# COGNITIVE STYLE AND VALUES

**Eliana S. Pencheva\*, Ph.D.**

**Eva B. Papazova, Ph.D.**

Institute of Psychology
Bulgarian Academy of Sciences
G. Bonchev Str., Bl.6
1113 Sofia, Bulgaria
\*E-mail: eli@anetbg.net; papazova3@yahoo.com

Jungian psychological type, and its shortened version frequently termed *cognitive style* in the American literature, is a fundamental individual difference variable. Cognitive style parameters offered a logical and compelling base from which other individual characteristics as human values may be explained. Cognitive style classifies individuals according to their preferred mode of information intake (sensing or intuiting), and their preferred mode of information processing and subsequent decision-making (thinking or feeling) (Myers & McCaulley, 1985). An aspect of cognitive style that is less investigated is it's "immediate and stable influence on human values and value systems" (Mcintyre, Claxton, & Jones, 1994, p. 141).

## COGNITIVE STYLE

According to Uto (1994), "Cognitive styles represent dimensions of individual differences in cognitive sphere, where individual remains relatively on a constant position. Those dimensions characterize individual's variations in a mental activity form. Hence, they are in principle contextually independent of that activity".

### 1. Some difficulties, concerning the classification and definition of cognitive styles

While abilities seem incorporated in structures, styles are a product of deduction. Therefore, their structure has to be revealed on a base of observation. In general, the observations are not specifically selected with that end of view. The uneven scope of cognitive styles brings the problem with their exact number. Let us review some of the approaches, concerning the classification and definition of cognitive styles.

**1.1 The classical approach** in psychology is directed towards a set of abilities. A great number of individuals are investigated through a great number of observations. The observations correlate with a wider or tighter *universe*, that is more strictly or indefinite defined, but a priori is accepted as multidimensional.

In this case, the most suitable method for observation is the "paper and pencil" test, based on a set of items. At a minimum price it allows to gather a large number of observations.

The interpretation of dimensions, originally fragmented, gradually immersed. This is Thurstone, Cattel, and Guilford approach. It brings into light dimensions with three qualities, which distinguished them from cognitive styles.

In that case, the aim of the researchers is to investigate the mental functioning of individual, in relation with its behavior and the consequent modification in a certain situation (Uto, 1994).

If we consider the cognition-centered tradition, it is possible to identify several models of cognitive functioning that appear to stand centrally in the development of a theory of cognitive style. They include the following areas of research and development and are organized into three groups: activities which relates to the Wholist - Analytic style dimension; activities which relates to the Verbal - Imager dimension of cognitive style; and, finally, more recently developed models which reflect a deliberate attempt to integrate both fundamental dimensions of cognitive style.

### 1.2 Models of cognitive style – Cognitive-centered approach

#### (A) Perceptual-Functioning

Workers led by Witkin (1962; 1979) focused initially on perception, as they identified differences in individuals when locating an upright object in space. Their work reflected earlier research into perception completed by the Gestalt school of German psychology. Further experiments led to the discovery of field-independence and field-dependence as a perceptual style. The early rod and frame test used to measure field dependency was refined and converted into a pencil and paper assessment, the Embedded Figures Test (EFT). This development again re-

flected earlier work on the discrimination of shape carried out by Thurstone (1944). Assessment of field dependency was further developed to include the Group Embedded Figures Test (GEFT). All three tests measured the ability of subjects to `dis-embed' a shape from its surrounding field. The theory was extended to involve a range of functions related to perception called psychological differentiation (Witkin et al., 1962; Witkin et al., 1971).

Later studies focused on field dependency in children and learning (Witkin et al., 1979).

### (B) Impulsivity-Reflectivity

This dimension was originally introduced by Kagan and co-workers (Kagan et al., 1965) and measured by the Matching Familiar Figures Test (MFFT). This style dimension derived from earlier work investigating conceptual tempo, which measured the rate at which an individual makes decisions under conditions of uncertainty. Learners fell into two distinct categories: the first were those who reached a decision quickly after a brief review of options and were labeled `cognitively impulsive'; the second were those who would deliberate before making a response, carefully consider all options and were labeled `cognitively reflective'.

Implications for the teaching and learning process are immediately obvious, and Riding and Cheema (1991,p. 199) argued that this aspect of cognitive functioning holds for tasks involved in both academic and non-academic learning.

