these results are similar to those obtained by researchers that compared Canadians to East Europeans.

### *Non Significant Effects and Unexpected Findings*

Although the present set of results largely corroborated research hypotheses, it must be noted that a few discrepant findings emerged in Study 3. Firstly, when testing the initial model devised to assess the first step of mediation (i.e., the model comprising need/values associations), the expected relationship between need satisfaction and extrinsic values failed to materialize in the Yugoslav sample. A modest effect was expected, and subtle effects are possibly harder to detect than more substantial ones. A small positive regression coefficient was obtained, but it was not statistically significant. It is possible that the statistical power was insufficient in the Yugoslav sample to corroborate this effect, because the effect size was somewhat smaller than in the Canadian sample. Alternatively, it is possible that there is no association between needs satisfaction and extrinsic values, and that the association obtained in Study 2 was spurious. This could be interpreted as suggesting that, whereas needs satisfaction reliably covaries with intrinsic values, there is no systematic positive or negative association between need satisfaction and extrinsic values. There is yet a third possibility. This association could fluctuate according to the cultural context. Clearly, more research is required to clarify this issue. Regardless of the

source of the problem, for the present thesis, this absent association entails that it cannot be claimed that the ego-invested self acts as a mediator in the Yugoslav sample (i.e., there is no underlying association to mediate). The association between need deprivation and the ego-invested self, as well as the subsequent association between this latter variable and extrinsic values, must therefore be considered as two separate direct effects.

Secondly, the surprising positive association between needs satisfaction and the ego-invested self must also be acknowledged and considered. A mild positive effect was obtained, yet a modest negative one was expected. Here again, we can only speculate. Perhaps it is natural to obtain varying results for small effect sizes. Replication studies using large samples may be required to obtain stable effects and to settle the question. Such future studies should also address the possibility that these small fluctuations result from cultural differences. This finding, however, may also indicate an absence of a systematic relationship between needs and the ego-invested self, indicating that this artificial (i.e., false) self has little to do with the satisfaction of one's psychological needs.

One cannot help but notice though, that the two unexpected effects obtained in Study 3 models pertain to the prediction of the ego-invested self and extrinsic values. This raises the question of possible qualitative differences in the processes involved in the prediction of intrinsic and extrinsic values. Results regarding the mediating effect of the integrated self on the association between need satisfaction and intrinsic values were easily replicated across Studies 2 and 3. This sequence of associations represents the optimal manifestation of the organismic process. Perhaps variables are more easily studied and modeled when they portray the positive outcome of a natural process. By contrast, it could

be suggested that it is harder to understand the mechanics involved when a growth process has been interfered with to a certain degree. Its mechanics may be more complex. Thus, it is possible that the two minor unexpected findings within Study 3 models indicate that additional sources of variance must be considered when evaluating associations between mild to moderate need deprivation, ego-invested self, and extrinsic values. For example, the interaction between positive and negative social agents could affect the covariance between these variables substantially. The necessity of studying the present array of variables in conjunction with social factors will be further elaborated upon in the section pertaining to future studies.

Lastly, it has been underscored that several of the expected mean differences in prevailing values across the cultural samples in Studies 2 and 3 failed to materialize. Specifically, while most hypotheses pertaining to the expected higher individualistic values of Canadians were supported, the hypotheses regarding the higher collectivistic and conservative values of Yugoslavs were not corroborated. Contrary to initial expectations, Canadians displayed a higher endorsement of tradition, and there was no evidence of significant differences between Canadians and Yugoslavs for power, security, conformity, achievement and self-direction. Two explanations for these unexpected findings come to mind. First, because the Canadian sample of Study 2 and the Yugoslav sample of Study 3 are both comprised of university students, it is possible that the participants in both groups shared more similar characteristics than was initially anticipated. Liberal attitudes and values are prevalent in university students. The limitations inherent to the use of students samples will be further addressed in a following section. Second, these findings may indicate that Hofstede's cultural indexes from 1991 were not a fruitful basis for the

derivation of hypotheses. It is possible that the transition toward democracy and the westernization that the Yugoslav society experienced recently diminished the anticipated influence of its previous socialistic system. It would be interesting to re-evaluate current cultural indices in Serbia and Monte Negro to examine whether recent political events have affected personal values.

### *Limitations*

It is important to acknowledge that the present project bears a few noteworthy limitations. From a psychometric point of view, low reliability indices were observed for the autonomy and competence subscales of the Basic Psychological Needs Scale (BPNS, Deci & Ryan, 2000), and for a few subscales of Schwartz's Cultural Values Survey (CVS; 1994), in Studies 2 and 3. The BPNS and the CVS are the best instruments that are presently available to assess psychological needs and values, respectively. Because substantial psychometric efforts were invested in the present thesis to develop a self-concept measure, the Ego Functioning Questionnaire, it was not feasible to devote additional attention to needs and values measurement as well. However, the BPNS and the CVS could clearly be improved upon, and it would be important to do so in future studies. It should also be noted that all three studies comprised in this thesis utilized self-report questionnaires. It would be interesting, in future research, to complement the extant results with studies that examine the associations between needs satisfaction, self orientation, and values, using more objective measures (e.g., parent, teacher, and peer ratings).

