

## MEASURING SELFHOOD ACCORDING TO SELF-DETERMINATION THEORY: CONSTRUCTION AND VALIDATION OF THE EGO FUNCTIONING QUESTIONNAIRE (EFQ)

***Nebojša Majstorović***<sup>1</sup>  
University of Ottawa, Canada

***Lisa Legault***  
University of Ottawa, Canada

***Isabelle Green-Demers***  
Université du Québec en Outaouais, Canada

*The goal of this research was to develop and validate an instrument designed to measure the three types of self proposed by Hodgins and Knee (2002): integrated, ego-invested, and impersonal. This measure was termed The Ego Functioning Questionnaire (EFQ). In Study 1 (N=202), the factorial structure of the EFQ was examined by means of an exploratory factor analysis, and the metric properties of its subscales were documented. In Study 2 (N=300), the 3 factor structure of the EFQ was successfully corroborated using a confirmatory factor analysis. In Study 3 (N=131), associations between the EFQ and a variety of cognitive, affective, and social variables were found to display meaningful patterns, thereby providing support for the EFQ's construct validity. Also, the EFQ was not susceptible to socially desirable responding. Results are discussed in terms of their fundamental and applied implications.*

**Keywords:** *Self, Ego Functioning Questionnaire, Self-Determination Theory, Scale Validation.*

The self has been a dominant topic in psychological science for more than a century. The main questions that researchers have been trying to answer are: What is

---

<sup>1</sup>✉: [nmaj@eunet.yu](mailto:nmaj@eunet.yu)

the central instance that integrates and coordinates 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 hundreds years BC, Eastern writers and Greek Philosophers delved deeply into topics such as reflexive consciousness and identity (Leary & Tangney, 2003). More than two thousand years elapsed before the first detailed scientific discussion of the self emerged. Yet, when William James offered his conceptualization and classification of self, and when Sigmund Freud discovered the forces of ego dynamics, the self paradigm penetrated psychological theory and has remained one of the most complex fundamental questions ever raised. Today, there is widespread agreement that the self exists as a unique psychic state. Due to its tremendous explanatory power, this concept attracts more and more researchers in their endeavour to understand the intricacies of the psychological realm. 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<sup>2</sup>.

Freud (1914) was first to point out the nature of dynamics in the process of ego development. His initial idea was that the ideal self (conscience) arises from the regression toward narcissism in order to protect the infant's perception of omnipotence from the frustrations and limitations of the external world. Freud (1922) further developed this notion by introducing the mastery principle: an urge to master one's inner and outer reality. This led to the development of the well-known structural theory of the id, ego and super-ego (Freud, 1923). According to Freud, the ego stands between drives, moral demands, and reality, and its function is to harmonize the three.

Object relations and Self psychology, on the one hand, departed from the Freudian drive model by explaining ego development in terms of interpersonal relationships that are established with important others (e.g. Kohut, 1971). According to this theoretical perspective, the child possesses 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 boost the child to develop a core self in which the inner structures act to protect the initial narcissistic equilibrium. The child's core self results from the merging 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. This modified grandiose self remains in personality, supplying it with energy, ambition, and self-esteem.

---

<sup>2</sup> Besides these broader conceptualisations, there are many other limited-domain theories of self that are still waiting to be adequately integrated (Leary & Tangney, 2003). The majority of these pocket theories were developed as a rationale for construction of numerous instruments in this field (for a review of self-concept instruments, see Byrne, 1996).

Social psychologists' views of the self, on the other hand, 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) posit that humans are congruency seekers who organize 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 individual's experience in a certain domain' (p. 182). 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 projections of personal characteristics into the future, including probable, preferred, and feared foreseen features of the self. In a similar vein, Higgins (1989) classified people's cognitions about themselves into an 'actual self', an 'ideal self', and an 'ought self', emphasising that the discrepancy between these states can become a source of motivation to harmonize them. He proposed that unresolved discrepancies between the 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 third main tradition in psychology, known as the organismic-humanistic approach, conceptualized the self 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 Goldstein (1934), Maslow (1962), Moustakes (1956), and Rogers (1961). The core 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. Generally speaking, this organismic position resolves the famous determinism/free-will controversy in psychology in favour of the latter. Human beings are believed to have a strong tendency to exercise their free will by making choices and decisions that shape their ongoing and future actions. 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).