### (C) Convergent-Divergent Thinking

This dimension of the intellect was proposed by Guilford (1967). The dimension reflects a type of thinking and associated strategies for problem solving. The learner will typically attack a problem or task by `thinking' in a way, which is either open-ended and exploratory, or close-ended and highly focused. The theory has been further developed by Hudson and has implications for the process of teaching and learning (Hudson, 1966; 1968). This construct had significant impact upon teacher training throughout the 1970s (Ryner & Riding, 1997).

### (D) The Assimilator-Explorer (A-E) Cognitive Style (Kaufmann, 1989)

Kaufmann's work flowed from an interest in problem solving and creativity. He identified two groups of problem-solvers, assimilators and explorers, and extrapolated an A-E theory of cognitive style to apply to problem-solving behavior. Kaufmann developed an A-E Inventory, a 32-item forced choice self-reporting questionnaire, in which items described dispositions to-

wards cognitive `novelty-seeking against familiarity-seeking'. Explorers reflected a higher score on the bi-polar continuum. The instrument was organized to reflect three factors: novelty against structure seeking, high against low ideational productivity and opposition against preference for structure. Martinsen (1994) has continued work in this area, specifically with respect to the relationship between cognitive style, insight and motivation in the process of problem solving (Ryner & Riding, 1997).

### (E) The Adaptor-Innovator Cognitive Style (Kirton, 1976; 1994)

Kirton argued that style relates to the preferred cognitive strategies involved in personal response to change, and the strategies associated with creativity, problem solving and decision-making. A second key assumption made by Kirton was that these strategies were related to numerous aspects (traits) of personality that appear early in life and were particularly stable, like cognitive style. The dimension, Adaption-Innovation, was understood to exist early in an individual's cognitive development and to be `stable over both time and incident'. The adaptor, therefore, generally has a preference for `doing things better', while the innovator will tend to like `doing things differently'. A useful table, listing the characteristics of each style dimension, is given in Kirton (1989). Kirton's A-I theory, in summary, advanced a style construct, which is bi-polar and consists of the adaptor-innovator continuum (Kirton, 1976; Pencheva et al., 2003).

The assessment instrument developed by Kirton to measure the adaptor-innovator continuum was the Kirton Adaptor-Innovator Inventory (KAI), a self-reporting inventory originally designed for adults with experience in the work-place and life (Ryner & Riding, 1997).

### (F) The Cognitive Style Index (CSI) (Allinson & Hayes, 1996)

The CSI is aimed at the "...generic intuition-analysis dimension of cognitive style" (Allinson & Hayes, 1996, p. 119). The authors have argued that utility of instrument is essential for the operationalization of cognitive style in a professional context (in this instance, a business management context), and the CSI is designed to further research and development of style in management practice. While the CSI does not purport to produce a `full' measure of cognitive style, it is focused on a single universal dimension, which, Allinson and Hayes (1996) argue, reflects the duality of `human consciousness'—and problem-solving responses, which are either intuitive or analytic.

### (G) A Model of cognitive style featuring the Verbal-Imagery cognitive dimension

An interest in the mode or manner of thinking and knowing has involved a concern for imagery since early work by Galton (1883). Riding and Cheema (1991) described the early work of Bartlett (1932) and the development of Paivio's `dual-coding theory' as the basis for further work investigating the nature of a Verbaliser-Imagery dimension in the cognitive process (Paivio, 1971). Several assessment measures have subsequently been developed which incorporate this feature as a fundamental dimension of cognitive style (Riding & Taylor, 1976; Riding, 1991).

### (H) A Model of cognitive style integrating the Wholist-Analytic and Verbal-Imagery cognitive dimensions

Riding's work is dealt with more fully in Riding (1991) but it is worth noting that its development reflects a synthesis of previous work in cognitive style and it deliberately sets out to integrate fundamental elements of style theory in the development of a learning style model (Riding & Cheema, 1991; Riding & Rayner, 1995). The Cognitive Styles Analysis is a computerized measure, which reveals an individual's tendency to think visually or verbally and to process information holistically or analytically (Riding, 1991; 1994).

The impact of the cognition-centered tradition has varied greatly and much of it attracted a great deal of criticism for a lack of rigor or reliability (Vernon 1963, 1973; Sternberg, 1987, cited by Ryner & Riding, 1997). There is also evidence of a growing desire to apply the theory in a variety of professional context and this is reflected in the development of constructs tied to a specific measure forming a basis for its operationalisation. Indeed, it is perhaps the latter trend, which led to the emergence of the learning-centered tradition of style theory (Ryner & Riding, 1997).