The current series of studies also involved cross-sectional designs. No definitive conclusions pertaining to the direction of causal effects between variables can therefore be derived from the resulting models of Studies 2 and 3. This limitation is particularly

important because the variables under study are purported to portray a developmental process. The present thesis constitutes an initial foray into the realm of associations between psychological needs, self-orientations, and values. Compelling and intriguing results were obtained, which indicates that this line of research is worth pursuing. However, it is important to recognize that the extant results are preliminary in nature. Future studies involving more rigorous designs are warranted to further examine the tenability of the present findings.

For instance, experimental designs could offer the opportunity to test the present hypotheses in a context where the internal validity is optimized. However, because the variables under study represent personal growth processes, the ultimate test of the present hypotheses would require a longitudinal design. Need satisfaction is theorized to have a determining impact during childhood. Values initially start developing in toddlerhood, and are conceptualized to mature most importantly during teenage and young adult years. If the appropriate long term funding was secured, it would be fascinating to follow the evolution of psychological needs satisfaction, and to map its consequent effects on self concept development and value formation, using a sample of preschoolers that would be studied well into adulthood.

Lastly, it is also useful to note that the present project is curtailed by its choice of participants. For pragmatic reasons, university students were surveyed in all three studies. The limitations inherent to student samples have been abundantly expounded upon by social science methodologists and will not be reiterated here. Suffice it to say, it would be most enriching to document the external validity of the present findings by attempting future studies with more diversified samples. For example, if it is not possible to perform

longitudinal studies because such designs are exceedingly costly, participants of different age groups could be studied, and their results compared. It could also be fruitful to stratify samples according to possible moderating factors, such as gender and socioeconomical status. Moreover, the cross-cultural test of hypotheses was limited here to two different groups, Canadians and Yugoslavs. It would be interesting to further test the hypothesized universal nature of associations between needs, self, and values in a wide array of vastly different cultural contexts (e.g., by using Asian and south American samples, or by studying groups that have evolved mostly outside the influence of other cultures, such as certain African or Australian tribes).

In this section, the discussion of limitations has been accompanied by cursory suggestions for future studies that are designed to remedy the shortcomings of the present project. The following section provides further suggestions for new research that are based on novel conceptual elaboration.

### *Future Studies*

In the context of this thesis, a new instrument, the Ego Functioning Questionnaire, was developed and many aspects of its validity and reliability were documented. In the course of future studies, it would be interesting to further our understanding of the psychometric properties of this instrument. For example, additional cross-cultural information regarding item features could be obtained using differential item functioning (DIF). This psychometric technique, which is derived from item-response theory (IRT), analyzes differences between the items' characteristic curves (ICCs) for different groups of participants. In other words, to evaluate cross-cultural equivalency of measurement, besides testing for the structural invariance of latent factors, it is beneficial to compare the

threshold of items' rating scales across cultural groups (i.e., for the original and translated versions of an instrument; see Zumbo, 2003). The equivalent threshold (i.e., the absence of DIF) for an original and translated item would indicate that even levels of the measured construct was needed for both groups of participants to endorse that item to an equal extent.

Also, building on the central goals of the present project, further knowledge pertaining to psychological needs, self orientations, and values could be generated if our focus was expanded to include other relevant variables. Need satisfaction, self concept development, and value formation are theorized to evolve in close interaction with important social agents. It would thus be important to devise studies in which the influence of important social figures is taken into account. For instance, it could be interesting to add perceived support from parents, teachers and friends to the hypothesized model of the present thesis, and to test it in a cross-sectional or longitudinal survey, using a sample of teenagers.

Further examination of the mechanisms that determine the associations between the key variables of this thesis could also be intriguing. For instance, the cognitive processes that are involved in the internalization of values could be examined more in depth. Why are certain messages that contain integrative properties assimilated by some individuals, but ignored by others? It is suggested that self orientation is related to inhibitory potential (i.e., the ability to suppress distractions to facilitate information processing; Hasher, Zacks, & May, 1999). It is plausible that a higher level of self-integration promotes efficient information processing, including information about one's self, and fosters the assimilation of relevant value messages. Conversely, ego-involved or impersonal self orientations could imply a higher vulnerability to distractions that would create interference in the perception

and integration of information related to values. Building on the notion that guidelines and standards possess their innate integrative properties, it is assumed here that only a thorough understanding of a value's meaning will allow for its full internalization. Specifically, it is proposed that the integration of values is based on the functional efficiency of the central executive system (Baddeley, 1983), and how it is used in cognitive evaluations and self-evaluations. This central processor is engaged in every cognitive activity and determines the 'number of subsidiary systems that operate on and store specific information about the items being processed' (Chiappe, Hasher, & Siegel, 2000). Numerous studies in the last fifteen years showed that the processing efficiency of the central executive depends on one's inhibitory ability to suppress irrelevant or no-longer-relevant information, efficiently replacing it with relevant items in the working memory buffer (Hasher, Zacks & May, 1999). Failure to delete no-longer-relevant information from the working memory is called proactive interference and it manifests itself as 'a disrupted pattern of recall produced by competition among relevant and irrelevant events at retrieval' (Chiappe et al., 2000). Applied to ego-development, these findings suggest interesting notions about the role played by inhibition potential in determining the level of accuracy in perception, attribution, comprehension, and integration of external and internal events (e.g., value messages). The following hypotheses could be tested : (1) The level of proactive interference increases (inhibition declines) going from the integrated self, via ego-invested self, to the impersonal self. (2) When exposed to value messages, the three ego-systems are expected to differ in their speed and depth of comprehension, in the extent of recall, and in their readiness to integrate value related information. The integrated self is expected to be the most efficient in all of these aspects, the ego-invested self is expected to be more