## EGO-FUNCTIONING ACCORDING TO SELF-DETERMINATION THEORY

The present study heavily relies on a humanistic conceptualization of self that was devised by Hodgins and Knee (2002) and from Self-Determination Theory (Deci & Ryan, 1985, 2002). These authors posit that humans are proactive beings striving for psychological growth and integration. In accordance with Self-Determination Theory, Hodgins and Knee (2002) suggest that human beings possess an inherited organismic core self, which is comprised of a main motivation apparatus and 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 can develop and operate 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. The quality of ego functioning then becomes dependent on how successfully the system integrates 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 toward 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 novelties, and willing to explore and experience inner and outer reality.

The *ego-invested self*, alternatively, develops when an individual 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 recog-

dition 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, and 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 routines 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 (e.g., taking more responsibility for success than 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 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 objective of this study was to develop a measure that would provide a 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.

Three studies were conducted to document the psychometric properties of the EFQ. In Study 1, a data reduction strategy was utilized, by means of an exploratory factor analysis, to identify six optimal items for each subscale. The metric qualities

of those items were further examined using classical and image measurement indices. In Study 2, a confirmatory factor analysis was conducted to test the structure of the EFQ in a strictly a priori manner, in order to cross-validate the results from Study 1. Study 3 focused on the construct validity of the EFQ, by evaluating correlations between its subscales and a wide array of cognitive, affective, and social variables.

## **STUDY 1**

The goals of this study were to generate a large pool of suitable items for the three subscales of the EFQ, to select the best items for each subscale, and to evaluate the reliability, homogeneity, and representativeness of the abridged subscales.

### **Participants and Procedure**

The data was gathered using a sample of 202 undergraduate students. The sample comprised 160 females and 41 males (one participant that did not reveal its gender) aged 17 to 50 years ( $M = 20.5$  years;  $SD = 4.35$ ). Students were told that the EFQ assessed various aspects of their self-perceptions, and that they should indicate how accurately each item reflected their self-views. It was emphasized that their participation in the study was voluntary, anonymous, and confidential. The questionnaire was completed at home and picked up one week later, at the beginning of the participants' next class.

### **Instrument**

The Ego Functioning Questionnaire (EFQ) is a self-report measure developed to provide information on 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. Items were rated on a 7-point Likert scale (1=Strongly Disagree; 7=Strongly Agree).

### **Analyses**

In order to examine the factorial structure of the EFQ, a factor analysis was performed using Maximum Likelihood extraction and Direct Oblimin rotation. To determine the number of components and to avoid the Eigenvalues >1 criterion for the extraction, 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,  $\alpha$  reliability coefficient, two measures of homogeneity, and one coefficient of representativeness were selected and evaluated for the purposes of this study.

In addition to the Cronbach's  $\alpha$  coefficient of internal consistency, the homogeneity of subscales was evaluated by the average value of the item intercorrelations ( $h_1$ ), and by the number of main components with positive reliability coefficients ( $h_4$ ; Momirovic & Wolf, 1997). 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 (MSA).

## **Results**

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 meaningfully, all missing values in the variable set were replaced using the regression technique ('linear trend at point', SPSS, v.15.0). 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*

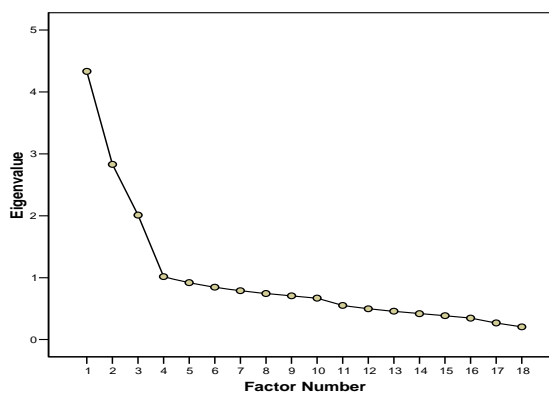
An exploratory factor analysis was first performed using the 130 items of the pilot version of the EFQ. With the goal of creating three subscales, one for each of the three types of self, a theory-driven data reduction approach was utilised. More specifically, a three-factor solution was imposed on this large pool of 130 items. Items were then observed and selected if their loading on their home factor was .32 or higher (Tabachnick & Fidell, 2007), and if they had no substantial crossloadings. The applied MAP program detected that three components were indeed sufficient to explain shared variance within the matrix of intercorrelations among selected items. The Scree test, as well as the G-K criterion of eigenvalues  $>1$ , indicated the influence of the fourth factor, but this was ignored due to a very small amount of the common variance explained by this factor (only 5.6%) (see Figure 1 for Scree plot). Once a clean solution was obtained, the items displaying the six highest loadings on each subscale were retained. Together, it was found that these three dimensions ex-

plained 51% of the common variance shared among items. The final outcome of this analysis is presented in Table 1.