### 1.3 Cognitive style - Learning-centered approach

This approach is arguably distinguished by three major features: the first, a greater interest in the impact of individual differences upon pedagogy; the second, the development of new constructs and concepts of learning style; and the third, the presentation of an assessment instrument as a foundation for the exposition of theory. It is organized into three style groups, which reflect common features pointing to the measurement and conceptualization of a particular dimension of the learning process.

The authors of the theoretical analysis consider that two of the cognitive styles models, that are an object of argue, have to be added to the learning-centered approach. Thus, they could be more learning styles study oriented than cognitive styles study oriented.

### (A) Holist-Serialist Thinking

This label was introduced by Pask and Scott (1972) as two competencies which reflected an individual tendency to respond to a learning task either with a holistic strategy, which is `hypothesis-led', or a focused strategy which is characterized by a step-by-step process and is `data-led'. This work by Pask led to a development of `conversational theory', which emphasized the utility of the learner to `teach-back' learned material (Pask, 1976) (Ryner & Riding, 1997).

### (B) The Style Delineator (Gregorc, 1982)

Gregorc's learning style construct maintains that an individual learns through concrete experience and abstraction either randomly or sequentially. Gregorc identified four styles of learning: concrete sequential learners who prefer direct, step-by-step, orderly and sensory-based learning; concrete random learners who rely upon trial and error, intuitive and independent approaches to learning; abstract sequential learners who adopt an analytic, logical approach to learning and prefer verbal instruction; and abstract random learners who approach learning holistically, visually and prefer to learn information in an unstructured experiential way. This model, although placed in the cognition-centered approach because it is likely that Gregorc's construct reflects the Wholist-Analytic dimension of cognitive style, might arguably sit equally well in the learning-centered approach (Curry, 1983). It is interesting to note, too, that Grigorenko and Sternberg (1995) prefer to describe this model as part of a personality-centered approach to style (Ryner & Riding, 1997).

Workers in the learning-centered approach very often use the term `learning style', but this is in a strict sense different to the definition expressed by Tennant (1988). According to Tennant, "the categorization of style groups is made on the basis of identifying shared features which may point to additional fundamental dimensions of `learning style' that may be integrated with those dimensions previously" (Tennant, 1988, cited by Ryner & Riding, 1997). That definition is later adopted by other workers in the cognition-centered approach (Riding & Cheema, 1991; Kirton, 1989; Pencheva at el., 2003).

A proliferation of models, terms and meaning in the field of learning style seems to increase with each period of new interest and research activity. Many writers have repeated earlier calls for a clarification in `style' terminology (Curry, 1983; Riding & Cheema, 1991; Messick, 1996).

Curry, rather pointedly, identifies three areas of continuing concern for the operationalization of learning style: "(1) confusion in definitions; (2) weaknesses in reliability and validity of measurement; (3) identification of the most style relevant characteristics in learners and instructional settings." (Curry, 1991, p. 248, cited by Ryner & Riding, 1997).

## 2. Some difficulties, concerning the definition of the cognitive styles in connection with term 'activity'

For researchers, the main question is whether the characteristics of abilities include motivation and imagination aspects. We should mark here that there is an indefinite differentiation between terms 'style' and 'ability'. Sometimes it brings to the conclusion that cognitive styles could be seen as style dimensions, and could be represented as abilities. From this perplexity, a possible way out is to search for principles, which could bring to any kind of order in the multitude of styles.

In interrelation with the last issue, a simple descriptive classification or working models style organization could be proposed.

### 2.1 Classification, based on different criteria

By taking into apprehend a broad style definition, the investigators suggests that styles could be grouped in relation with some sources of variability, as:
- Operations and sequence of mental operations; *(e.g type and values)*
- Structure characteristics of cognitive (mental) pictures (Kelly's theory); *(e.g. values)*
- Cognitive aspects of motivation; *(e.g. type, values and behavior)* (Huteau, 1985).

### 2.2 Classification, based on the main steps in the process of decision-making

A large number of dimensions for evaluation of individual differences could be drawn out for each of the following steps (e.g. information intake, information preservation, etc.) (Kogan & Kogan, 1970).

The authors of the present theoretical analysis assume that a possible deduction from the issue mentioned above, is Carl Jung type theory and its later operacionalization by Mayers and Briggs.