cue-dependent (negatively primed) and consequently less efficient, while the impersonal self is expected to be overwhelmed (hyperprimed) and unable to process value messages with any degree of efficiency. These hypotheses could be tested using experimental designs wherein participants are preselected using the Ego Functioning Questionnaire to form three self orientation groups (i.e., integrated, ego invested, and impersonal). Inhibitory potential and cognitive functioning could be assessed and compared thereafter across self orientation groups. Alternative experimental designs using similar protocols could target value integration directly by providing vignettes comprising information about intrinsic and extrinsic values. Speed and depth of comprehension could be measured using reaction time measures, observational data (depth and accuracy of understanding of value messages), and behavioral tests.

### *Conclusion*

Taken together, the present array of results offered several noteworthy contributions. The multidimensional theory of self-concept proposed by Hodgins and Knee (2002) was successfully validated empirically, thereby expanding our understanding of the self concept as a proactive agent. The relationship between psychological needs satisfaction and values that has been theorized to exist for over half a century by humanistic authors was empirically examined and documented in the present project. Moreover, self-orientations were shown to play an important mediating role in this association. These interesting results further our comprehension of the needs/value relationship by explaining some of the processes at work in the development from one of those end states to the other. Psychological needs are straightforward innate strivings. Values are complex cognitive structures that are acquired. Clearly, intervening variables are involved in the

transformation from inborn psychological impulses to highly abstract cognitive principles. It was demonstrated here that self-concept orientation plays a part in this evolution. Although further research is required to clarify whether these results represent universal processes that can be replicated across cultures, these findings offer innovative information regarding the interaction of natural growth processes and the internalization of personal norms and guidelines. There is an abundance of research documentation that pertains to the societal transmission of values. By comparison, very little attention has been devoted to the intrapersonal processes at play in the development of values. It is our hope that the present project offers novel conceptual and empirical information that may serve as a basis for future projects on this topic.

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*APPENDIX A*

*Questionnaires Used in Studies 2 and 3 (Translated)*

## NEVAL ('Needs-Values') PROJECT - 2004

The main goal of this project is to analyse the relationship between measures of basic psychological needs and indicators of universal human values. The needs-values association will be examined within the context of a person's self-perception and then cross-validated within and between different groups in Europe and Northern America.

There are no right or wrong answers here, but only responses that more or less accurately describe your situation. Therefore, we kindly ask you to answer all the questions in this survey as accurately as you can. All information gathered from you will be used for scientific purposes only. If you have any questions about this research you can ask me now, or you can contact me using the e-mail address given on your Information Sheet.

**Thank you for your participation in this study!**

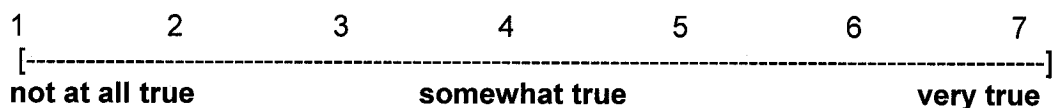
Sincerely Yours,  
Nebojsa (Nash) Majstorovic  
Ph.D. Candidate  
School of Psychology  
University of Ottawa

Enclosed are three questionnaires, together with several general questions at the end. Please read every statement carefully and estimate how accurately each of them describe your situation. At the top of every page you will find a short reminder on how to respond to the questions. Filling out the questionnaire will require around 20 minutes of your time.

## Basic Needs Satisfaction Scale (General)

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Please read each of the following items carefully, thinking about how it relates to your life, and then indicate how true it is for you. Use the following scale to respond by circling one number beside each statement:



#	Item	Scale
1	I feel like I am free to decide for myself how to live my life.	1 2 3 4 5 6 7
2	I really like the people I interact with.	1 2 3 4 5 6 7
3	Often, I do not feel very competent.	1 2 3 4 5 6 7
4	I feel pressured in my life.	1 2 3 4 5 6 7
5	People I know tell me I am good at what I do.	1 2 3 4 5 6 7
6	I get along with people I come into contact with.	1 2 3 4 5 6 7
7	I pretty much keep to myself and don't have a lot of social contacts.	1 2 3 4 5 6 7
8	I generally feel free to express my ideas and opinions.	1 2 3 4 5 6 7
9	I consider the people I regularly interact with to be my friends.	1 2 3 4 5 6 7
10	I have been able to learn interesting new skills recently.	1 2 3 4 5 6 7
11	In my daily life, I frequently have to do what I am told.	1 2 3 4 5 6 7
12	People in my life care about me.	1 2 3 4 5 6 7
13	Most days I feel a sense of accomplishment from what I do.	1 2 3 4 5 6 7
14	People I interact with on a daily basis tend to take my feelings into consideration.	1 2 3 4 5 6 7
15	In my life I do not get much of a chance to show how capable I am.	1 2 3 4 5 6 7
16	There are not many people that I am close to.	1 2 3 4 5 6 7
17	I feel like I can pretty much be myself in my daily situations.	1 2 3 4 5 6 7
18	The people I interact with regularly do not seem to like me much.	1 2 3 4 5 6 7
19	I often do not feel very capable.	1 2 3 4 5 6 7
20	There is not much opportunity for me to decide for myself how to do things in my daily life.	1 2 3 4 5 6 7
21	People are generally pretty friendly towards me.	1 2 3 4 5 6 7