**Table 1: Exploratory Factor Analysis (Study 1)**

Item	Impersonal Self	Ego-Invested Self	Integrated Self	Communality (h <sup>2</sup> )
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
Explained variance (%)	24.07	15.72	11.17	

**Figure 1. Scree plot (Study 1)**





The coefficients of correlations among factor scores revealed that measures of the ego-invested self did not correlate with those of the integrated self (-.07) nor with those of the impersonal self (.04), while, on the other hand, a lower negative correlation between integrated and impersonal selves (-.26) was found. These correlations indicate a meaningful (i.e., negative) relationship between coherent and incoherent selves, as well as an absence of any relationship between these two self orientations and an artificial structure named the ego-invested self.

Generally speaking, results of the exploratory factor analysis indicate that the EFQ's latent structure is composed of three factors that successfully represent the taxonomy of self orientations proposed by Hodgins and Knee (2002). The next section provides a multifaceted evaluation of the efficiency and accuracy of the EFQ's subscales.

### *Reliability, Homogeneity and Representativeness of the EFQ Subscales*

Reliability and indices of homogeneity and representativeness are summarised in Table 2. It can be noticed that reliability coefficients are somewhat lower for the EFQ-In and EFQ-Ei than for the EFQ-Im subscale. The average inter-item correlations ( $h_1$ ) were moderate and increasing going from EFQ-In and EFQ-Ei to the EFQ-Im subscale. The other index of homogeneity was maximal (i.e., 1.00), each generating only one component with Eigenvalues greater than one ( $\lambda > 1$ ). Since each of the EFQ subscales is designed to measure one construct of the self, it is desirable that the variance of its first object of measurement participates largely in the total valid variance of the subscale. In all subscales, the first main component was sufficient to explain the total valid covariance, demonstrating the maximal homogeneity ( $h_4$ ) of each of them. Regarding representativeness, the Kaiser-Meyer-Olkin normalized measure of sampling adequacy was lower for the integrated self and the ego-invested self than for the impersonal self subscale. It is obvious that an increased amount of non-shared (anti-image) variance among items results in decreasing MSA coefficients accordingly. The same holds for diminishing reliability coefficients, which is interpreted as a consequence of an increased specificity by subscales that measure more of an individual's behavioural patterns and extrinsic values (EFQ-In and EFQ-Ei) than of internal subjective states such as mood and feelings (EFQ-Im). Therefore, the initial evidence of construct validity, reliability, homogeneity and representativeness tells us that all three subscales cover their domains in a satisfactory manner.

**Table 2: Reliability, Homogeneity and Representativeness (Study 1)**

Coefficient	Scales		
	EFQ - In	EFQ - Ei	EFQ - Im
<i>Reliability</i>			
Alpha ( $\alpha$ )	.67	.76	.89
<i>Homogeneity</i>			
$h_1$ (average inter-item correlation)	.25	.34	.57
$h_4$ (based on no. of components with positive $\lambda$ )	1.00	1.00	1.00
<i>Representativeness</i>			
MSA (KMO)	.79	.88	.98

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

## STUDY 2

The goal of this study was to cross-validate the results of the exploratory factor analysis from Study 1 using a strictly confirmatory approach (Jöreskog, 1993).

### Participants, Instrument and Procedures

The 18 items version of the EFQ that was generated in Study 1 was completed by 309 undergraduate university students. The sample comprised 98 men, 209 women, and 2 participants that did not report their gender ( $M_{\text{age}} = 19.90$  years;  $SD = 2.98$ ). Participants completed the research questionnaire during class time.