As all MBTI practitioners know, cognitive style is an aspect of the more global structure of psychological type. Not all of the four dimensions are usually used for cognitive style assessment. The most widespread are S-N (Sensing – Intuition), and T-F (Thinking – Feeling) scales. Wheeler (2001) and Chen (2002) use the S-N scale to represent "information acquisition" and the T-F scale to represent "information processing". These two scales give four possible cognitive styles with the following main characteristics presented in Table 1 (Adapted from McClanaghan, 2000).

Of course, some researchers also use the E-I and J-P scales. Filbeck and Smith found some preferences depending on cognitive style. For example, Sensing-Judging (SJ) students prefer classes that are primarily lecture-oriented – that is, the authority structure of the traditional classroom environment. On the other hand, intuitive and perceiving (NP) types prefer open exploration of the material without a pre-planned structure. NPs also prefer classes that allow interaction (Filbeck and Smith, 1996).

For example, Wardell and Royce organization of cognitive styles is alluring. However, its demerit is in the interpretation, which could be rather speculative (Uto, 1994). Therefore, Uto and collaborates consider that the following four groups of styles could be deduced, on a base of correlation investigations:
- Capacity for control of cognitive activity;
- Capacity for control elimination, which restricts the functioning of cognitive ability;
- More or less fine structure of the system of mental pictures;
- Necessity of new information (Uto, 1994).

The attempts of different models validity are based on covariations between styles. As it is known, the covariations are a logical part of the factor analysis. And, the data from correlation analysis are interpreted as multitude of cognitive styles with wider range of activity.

A systematic approach towards organization of cognitive styles must render an account of their components, their determinants or at least their significance.

Cognitive styles literal meaning goes in quest in two main tendencies. The first one is frequently in relation with the method of style conceptualization. Style correlations could be searched for in most different areas, often away from the original one. Thus, the style turns into an *individual dimension*. To this so called 'extensive' approach, an opposite 'intensive' one could be resisted, which gave utterance for not passing

**Table 1. Main characteristics of the cognitive styles (MBTI profiles)**

|  | ST | NT | SF | NF |
|---|---|---|---|---|
| **Most frequently asked questions** | Who, what, where, when | Explain, compare, identify cause and effect | What has been your experience? What do you know about? | What might happen if? Or Where this can be applied? |
| **Preferred Tasks** | Organize factual information, practice for recall | Create a problem solving mode where students must sort out data, analyze and draw conclusions | Provide for group work or a task that involves the affect | Provide choices for completing assignments and projects or assign tasks that involve imagination, innovation |
| **Preferred Settings** | Traditional rows or pairs; teacher at focus | Teams that will create a debating atmosphere; teacher moves from team to team | Groups or pairs for collaboration; teacher meets students at eye level | Learning centers, student arranged for interest; teacher is a resource |
| **Preferred feedback** | Frequent, quick, short/need to know if they are right | Infrequent but with explanation of why they received the grade they did | Frequent, quick with an emphasis on the amount of effort that is evidenced | Infrequent but with emphasis on its value, its uniqueness, and creativity |
| **Preferred assessment** | True and false, fill in the blanks, any measure that allows students to recall factual material | Critical essays, debates, research projects which measure the ability to see relationships | Interviews in and out of class | Anything that can show what the student can do with what they have learned |

out from cognitive sphere, even not in a single sector (Uto, 1994).

In the proposed analysis, we shall discuss over the extensive approach.

### 3. The importance of cognitive styles

In that perspective, the correlations of style are searched in a broaden style definition. The definition could be based on an upset price processes. As well, situations could be defined as: a social behavior or an affective behavior, where a covariation between both situations could be revealed.

In Witkin's approach, the personality is seen as a system. The proposed definition is in relation to the elements of this system and the outside world. Witkin's hypothesis, known as "the hypothesis of psychological differentiation" is powerful with its postulate of 'intrinsic reinforcement between the different developments lines', e.g. the development of own learning strategies. By analogy with this hypothesis is RFT test (Root and Frame Test) (Witkin at. el., 1962, cited by Uto, 1994).

The authors of this report consider, that in relation with Witkin's approach, who suggests that a differentiation of a single quality could be seen into different behaviors, an implicit relation with cognitive styles, based on MBTI could be hypothesized (Pencheva, in press).