## Ego Functioning Questionnaire

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Please read the following statements carefully and rate your agreement with their content by circling the appropriate numbers to the right of each item, using the scale provided below.

1            2            3            4            5            6            7  
 [-----]

Strongly Disagree                      Mildly Agree                      Strongly Agree

#	Statement	Scale
1	Receiving praise and recognition from others is always important to me.	1 2 3 4 5 6 7
2	I enjoy challenging myself.	1 2 3 4 5 6 7
3	I engage in my favourite activities because they give me a sense of personal fulfillment and growth.	1 2 3 4 5 6 7
4	I like to visit art galleries.	1 2 3 4 5 6 7
5	Often I feel disconnected from others.	1 2 3 4 5 6 7
6	I am often overwhelmed by negative feelings.	1 2 3 4 5 6 7
7	When I work hard, it is important that others notice.	1 2 3 4 5 6 7
8	I really look forward to reading something new, no matter what the topic.	1 2 3 4 5 6 7
9	I enjoy when my contributions are highlighted in front of other people.	1 2 3 4 5 6 7
10	I don't have much faith in people.	1 2 3 4 5 6 7
11	I feel that everyday life is rather tedious and mundane.	1 2 3 4 5 6 7
12	I often feel empty.	1 2 3 4 5 6 7
13	I don't seem to be able to achieve anything worthwhile.	1 2 3 4 5 6 7
14	I understand new things very quickly.	1 2 3 4 5 6 7
15	I will only change professions if it means earning more or having a higher position.	1 2 3 4 5 6 7
16	I feel like I am prone to negative feelings.	1 2 3 4 5 6 7
17	My partner must be at least as attractive and wealthy as I am.	1 2 3 4 5 6 7
18	I feel that I can easily recall just about anything.	1 2 3 4 5 6 7
19	It is a great source of satisfaction when others see you as a successful person.	1 2 3 4 5 6 7
20	I have many interests.	1 2 3 4 5 6 7

		1	2	3	4	5	6	7
		[-----		-----			]-----	
		Strongly Disagree			Mildly Agree		Strongly Agree	
21	I feel that bad situations can be an opportunity for personal growth.	1	2	3	4	5	6	7
22	I would like to have more famous people as my friends.	1	2	3	4	5	6	7
23	I am very interested in learning more about other people's views.	1	2	3	4	5	6	7
24	When bad situations arise, I often feel unable to resolve them.	1	2	3	4	5	6	7
25	I enjoy learning all sorts of new things.	1	2	3	4	5	6	7
26	I find that I enjoy my work when it gives me a sense of control.	1	2	3	4	5	6	7
27	I work hard to present myself properly to others.	1	2	3	4	5	6	7
28	I feel like I am always at risk of failure.	1	2	3	4	5	6	7
29	I often feel a lot of anger toward people around me.	1	2	3	4	5	6	7
30	It is important for me to know that I can succeed at what I do.	1	2	3	4	5	6	7

# Cultural Values Survey

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Below is a list of values. Please rate the importance of each value as a guiding principle in your life using the scale provided below. Record the appropriate number from the scale in the column 'R' provided in front of each value.

	opposed to my values		not important		important		very important		of supreme importance
	-1		0		1		2		3
			4		5		6		7
No.	R	Value							
1		<b>EQUALITY</b> (equal opportunity for all)							
2		<b>SOCIAL POWER</b> (control over others, dominance)							
3		<b>SENSE OF BELONGING</b> (feeling that others care about me)							
4		<b>FREEDOM</b> (freedom of action and thought)							
5		<b>SOCIAL ORDER</b> (stability of society)							
6		<b>DETACHMENT</b> (from worldly concerns)							
7		<b>POLITENESS</b> (courtesy, good manners)							
8		<b>WEALTH</b> (material possessions, money)							
9		<b>SELF RESPECT</b> (belief in one's own worth)							
10		<b>RECIPROCATION OF FAVORS</b> (avoiding being in debt)							
11		<b>CREATIVITY</b> (uniqueness, imagination)							
12		<b>AN EXCITING LIFE</b> (stimulating experiences)							
13		<b>RESPECT FOR TRADITION</b> (preservation of time-honored customs)							
14		<b>SELF-DISCIPLINE</b> (self-restraint, resistance to temptation)							
15		<b>HEALTHY</b> (not being sick physically or mentally)							
16		<b>FAMILY SECURITY</b> (safety for loved ones)							
17		<b>SOCIAL RECOGNITION</b> (respect, approval by others)							
18		<b>WISDOM</b> (a mature understanding of life)							
19		<b>AUTHORITY</b> (the right to lead or command)							
20		<b>PLEASURE</b> (gratification of desires)							
21		<b>SOCIAL JUSTICE</b> (correcting injustice, care for the weak)							
22		<b>INDEPENDENT</b> (self-reliant, self-sufficient)							
23		<b>UNITY WITH NATURE</b> (fitting into nature)							
24		<b>MODERATE</b> (avoiding extremes of feeling and action)							
25		<b>LOYAL</b> (faithful to my friends, group)							
26		<b>A VARIED LIFE</b> (filled with challenge, novelty, and change)							
27		<b>AMBITIOUS</b> (hardworking, aspiring)							
28		<b>BROAD-MINDED</b> (tolerant of different ideas and beliefs)							
29		<b>HUMBLE</b> (modest, self-effacing)							
30		<b>DARING</b> (seeking adventure, risk)							
31		<b>INFLUENTIAL</b> (having an impact on people and events)							
32		<b>CLEAN</b> (neat, tidy)							
33		<b>HONORING OF PARENTS AND ELDER</b> (showing respect)							