### Analyses

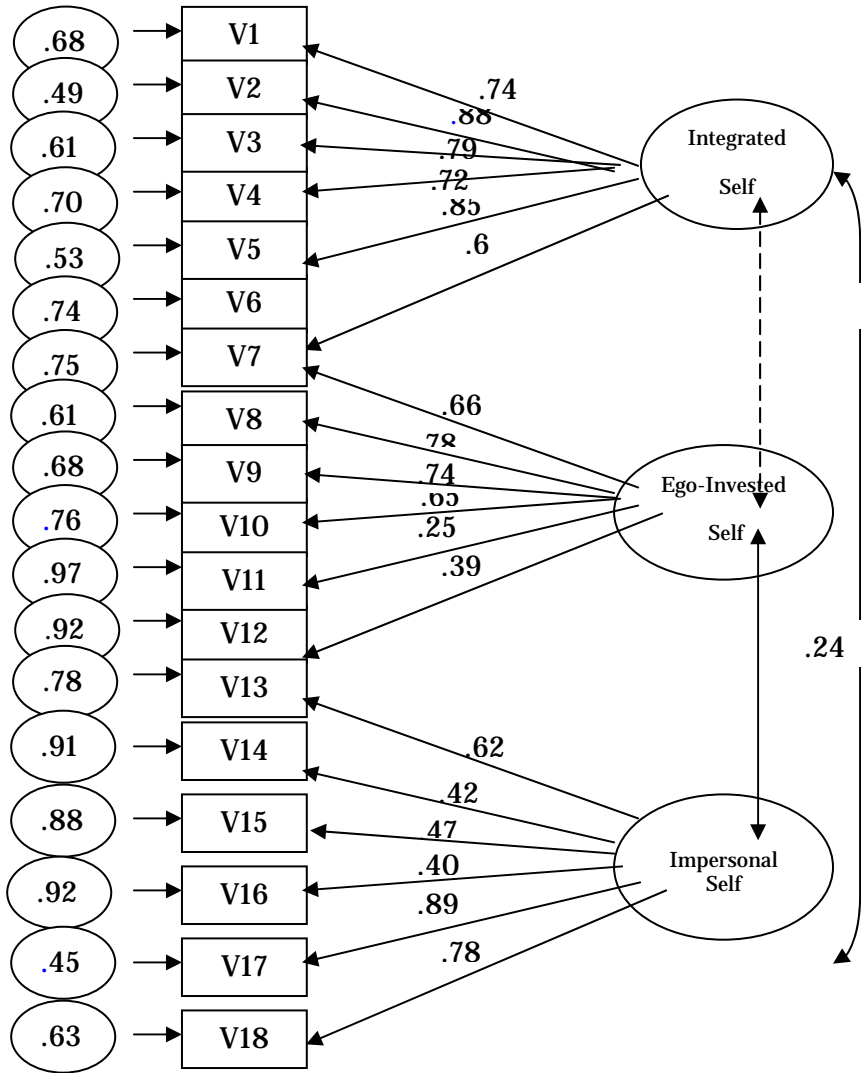
The main analysis of this study consists of a confirmatory factor analysis (EQS, version 6.1; Bentler, 2006). A classical measurement model was assessed wherein target factor loadings, factor variances and covariances, and item uniqueness values were freely estimated. For purposes of statistical identification, the first target loading of each factor was fixed to 1. All other parameters were fixed to 0. 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).

## **Results**

Preliminary analyses were performed to screen the data for outliers, and to test statistical assumptions. The data exhibited no indication of deviation from the assumptions of normality, homogeneity of variance, and linearity. Multicollinearity was not a problem. Six univariate outliers ( $Z > \pm 3.00$ ) and three multivariate outliers (Mahalanobis  $\chi^2_{(18)} > 42.31, p < .001$ ) were identified and these cases were excluded from further analyses.

Besides traditionally significant S-B $\chi^2$ , the confirmatory factor analysis revealed a satisfactory model adjustment (S-B $\chi^2_{(132)} = 242.23, p < .001$ ; RMSEA=.05; GFI=.90; CFI=.93). No a posteriori changes to model specifications were implemented. Model parameters are displayed in Figure 2. All estimated parameters were of acceptable magnitude, and were significant of the .05 level. Thus, the factorial structure of the EFQ that was tested by exploratory means in Study 1 was successfully cross-validated in Study 2 using a strictly confirmatory approach.

Figure 2. Factorial Structure of the Ego Functioning Questionnaire (Study 2)



### STUDY 3

The purpose of this study was to examine the construct (convergent) validity of the EFQ, by evaluating associations between the EFQ and conceptually related constructs. Levels of socially desirable responding were also examined. It was hypothe-

sized that the subscales of the EFQ would display meaningful associations with a variety of cognitive, affective, and social variables.

#### *Participants and Procedure*

The sample (N=132 undergraduate students) was composed of 27 men and 104 women. The average age of participants was 22 years ( $SD = 2.65$ ). With the permission of professors, students completed questionnaires during class time.