As well, a hypothesis that the cognitive aspects of motivation are a part of the Self-concept could be made (Papazova, 2001a). As we know, by nature, these are the basic motives in the Self social context (e.g. Self-knowledge and Self-enhancement) (Uto, 1994; Banaji & Prentice, 1994).

### 4. Type, values and behavior

The self-dynamic nature is investigated through its reflection in the social context. The researchers are looking for individual goals in connection with self-knowledge, self-enhancement and self-approval. Hence, they are looking for the Self oriented social cognition and social behavior through motives and strategies.

Self-knowledge and self-enhancement are seen via variety of social behaviors. Those mo-

tives relate: to how people think about the social world; with whom and with what kind of dimensions they measure and compare themselves; to their choices of partners to relate to; to the way they introduce themselves in front of public; and in particular, to their relationships in groups, that they are members in. Researches, referring to 'Self-social behavior' are focused on strategies, that individuals are using in order to satisfy the above-mentioned motives in a certain social context. The precise definition of the context is of importance. Recently, researchers break away all-embracing strategies, such as Freud's mechanisms of defense or Festinger's dissonance reduction. The context is seen in more adverbial strategies, focused on motives, which run the Self. Possibilities and/or restrictions of the social context are outlined as well. The MBTI questionnaire, based on Jung's type theory is in unison with this concept. In the frame of the social cognition, social comparison and interrelation, Self-representation and collective identification, most of these strategies determine behavior (Banaji & Prentice, 1994; Papazova, 2001a).

### 4. 2 Values and behavior

Evidence, based on empirical data proving that behavior is a consequence of Self-enhancing motives are missing, or in number are highly limited. Nevertheless, most investigations of goal-oriented behavior are in tolerance with such motives (Banaji & Prentice, 1994).

The newest researches of 'Self' trace its activity in two main sets of motives, defined with terms Self-knowledge and Self-enhancement (Bronson, 1966; Cairns at el., 1988). Self-knowledge refers to necessity of exact and determined proofs, connected with personal traits and possibilities. As well, with proves, which confirm someone's Self-esteem. By presumption, the necessity of Self-knowledge is rooted in more basic need, connected with need of continuity, reduction of uncertainty and possibility to foresee or control the environment (Wohlwill, 1973). Self-enhancement refers to necessity of positive Self-feedback. Defense mechanisms and impulses that are a result from threatening or negative experiences, as well from a continuing necessity of positive Self-esteem, are also between its components.

Regardless the debates, most investigators would agree with these two versions for *goal-oriented behavior* origin (Banaji & Prentice, 1994). In this context, the authors of the paper see and will review theoretically and empirically the relationship between values (as a component of Self) and behavior (Pencheva, in press).

Jung's concepts of individuation and psychological types underline some premises as: "People who have different psychological types have different attitudes, needs, and values in relation to work and play, and this is reflected in their differing behaviors" (Provost, 2001).

### 4. 3 Type and behavior

Theoretically as an example in the framework of type theory, Moody pointed out that in order to avoid being one-sided, an individual achieves "balance" by doing both introverted and extraverted activities, and by both collecting information and making decisions about it. As well, the author pointed out, that individual development is a life-long process (Moody, 1993).

McCaulley describes the role of culture as providing a set of experiences from which an individual filters out and selects those that coincide with the built in psychological preferences. She also outlines that different cultures provide different kind of experience and different opportunities to express the preferences, helping some and hindering others (McCaulley, 1993, cited by Moody, 1993).

On the other side, Casas hypothesize about some characteristic behavioral patterns. Casas calls this a "psychocultural feature" that characterizes the culture, colors individual behavior, and may also lead to (negative) stereotyping (Casas, 1993; Casas, 1996).

As empirical evidence the following authors found some interesting implications.

Ohsawa outlines some major characteristics of Japanese management style and compares the corresponding Western style. The major qualities that corporation seek in employees are eagerness, cheerfulness, and activity. It is not surprising to find, then, that ESFPs and ENFPs are very desirable colleagues. Cross-cultural comparisons may be very difficult because job classifications are so different in Japan compared with those of the West. There are similarities, however. Oshawa finds the MBTI especially useful in training programs and team building (Oshawa, 1993, cited by Moody, 1993).

Osborn and Osborn explore style and personality differences between U.S. and Latin American business executives. While North – American executives split between NT and ST, Latin Americans heavily favor STJ with about 60% of the sample (FIRO-B data). Differences "capture in some fashion… with whom we work, and perhaps the larger international context of cultural preferences…"(Osborn & Osborn, 1993, cited by Moody, 1993).