opposed to my values	not important	important	very important	of supreme importance				
-1	0	1	2	3	4	5	6	7
34		<b>CHOOSING OWN GOALS</b> (selecting own purpose)						
35		<b>CAPABLE</b> (competent, effective, efficient)						
36		<b>A SPIRITUAL LIFE</b> (emphasis on spiritual not material matters)						
37		<b>ACCEPTING MY PORTION IN LIFE</b> (submitting to life's circumstances)						
38		<b>HONEST</b> (genuine, sincere)						
39		<b>FORGIVING</b> (willing to pardon others)						
40		<b>PRESERVING MY PUBLIC IMAGE</b> (protecting my "face")						
41		<b>OBEDIENT</b> (dutiful, meeting obligations)						
42		<b>INTELLIGENT</b> (logical, thinking)						
43		<b>HELPFUL</b> (working for the welfare of others)						
44		<b>DEVOUT</b> (holding to religious faith and belief)						
45		<b>CURIOUS</b> (interested in everything, exploring)						
46		<b>SUCCESSFUL</b> (achieving goals)						
47		<b>RESPONSIBLE</b> (dependable, reliable)						
48		<b>INNER HARMONY</b> (at peace with myself)						
49		<b>ENJOYING LIFE</b> (enjoying food, sex, leisure, etc.)						
50		<b>NATIONAL SECURITY</b> (protection of my nation from enemies)						
51		<b>TRUE FRIENDSHIP</b> (close, supportive friends)						
52		<b>MEANING IN LIFE</b> (a purpose in life)						
53		<b>PROTECTING THE ENVIRONMENT</b> (preserving nature)						
54		<b>A WORLD AT PEACE</b> (free of war and conflict)						
55		<b>A WORLD OF BEAUTY</b> (beauty of nature and the arts)						
56		<b>MATURE LOVE</b> (deep emotional and spiritual intimacy)						

**DEMOGRAPHICS: (fill in or encircle):**

- Year of birth: \_\_\_\_\_
- Gender: F M
- Marital status: married not married
- Mother Language: \_\_\_\_\_
- Previously Completed Education:  
High-School College B.A. M.A.  
Ph.D.
- The Overall Mark in your previous education:  
below average average above average
- Employed (part-time or full-time):  
No  
Yes → How many years: \_\_\_\_\_
- Your family's income is :  
- Lower than in majority  
- As in majority  
- Greater than in majority

**Thank you very much!**

## Deo 1 – Upitnik Potreba

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Molimo Vas da pažljivo pročitate sledeće iskaze, te da procenite koliko je svaki od njih tačan u Vašem slučaju. Koristite donju skalu tako što će te pored svakog iskaza zaokružiti jedan brojeva sa skale od 1 do 7. Brojevi imaju sledeće značenje:

1                      2                      3                      4                      5                      6                      7  
 [-----]

potpuno netačno                      delimično tačno                      potpuno tačno