## **Measures**

In addition to the EFQ, the research questionnaire comprised a battery of instruments evaluating a wide array of cognitive, affective, and social constructs. 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 construct validity measures. In addition to the EFQ, version A included the General Causality Orientation Scale (Deci & Ryan, 1985b; 36 items) to measure overall personal motivation, the Depression Scale (Hakstian & McLean, 1989; 4 items), the Locus of Control Scale (adapted from Levenson, 1974; 4 items), the Life Satisfaction Scale (Diener, Emmons, Larsen & Griffin, 1985; 4 items), the Normlessness Scale (adapted from Neal & Groat, 1974; 4 items), the Machiavellianism Scale (adapted from Christie & Geis, 1970; 5 items), and Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1988; 40 items). Construct validity scales for version B comprised the Self-Consciousness Scale (Scheier & Carver, 1985; 22 items), the Vitality Scale (Ryan & Frederick, 1997; 7 items), the Mindfulness Scale (Brown & Ryan, 2003; 15 items), the Self-Esteem Scale (Rosenberg, 1965; 10 items), the Cognitive Failures Questionnaire (Broadbent, Cooper, Fitzgerald & Parkes, 1982; 25 items), and the Need for Cognition Scale (Cacioppo, Petty, & Kao, 1984; 18 items).

## **Results**

### *Construct (Convergent) Validity*

Results are displayed in Table 3. Meaningful patterns of association were obtained between the subscales of the EFQ and related motivational, emotional, social, and cognitive variables. Firstly, from a motivational point of view, each type of self-orientation correlated the most with its corresponding type of motivational orientation, as measured by the GCOS scale. Also, it is useful to notice that these expected associations were not too high, thereby indicating that the EFQ dimensions are not redundant with GCOS subscales. Furthermore, 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 of the GCOS.

**Table 3: Correlations between the Ego Functioning Questionnaire and Relevant Motivational, Affective, Social, and Cognitive Constructs (Study 3)**

	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

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

The three types of self also demonstrated significant associations with a sense of personal control over outcomes. The integrated self was correlated positively, the impersonal self was correlated negatively, and the ego-invested self was uncorrelated with an internal locus of control. The vitality scale presented the same pattern of correlations as locus of control. The integrated self was positively associated with high energy levels, while the impersonal self correlated with diminished perceived energy. The ego-involved self was uncorrelated with perceived vitality.

Secondly, interesting associations were obtained between the EFQ subscales and several well-being variables. The three EFQ subscales correlated meaningfully with depressive symptoms. 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. Moreover, correlations with self-esteem revealed that 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.

Life satisfaction 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 positively with the sense of achieving one's 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.

Thirdly, the EFQ displayed significant patterns of association with relevant social variables. 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.

Moreover, 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 and authentic communication with others, while the ego-invested self is 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.

Finally, interesting associations were uncovered between the EFQ and three aspects of cognitive functioning. The results 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 reality, and were more preoccupied with the past or the future. The integrated self orientation was also positively correlated with 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 this project were to analyze the factorial structure of the Ego Functioning Questionnaire (EFQ), and to examine its metric properties and construct validity. After a clean three-factor structure was obtained in Study 1, 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 clearly portrayed the integrated self, ego-invested self and impersonal self orientations. This structure was successfully cross-validated in Study 2 by means of a confirmatory factor analysis. Together, these results offer strong support for the 3-factor structure of the EFQ. The three EFQ subscales' internal properties were also analyzed in Study 1 (i.e., reliability, homogeneity and representativeness). Results were satisfactory.

Study 3 was undertaken to examine the construct validity of the EFQ. 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 depression, self-esteem, and life satisfaction, 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 of Study 3 also suggest that participants' responses to the EFQ's statements were not influenced by social desirability conditions.

However, it is necessary to acknowledge the limitations of the present validation studies. A first cause of concern is the demographic structure of our samples. All three studies of the present project relied on samples derived from a student population. Since the development of the self extends into adulthood, future validation studies should target more diversified samples. For instance, it would be useful to replicate the present findings with working adults in a variety of professional settings, or even with elderly people. It would also be most interesting to examine the development of the three self-orientations during childhood and adolescence, and to evaluate their social antecedents. Also, due to a disproportionately larger participation of females in used samples, the future study will be designed to validate this pattern of results with the control for participants' gender.

Second, the sample size of both subgroups of participants in Study 3 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 meaningful validity correlations were obtained. Nonetheless, a few intriguing unexpected associations of modest



magnitude failed to reach significance, possibly because statistical power was low for questionnaire B. 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 below the statistical threshold with social anxiety, public self-consciousness, cognitive lapses, and need for cognition (negatively). Because of pragmatic 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.

In spite of these shortcomings, the present findings bear interesting fundamental and psychometric implications. From a fundamental standpoint, the validation of the factorial structure of the EFQ provides support for the 3 facets of selfhood offered by Hodgins and Knee (2002). By successfully operationalizing the tripartite taxonomy of self proposed by these authors, corroborating evidence was generated for its conceptual underpinnings.