Armitage outlines the type distributions in Britain. She finds "enormous variation in type profiles" both within and between organizations

and affirms, "different types collect in different parts of the organization" (Armitage, 1993, cited by Moody, 1993).

As well, Hysmith investigated differences in job expectations, satisfactions, and rewards for white and black middle managers. Women feel discriminated against because they are paid less; married managers are happier than unmarried, people with higher degrees move farther up the ladder, and black middle managers see the system as less fair because they are left out of decision making. Expectations, however, did not affect the quality of the work. What is most strongly influenced are work climate, morale, and turnover (Hysmith, 1993, cited by Moody, 1993).

In another research Baxter and Baxter pointed out that theoretically, each Jungian attitude or function and its attending behaviors is as desirable as its opposite. However, the American population has stereotyped some behaviors as less acceptable and less emotionally healthy than others.

Therefore, the way school personnel view and treat type—characteristic behavior—is influential in the formation of student self-concept and could affect school success.

Introverts, intuitives, and judgers scored high on the Adjective Check List scale (ACL), while extraverts, sensors, and perceivers scored low. The thinking/feeling dimension was not influential on this scale.

Introverts, sensors, and judgers scored high on the ACL self-control scale and extraverts, intuitives, and perceivers scored low.

School personnel saw extraverts and judgers as "well-adjusted"; introverts and perceivers were viewed, and viewed themselves, as less well adjusted.

ISFJ and ENFJ types were judged least likely to have trouble in the classroom, along with ESTJ, least likely to referred for counseling. ENFP,. ISTP, INTP types were judged most likely to have problems and ENFP, ISTJ, INTJ, INTP types were thought to be most likely to need counseling (Baxter & Baxter, 1994).

The results of this study have found implications for school psychological services.

Greater conceptual clarity is needed in many areas, especially in defining the boundaries between temperament and personality. Certain development gaps loom large, for example, the years between infancy and middle childhood and the transition into adolescence. But current investigations are remarkably willing to commit themselves to long-term multivariate studies (Banaji & Prentice, 1994).

Research dealing with personality development has entered a new era. Psychologists have argued the merits of person-centered contextually oriented approaches to personality development for many years but with a few exceptions (Block & Block 1980, Magnusson 1992, Pulkkinen & Ronka, 1994).

Noteworthy, another approach towards cognitive styles is in study of factors, that might be of importance for cognitive styles reveal (e.g. genetic determined biological factors, socio-educational factors etc.) In relation to this issue, the authors will discuss the theoretically implicit and empirically explicit relation between values and cognitive style, measured by Schwartz Value Questionnaire and MBTI.

## VALUES

Schwartz and Bilsky describe values as *cognitive representations* of the social, interpersonal, and biological demands placed upon each human being (Schwartz & Bilsky, 1987). Similarly, Claxton et al. (1996), claim that values represent the most *abstract social cognitions*. Apparently people are almost never guided by a single value. Therefore, many researchers prefer to investigate value systems (e.g., Kamakura & Novak, 1992; Schwartz & Bilsky, 1987).

As well, Moody try to classify values in some order as: (1) concepts or beliefs, (2) pertain to desirable end states or behaviors, (3) transcend specific situations, (4) guide selection or evaluation of behavior and events, and (5) are ordered by relative importance (Moody, in press).

According to the same author values are: "…desirable transitional goals…that serve as guiding principles in the life of a person or other social entity" (Moody, in press).

Values seem to relate statistically with type preferences in ways that are to be expected, but as with interests they do not change completely. For example, Sensing and Judging often relate to a desire for security and stability, while Introversion and Perceiving often relate to a desire for creativity (Myers at el., 1998).

Both theoretical and empirical evidence link cognitive style and values or value system. From a theoretical standpoint, value systems are recognized as tools for decision-making (thinking/feeling axis of cognitive style) and conflict resolution (Kamakura & Novak, 1992). From an empirical standpoint, Claxton et al. (1996) reported exploratory factor analysis evidence that intuiting and thinking both had significant path coefficients to the internal values factor (Schwartz Self-Enhancement and Conservation value types), whereas, feeling had a significant path coefficient to the external values factor (Schwartz Openness to Change and Self-Transcendence value types) (Schwartz, 1992).