#	Iskaz	Skala
1	Osećam da mogu samostalno da odlučujem kako da živim svoj život.	1 2 3 4 5 6 7
2	Veoma mi se dopadaju ljudi sa kojima dolazim u kontakt.	1 2 3 4 5 6 7
3	Često se ne osećam veoma kompetentnim(nom) za ono što radim.	1 2 3 4 5 6 7
4	Osećam da sam pod svakodnevnom prešom.	1 2 3 4 5 6 7
5	Ljudi koje znam govore mi da sam dobar(ra) u onome što radim.	1 2 3 4 5 6 7
6	Dobro se slažem sa onima sa kojima kontaktiram.	1 2 3 4 5 6 7
7	Prilično sam zatvoren(na) i ne polažem puno u kontakte s drugima.	1 2 3 4 5 6 7
8	Uglavnom se osećam slobodnim(om) da izrazim svoje ideje i mišljenja.	1 2 3 4 5 6 7
9	Osobe koje često srećem smatram svojim prijateljima.	1 2 3 4 5 6 7
10	Nedavno sam bio(la) u prilici da naučim nove interesantne stvari.	1 2 3 4 5 6 7
11	Svakog dana često moram da radim ono što je od mene zahtevano.	1 2 3 4 5 6 7
12	Ljudi koje znam su pažljivi prema meni.	1 2 3 4 5 6 7
13	Skoro svakodnevno imam osećaj da sam postigao(la) nešto u onome što radim.	1 2 3 4 5 6 7
14	Osobe sa kojima svakodnevno kontaktiram vode računa o mojim osećanjima.	1 2 3 4 5 6 7
15	Mislím da ne dobijam dovoljno šansi da pokažem šta sve zapravo mogu da uradim.	1 2 3 4 5 6 7
16	Nema puno ljudi sa kojima sam blizak(a).	1 2 3 4 5 6 7
17	Čini mi se da u svakodnevnim situacijama uglavnom mogu da budem onakav(va) kakav(va) zaista jesam.	1 2 3 4 5 6 7
18	Izgleda da se ne dopadam mnogo onima sa kojima se svakodnevno srećem.	1 2 3 4 5 6 7
19	Često se ne osećam sposobnim(om) da nešto uradim.	1 2 3 4 5 6 7
20	Nemam puno prilike da sâm(a) odlučujem kako da obavljám stvari u svom svakodnevnom životu.	1 2 3 4 5 6 7
21	Ljudi se uglavnom odnose prijateljski prema meni.	1 2 3 4 5 6 7

## Deo 2 - Upitnik Ego Funkcionisanja

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**Pažljivo pročitajte sledeće iskaze i procenite koliko se sa njima slažete. Pored svakog iskaza zaokružite jedan od brojeva sa skale od 1 do 7. Brojevi imaju sledeće značenje:**

1                      2                      3                      4                      5                      6                      7

[-----]

uopšte se ne slažem                      delimično se slažem                      potpuno se slažem

#	Iskaz	Skala
1	Nagrade i priznanja od drugih su mi veoma važni.	1 2 3 4 5 6 7
2	Volim izazove.	1 2 3 4 5 6 7
3	Najdraže su mi one aktivnosti koje me potpuno ispunjavaju i koje omogućavaju moje lično izrastanje.	1 2 3 4 5 6 7
4	Volim da posećujem umetničke galerije.	1 2 3 4 5 6 7
5	Često se osećam otuđenim(om) od drugih.	1 2 3 4 5 6 7
6	Često sam preplavljen(a) negativnim osećanjima.	1 2 3 4 5 6 7
7	Kada radim vredno, važno mi je da to drugi primete.	1 2 3 4 5 6 7
8	Jedva čekam da čitam nešto novo, bez obzira šta.	1 2 3 4 5 6 7
9	Uživam kada se moj doprinos istakne pred drugima.	1 2 3 4 5 6 7
10	Nemam mnogo vere u ljude.	1 2 3 4 5 6 7
11	Moj svakodnevni život je dosadan i prizeman.	1 2 3 4 5 6 7
12	Često imam snažan osećaj praznine.	1 2 3 4 5 6 7
13	Izgleda da nisam u stanju da postignem išta iole vredno.	1 2 3 4 5 6 7
14	Nove stvari razumevam vrlo brzo.	1 2 3 4 5 6 7
15	Promenio(la) bih svoju profesiju samo ako bi to značilo veću zaradu i viši položaj.	1 2 3 4 5 6 7
16	Čini mi se kao da sam sklon(a) negativnim osećanjima.	1 2 3 4 5 6 7
17	Moj partner bi trebalo da je zgodan i bogat bar koliko sam i ja.	1 2 3 4 5 6 7
18	Imam utisak da mogu svega da se setim.	1 2 3 4 5 6 7
19	Veliko mi je zadovoljstvo kada me drugi vide kao uspešnu osobu.	1 2 3 4 5 6 7
20	Imam mnoga i raznovrsna interesovanja.	1 2 3 4 5 6 7

	1	2	3	4	5	6	7
	uopšte se ne slažem		delimično se slažem			potpuno se slažem	
21	Mislim da životne teškoće mogu biti dobra prilika za lični rast i sazrevanje.						7
22	Voleo(la) bih da imam više popularnih osoba kao svoje prijatelje.						7
23	Veoma sam zainteresovan(na) da naučim više o drugima i njihovim pogledima na stvari.						7
24	Čini mi se da ako reagujem spontano drugi će to iskoristiti protiv mene.						7
25	Uživam da učim o raznim novim stvarima.						7
26	Volim da radim kada mogu sve da držim pod kontrolom.						7
27	Kad radim vredno činim to da bih se tako predstavio(la) drugima.						7
28	Imam utisak da sam uvek pod rizikom da ću napraviti nekakvu grešku.						7
29	Često osećam bes prema drugima uokolo.						7
30	Ljudi me obično vide upravo onako kako ja vidim samog(u) sebe.						7

Imate komentar?

Upišite ga ovde ili na poledini upitnika.