From a psychometric point of view, the construction and validation of the EFQ contributes a novel instrument that is liable to prove useful for researchers and clinicians that are interested in the self from an organismic-humanistic perspective. There are two extant instruments that evaluate behaviour regulation variables at the personality level according to Self-Determination Theory. The General Causality Orientation Scale (GCOS; Deci & Ryan, 1985b) measures three motivational orientations that are seen as enduring aspects of personality: autonomy (orientation towards intrinsic endeavors, optimal challenge, and informational feedback), control (orientation towards non self-determined extrinsic endeavors that are prompted by external rewards or constraints), and impersonal (orientation in which desired outcomes are perceived as beyond one's control). The Global Motivation Scale (GMS; Guay, Mageau, & Vallerand, 2003) assesses the 6 forms of motivation proposed by Self-Determination Theory (intrinsic motivation, extrinsic motivation by integrated, identified, introjected, and external regulation, and amotivation), also as enduring personality characteristics. The EFQ complements these two instruments by introducing a notion, emphasized by Hodgins and Knee (2002), that certain type of motivational behaviour indicates a totality of one's self, not just one particular mechanism in personality.

The present project yielded strong preliminary evidence 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. These results provide an auspicious starting point for future studies designed to further scrutinize its psychometric properties. For instance, it could be desirable to perform longitudinal studies to ascertain the criterion-related validity of the EFQ (e.g., job performance from different organizational levels). The convergent validity results from our project suggest that the EFQ subscales are associated with a host of interesting motivational, affective, social, and cognitive

variables. It would be useful to know if these associations hold over time, and whether the predictive properties of the EFQ can extend to behavioral constructs as well. Such variables could include academic behaviors in high school students (e.g., performance, time spent studying, tardiness, absenteeism, drop out), professional behaviors in working adults (e.g., managerial performance, tardiness, absenteeism), psychological and physical health outcomes in a variety of age groups (e.g., children, elders), treatment outcome variables in psychotherapy clients, and adherence to treatment in medical clients, to name just a few. Personality variables, such as self-orientation, often possess a far reaching influence. The tripartite conceptualization of selfhood offered by Hodgins and Knee (2002) is liable to contribute to a better understanding of the dynamic aspects of self, which is the most exposed instance of the personality responsible for assigning its potentials and for the evaluation of the effectiveness of their usage. By providing an instrument that operationalizes this conceptual framework, we hope to facilitate and foster research on this central topic.

## REFERENCES

- Broadbent, D. E., Cooper, P. F., Fitzgerald, P., & Parkes, K. R. (1982). The Cognitive Failures Questionnaire (CFQ) and its correlates. *British Journal of Clinical Psychology, 21*, 1-16.
- Bentler, P. M. (2006). EQS 6: *Structural Equation Program Manual*. Encino, CA, Multivariate Software, Inc.
- Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin, 107*, 238-246.
- Blascovich, J., & Tomaka, J. (1991). Measures of self-esteem. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.) *Measures of Personality and Social Psychological Attitudes* (pp. 115-160). San Diego, Academic Press.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: The role of mindfulness in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822-848.
- Byrne, M. B. (1996). *Measuring Self-Concept across the Lifespan: Issues and Instrumentation*. Washington DC, American Psychological Association.
- Cacioppo, J. T., Petty, R. E., & Kao, C. F. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment, 48*, 306-307.
- Christie, R., & Geis, F. L. (1970). *Studies in Machiavellianism*. New York, Academic Press.
- Deci, E. L., & Ryan, R. M. (1985a). *Intrinsic Motivation and Self-Determination in Human Behaviour*. New York, Plenum Press.
- Deci, E. L., & Ryan, R. M. (1985b). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality, 19*, 109-134.
- Deci, E. L., & Ryan, R. M. (2002). *Handbook of Self-Determination Research*. Rochester, The University of Rochester Press.