Suprotno mojim vrednostima	nevažno		važno		veoma važno		od presudne važnosti		
	-1	0	1	2	3	4	5	6	7
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									

**DEMOGRAFSKA OBELEŽJA** (upišite odgovor ili zaokružite):

1. Godina rođenja: \_\_\_\_\_ 2. Pol:  Ž  M
3. Bračni status: u braku  nije u braku  4. Maternji jezik: \_\_\_\_\_
5. Nivo obrazovanja: SSS VŠSS VSS Magistar Doktor 6. Opšti uspeh u Vašem prethodnom školovanju: ispodprosečan  prosečan  nadprosečan
7. Zaposlen: Ne  Da → Koliko godina staža: \_\_\_\_\_ 8. Prihod koji ostvarujete je: niži nego u većini  kao u većine  viši nego u većine

**Zahvaljujemo !**

*APPENDIX B*

*Formulas for Reliability, Homogeneity, and Representativeness Coefficients  
(Study 1A)*

**Reliability Coefficients:**

$\alpha = (m / (m - 1)) (1 - m/e^t R e)$ , with  $m$  for number of items,  $R$  for matrix of items'

intercorrelations,  $e$  as a summative vector, and  $e^t R e$  standing for a sum of all elements in matrix  $R$  (the ratio  $m/e^t R e$  is equal to Cronbach's  $\sum s_j^2 / S^2$ ),

$$\lambda_1 = 1 - m/e^t R e,$$

$$\lambda_6 = 1 - e^t U^2 e / e^t R e, \text{ with } U^2 \text{ for items' unique variances,}$$

$$\beta = (m/(m-1)) (1 - \eta^{-1}), \text{ where } \eta^{-1} \text{ is the first eigenvalue of matrix 'R',}$$

$$\beta_1 = (1 - \eta^{-1})^2,$$

$$\beta_6 = \phi^2 / \lambda^2, \text{ with } \phi \text{ for variance of the component results and } \lambda \text{ for the total variance of the summative test result,}$$

**Homogeneity Coefficients:**

$$h_1 = ((e^t((R - I) \cup (R - I)) e) / (m^2 - m))^{1/2},$$

$$h_4 = 1 - (k - 1)/(m - 1), \text{ with } k \text{ for the number of components with non-zero reliability.}$$

**Representativeness:**

$$KMO (MSA) = 1 - (e^t((A - U^2) \otimes (A - U^2)) e) / (e^t((R - I) \otimes ((R - I)) e)$$

**Note.** All formulas taken from Momirovic and Wolf (1997).

*APPENDIX C*

*Covariance Matrix for the Full Structural Needs-Values Model (Study 2)*

## COVARIANCE MATRIX TO BE ANALYZED

		AUTOR V 1	COMPR V 2	RELATR V 3	SELFTRAN V 4	OPEN V 5
AUTOR	V 1	.580				
COMPR	V 2	.326	.759			
RELATR	V 3	.264	.325	.472		
SELFTRAN	V 4	.076	.043	.208	1.665	
OPEN	V 5	.102	.084	.152	.372	.697
HEDOR	V 6	.072	.039	.115	.617	.425
SELFENH	V 7	-.073	.008	.091	.664	.228
CONSERV	V 8	.007	.061	.143	.332	.493

## COVARIANCE MATRIX TO BE ANALYZED Cont'd

		HEDOR V 6	SELFENH V 7	CONSERV V 8
HEDOR	V 6	.940		
SELFENH	V 7	.476	1.120	
CONSERV	V 8	.368	.605	1.142

*APPENDIX D*

*Covariance Matrix for the EFQ Measurement Model – Canadians (Study 2)*

## COVARIANCE MATRIX TO BE ANALYZED

		EF1	EF2	EF5	EF6	EF7
		V 1	V 2	V 3	V 4	V 5
EF1	V 1	1.935				
EF2	V 2	.163	1.428			
EF5	V 3	.090	-.369	3.116		
EF6	V 4	.223	-.299	1.993	3.134	
EF7	V 5	1.268	-.070	.463	.844	2.573
EF8	V 6	-.101	.447	-.014	-.090	.007
EF9	V 7	1.023	.100	.283	.437	1.480
EF12	V 8	.100	-.382	1.805	1.930	.513
EF13	V 9	.019	-.627	1.463	1.630	.491
EF16	V 10	.303	-.290	1.938	2.548	.645
EF19	V 11	.765	.029	.027	.267	1.002
EF20	V 12	.109	.420	-.266	-.285	-.111
EF21	V 13	-.087	.435	-.131	-.283	-.125
EF22	V 14	.258	-.184	-.003	.079	.458
EF23	V 15	.051	.309	.002	-.108	-.165
EF25	V 16	-.009	.687	-.086	-.063	-.069
EF27	V 17	.509	.042	.038	.192	.708
EF29	V 18	.149	-.305	1.476	1.649	.676

## COVARIANCE MATRIX TO BE ANALYZED Cont'd

		EF8	EF9	EF12	EF13	EF16
		V 6	V 7	V 8	V 9	V 10
EF8	V 6	2.309				
EF9	V 7	.148	2.503			
EF12	V 8	-.131	.303	2.860		
EF13	V 9	-.300	.188	1.748	2.371	
EF16	V 10	.183	.354	2.025	1.569	3.297
EF19	V 11	-.085	1.118	.057	.120	.207
EF20	V 12	.171	.189	-.306	-.391	-.279
EF21	V 13	.273	.046	-.347	-.392	-.256
EF22	V 14	-.308	.618	.115	.341	-.074
EF23	V 15	.545	-.068	-.041	-.118	.172
EF25	V 16	.641	.074	-.244	-.229	-.004
EF27	V 17	-.166	.506	.066	.129	.171
EF29	V 18	-.154	.422	1.462	1.203	1.535

## COVARIANCE MATRIX TO BE ANALYZED Cont'd

		EF19	EF20	EF21	EF22	EF23
		V 11	V 12	V 13	V 14	V 15
EF19	V 11	1.792				
EF20	V 12	.187	1.186			
EF21	V 13	-.030	.303	1.631		
EF22	V 14	.473	.041	.187	3.117	
EF23	V 15	.020	.230	.411	-.036	1.797
EF25	V 16	.084	.483	.404	-.123	.609
EF27	V 17	.746	.115	-.274	.436	.032
EF29	V 18	.274	-.224	-.340	.185	-.195

## COVARIANCE MATRIX TO BE ANALYZED Cont'd

		EF25	EF27	EF29
		V 16	V 17	V 18
EF25	V 16	1.421		
EF27	V 17	-.001	2.167	
EF29	V 18	-.231	.282	2.504

*APPENDIX E*

*Covariance Matrix for the EFQ Measurement Model – Yugoslavs (Study 3)*

## COVARIANCE MATRIX TO BE ANALYZED

		EF1	EF2	EF5	EF6	EF7
		V 1	V 2	V 3	V 4	V 5
EF1	V 1	2.303				
EF2	V 2	.272	2.235			
EF5	V 3	.066	-.201	3.064		
EF6	V 4	.065	-.257	1.538	2.744	
EF7	V 5	1.455	.136	.241	.192	3.433
EF8	V 6	.498	.284	.136	.406	.566
EF9	V 7	1.468	.269	.079	-.144	2.044
EF12	V 8	-.031	-.357	1.353	1.708	.103
EF13	V 9	.102	-.274	.757	1.015	.190
EF16	V 10	-.069	-.359	1.172	1.490	.486
EF19	V 11	1.342	.268	-.054	-.105	1.703
EF20	V 12	.186	.819	-.052	-.226	.275
EF21	V 13	.044	.277	.023	-.205	.161
EF22	V 14	.586	.310	-.225	.106	.798
EF23	V 15	.644	.558	-.123	-.225	.411
EF25	V 16	.275	.657	.121	-.243	.239
EF27	V 17	.501	.073	-.136	-.011	.808
EF29	V 18	.200	-.022	.685	.999	.427

## COVARIANCE MATRIX TO BE ANALYZED Cont'd

		EF8	EF9	EF12	EF13	EF16
		V 6	V 7	V 8	V 9	V 10
EF8	V 6	3.649				
EF9	V 7	.521	3.374			
EF12	V 8	.120	-.124	2.899		
EF13	V 9	.161	.095	1.141	1.919	
EF16	V 10	.201	.169	1.570	1.077	3.228
EF19	V 11	.323	1.998	-.033	-.125	.023
EF20	V 12	.535	.519	-.371	-.222	-.131
EF21	V 13	.200	.189	-.168	-.165	-.078
EF22	V 14	.231	.944	.285	.468	.354
EF23	V 15	.784	.517	-.195	-.095	-.228
EF25	V 16	.700	.279	-.301	-.145	-.206
EF27	V 17	.513	.779	.256	.153	.296
EF29	V 18	.084	.325	.918	.649	1.301

## COVARIANCE MATRIX TO BE ANALYZED Cont'd

		EF19	EF20	EF21	EF22	EF23
		V 11	V 12	V 13	V 14	V 15
EF19	V 11	2.694				
EF20	V 12	.508	1.844			
EF21	V 13	.242	.471	1.780		
EF22	V 14	.870	.178	.068	2.658	
EF23	V 15	.553	.586	.387	.024	2.451
EF25	V 16	.263	.903	.322	-.112	.788
EF27	V 17	.766	.060	-.086	.996	-.012
EF29	V 18	.259	-.145	-.169	.588	-.336

## COVARIANCE MATRIX TO BE ANALYZED Cont'd

		EF25	EF27	EF29
		V 16	V 17	V 18
EF25	V 16	1.847		
EF27	V 17	-.159	2.393	
EF29	V 18	-.125	.397	2.037

*APPENDIX F*

*Covariance Matrix for the Full Structural Needs-Values Model (Study 3)*

## COVARIANCE MATRIX TO BE ANALYZED

		AUTOR	COMPR	RELATR	SELFTRAN	OPEN
		V 1	V 2	V 3	V 4	V 5
AUTOR	V 1	.855				
COMPR	V 2	.396	.723			
RELATR	V 3	.464	.313	.750		
SELFTRAN	V 4	.110	.062	.124	.777	
OPEN	V 5	.182	.121	.113	.460	1.350
HEDOR	V 6	.104	-.054	.066	.324	.862
SELFENH	V 7	.036	.081	.022	.283	.542
CONSERV	V 8	-.049	-.070	.026	.535	.220

## COVARIANCE MATRIX TO BE ANALYZED Cont'd

		HEDOR	SELFENH	CONSERV
		V 6	V 7	V 8
HEDOR	V 6	2.502		
SELFENH	V 7	.706	.947	
CONSERV	V 8	.211	.434	1.018