- Diener, E., Emmons, R., Larsen, J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment, 49*(1), 71-75.
- Festinger, L. (1957). *A Theory of Cognitive Dissonance*. Palo Alto, CA, Stanford University Press.
- Fiske, S. T., & Taylor, S. E. (1991). *Social Cognition*. New York, McGraw-Hill Inc.
- Freud, S. (1914/1991). *On Narcissism: An Introduction*. New Haven, CT, Yale University Press.
- Freud, S. (1922/1948). *Beyond the Pleasure Principle*. London, Hogarth Press.
- Freud, S. (1923/1949). *The Ego and the Id*. London, Hogarth Press.
- Glorfeld, L. W. (1995). An improvement on Horn's parallel analysis methodology for selecting the correct number of factors to retain. *Educational and Psychological Measurement, 55*, 377-393.
- Goldstein (1939/1963). *The Organism: A Holistic Approach to Biology*. New York, The American Book Company.
- Guay, F., Mageau, G., & Vallerand, R. J. (2003). On the hierarchical structure of self-determined motivation: A test of top-down and bottom-up effects. *Personality and Social Psychology Bulletin, 29*(8), 992-1004.
- Guttman, L. (1953). Image theory for the structure of quantitative variates. *Psychometrika, 18*(4), 277-296.
- Hakstian, A. R., & McLean, P. D. (1989). Brief screen for depression. *Psychological Assessment, 1*, 139-141.
- Heider, F. (1958). *The Psychology of Interpersonal Relations*. New York, Wiley.
- Higgins, E. T. (1989). Self-discrepancy theory: What patterns of self-beliefs cause people to suffer? In L. Berkowitz (Ed.) *Advances in Experimental Social Psychology* (Vol. 22, pp. 93-136). San Diego, CA, Academic Press.
- Hodgins, S. H., & Knee, R. C. (2002). The integrating self and conscious experience. In E. L. Deci & R. M. Ryan (Eds.) *Handbook of Self-Determination Research* (pp. 87-100). Rochester, The University of Rochester Press.
- Hodgins, H. S., Koestner, R., & Duncan, N. (1996). On the compatibility of autonomy and relatedness. *Personality and Social Psychology Bulletin, 22*, 227-237.
- Hodgins, H. S., Liebeskind, E., & Schwartz, W. (1996). Getting out of hot water: Facework in social predicaments. *Journal of Personality and Social Psychology, 71*, 300-314.
- Jöreskog, K. G. (1993). Testing Structural Equation Models. In K. A. Bollen & J. S. Long (Eds.) *Testing Structural Equations Models* (pp. 294-316). Newbury Park, CA, Sage Publications.
- Jöreskog, K. G., & Sörbom, D. (1989). *LISREL 7: User's Reference Guide*. Mooresville, IN, Scientific Software International.
- Kasser, T., & Ryan, R. M. (1993). A dark side of the American dream: Correlates of financial success as a central life aspiration. *Journal of Personality and Social Psychology, 65*, 410-422.
- Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin, 22*, 280-287.

- Knee, C. R., & Zuckerman, M. (1996). Causality orientation and the disappearance of the self-serving bias. *Journal of Research in Personality, 30*, 76-87.
- Knee, C. R., & Zuckerman, M. (1998). A nondefensive personality: Autonomy and control as moderators of defensive coping and self-handicapping. *Journal of Research in Personality, 32*, 115-130.
- Knežević, G. & Momirović, K. (2003). RTT112G – Program for Analysis of Metric Characteristics of Composite Instruments (Version 1.0) [Computer Software]. Beograd.
- Koestner, R., Bernieri, F., & Zuckerman, M. (1992). Self-determination and consistency between attitudes, traits, and behaviors. *Personality and Social Psychology Bulletin, 18*, 52-59.
- Kohut, H. (1971). *The Analysis of Self*. New York, International University Press.
- Leary, M. R., & Tangney, J. P. (2003). *Handbook of Self and Identity*. New York, The Guilford Press.
- Levenson, H. (1974). Activism and powerful others: Distinctions within the concept of internal-external control. *Journal of Personality Assessment, 38*, 377-383.
- Markus, H., & Nurius, P. (1986). Possible Selves. *American Psychologist, 41*, 954-969.
- Maslow, A. (1962). *Toward a Psychology of Being*. Princeton, NJ, Van Nostran Company.
- Momirović, K., & Wolf, B. (1997). *Uvod u teoriju merenja*. Beograd, Institut za kriminološka i sociološka istraživanja (elektronsko izdanje).
- Moustakes, E. (1956). *The Self*. New York, Harper and Row.
- Neal, A., & Groat, H. T. (1974). Social class correlates of stability and change in levels of alienation. *Sociological Quarterly, 15*, 548-558.
- O'Connor, B. P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instrumentation, and Computers, 32*, 396-402.
- Paulhus, D. L. (1988). *Assessing self-deception and impression management in self-reports: the Balanced Inventory of Desirable Responding*. Department of Psychology, University of British Columbia, Vancouver, B.C., Canada.
- Rogers, C. R. (1961). *On Becoming a Person*. Boston, Houghton Miffling Company.
- Rosenberg, M. (1957). *Occupations and Values*. Glencoe, IL, Free Press.
- Rosenberg, M. (1965). *Society and the Adolescent Self-Image*. Princeton, NJ, Princeton University Press.
- Ryan, R. M., Kuhl, J., & Deci, E. L. (1997). Nature of autonomy: An organizational view of social and neurobiological aspects of self-regulation in behaviour and development. *Development and Psychopathology, 9*, 701-728.
- Satorra, A., & Bentler, P. M. (1988). Scaling corrections for chi-square statistics in covariance structure analysis. *American Statistical Association, Proceedings of the Business and Economic Sections, 308-313*. Alexandria, VA, American Statistical Association.

- Scheier, M. F., & Carver, C. S. (1985). The self-consciousness scale: A revised version for use with general populations. *Journal of Applied Social Psychology, 15*(8), 687-699.
- Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioural Research, 25*, 173-180.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics (5<sup>th</sup> ed.)*. Needham Heights, Allyn and Bacon.

## REZIME

### **MERENJE SAMSTVA PREMA TEORIJI SAMODETERMINACIJE: KONSKTRUKCIJA I VALIDACIJA EGO FUNKCIONALNOG UPITNIKA (EFQ)**

*Nebojša Majstorović*

University of Ottawa, Kanada

*Lisa Legault*

University of Ottawa, Kanada

*Isabelle Green-Demers*

Université du Québec en Outaouais, Kanada

Glavni cilj ovog istraživanja bio je razvoj i validacija instrumenta namenjenog merenju tri tipa selfa predloženih od strane Hodgins i Knee-a (2002): integrisani self, ego-investirajući i impersonalni self. Upitnik je imenovan kao EFQ (The Ego Functioning Questionnaire). Istraživanje je sprovedeno u okviru tri studije. U prvoj, na 202 ispitanika ispitana je faktorska struktura pilot verzije upitnika EFQ, a utvrđene su i njegove metrijske karakteristike. U drugoj studiji, na 300 ispitanika prethodno dobijena struktura je kros-validirana primenom konfirmatornog modela faktorske analize. Konačno, u trećoj studiji na ukupno 131 ispitanika ispitana je konvergentna valjanost novog upitnika sa nizom dobro poznatih instrumenata namenjenih merenju kognitivnih, emotivnih i socijalnih konstrukata, kao i stepena otpornosti stavki EFQ-a na socijalno poželjne reakcije. Eksplorativnom faktorskom analizom i primenom jedne novije tehnike ekstrakcije faktora, nađeno je da tri strukture vrlo jasno grupišu 6 ajtema i razdvajaju ih od druge dve skale. Kombinacijom metrijskih analiza rađenih unutar klasične i image teorija merenja, utvrđeno je i da EFQ poseduje zadovoljavajuće interne merne karakteristike. Skromnija pouzdanost je pripisana kratkoći subskala (naknadna još neobjavljena istraživanja to potvrđuju) kao i visokom specifičnosti u manifestacijama merenih konstrukata. Primena istog instrumenta na novom uzorku potvrdila je tri-faktorsko rešenje, jer je merni model pokazao odličan fit sa podacima ostvaren bez ikakvih post-hoc modifikacija u njemu. Jednako tako, EFQ je demonstrirao i odličnu konvergentnu valjanost otkrivajući vrlo smislene veze sa poznatim merama u oblasti „selfhood“-a. Ove korelacije otkrivaju, na primer, da je integrisan self superioran u kognitivnom funkcionisanju (da ima razvijenije kognitivne potrebe i da su mu manje svojstvene greške u svakodnevnom procesiranju), kao i to da ego-investirajući i impersonalni self gravitiraju ka oblicima socijalnog cinizma (makijavelizmu i odsustvu normi ponašanja).

Ovi rezultati su diskutovani i s obzirom na ograničenja samih istraživanja, ali i u smislu naučnog potencijala koji leži u merenju tri tipa self-regulacije na način kako je to predloženo EFQ-om. Ne samo u detekciji dominantnog oblika motivacije u ovim sistemima (intrinzička, ekstrinzička i amotivacija) nego i u mogućnosti praćenja stanja i razvoja integriteta osobe, nivoa i tipa radnog angažovanja i privrženosti, sve do kognitivne efikasnosti i društvenog ponašanja.

***Ključne reči:*** *self, EFQ, teorija self-determinacije, validacija upitnika, metoda strukturnih jednačina.*