Sensing did not show the predicted significance to external values in this research. Perhaps it suggests that external values may not be as much the result of information intake, but rather more the result of information processing and decision-making, as implied by Jung's conceptualisation (Claxton et al., 1996).

## 1. Psychological meaning, definition and essence of the term "value"

Unconditionally, behind the term "value" stands the idea of something good. It is in connection with units of sensuality and intelligence, as pleasure, usefulness and faith. In that sense, theoretical hypotheses are gathered around nucleus of basic principles, which form *universal* connections. Hereby, implicitly the authors of the analysis make the connection with Jung's type theory and its later operationalization – MBTI instrument (Pencheva, 1998; Papazova, 2001b; 2004).

### 1.1 Cognitive paradigm

Cognitive psychologist used term "values" in its fundamental meaning – as designation of *cognitive structures* that set the criteria or standards for choices between alternative behavior models. Feather's postulate is a variation of this definition– *main aspects of Self-concept*, which influence thoughts and activities in many different ways (Feather, 1994). In connection with the same paradigm, Olson and Zanna defined values as *generalized and comparably abstract evaluating standards* that determine desired outcomes and ways of their accomplishment (Olson& Zanna, 1993). On their turn, George and Jones examine the value system as a *generalized cognitive structure*; a frame for what is good or desired, that is developing simultaneously with individual development (George, Jones, 1997).

Values appear early in individual development – between 13 and 19 years old, when the person is fare away from its social maturity, however demonstrating its value orientation in behavior choices and activities (Stoitzova, 1998).

The clarification of the concept 'values' in relation with human behavior is of extreme importance.

Between terms, used directly with the concept not only in science, but also in an every day life stage, we could find very often synonymous. Except "system of values", "value system" and "value hierarchy", widespread in social psychology, as well term "value orientation" is used, which is characteristic for the Russian school (Kruglov, 1983). The same term is not alien for the Bulgarian school (Stoitzova, 1998), as well term "social value orientation"

(Kuhlman, M., 1996, cited by Stoitzova, 1998), which is characteristic for the American and West European schools.

### 1. 2 Value models based on theory

The most widely applied theoretical value model is Schwartz's model. (Schwartz, 1992). According to Schwartz, values are: "desirable transsituational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity"(Schwartz & Bilski, 1990). Underlined is their transsituational character, likewise their interrelation with the type of motivation or personal goal, which they represent (e.g. a strive for power, benevolence, retain of tradition, Self-acknowledgement and so on).

Theoretically and as a result from empirical data deduction first Schwartz define 11 types of values. Later, in the international testing of his instrument, he invited researchers to add other values that they believed appropriate for their particular culture but were missing from the original list. In the multidimensional scaling analysis these additional values emerged in the region of a value type appropriate to them (e.g., "chastity" appeared in tradition, "clever" in achievement). Thus the value "chastity" did not appear lately in the Schwartz pie chart. Further, the added values did not change the structure of the value types (Schwartz, 1992; Bond & Chi, 1997). It appears that the original 56 values and these 10 value types cover the range quite well

Figure 1 represents the 10 value types, according to Schwartz, which form the hypothesized structure of the value system.

On the right-hand side, conformity and tradition are in the same slice, with conformity closer to the center. This shows that tradition is more distinct, farther out, than conformity, but both are together in the same larger slice. Schwartz (1992) interprets this as showing that these two value types share a single motivational goal, the subordination of self in favor of socially imposed expectations.

On the right-hand side, conformity and tradition are in the same slice, with conformity closer to the center. This shows that tradition is more distinct, farther out, than conformity, but both are together in the same larger slice. Schwartz (1992) interprets this as showing that these two value types share a single motivational goal, the subordination of self in favor of socially imposed expectations.

On the left-hand side a dotted-line slice separates hedonism. This shows that the empirical evidence could place hedonism either with stimulation or with achievement.

Schwartz (1992; 1994) points out that the pursuit of each set of values has psychological, practical, and social consequences that may conflict or may be compatible with the pursuit of other value types. Wedges that are close together are compatible. Wedges on the opposite side of the pie are not. For example, the pursuit of achievement values (lower left) may conflict with the pursuit of benevolence values (upper right): seeking personal success for oneself is likely to obstruct actions aimed at enhancing the welfare of others who need one's help (Moody, in press).

**Figure 1. Structure of Relations among 10 Motivational Types of Values (Schwartz, 1992, cited by Moody, in press).**
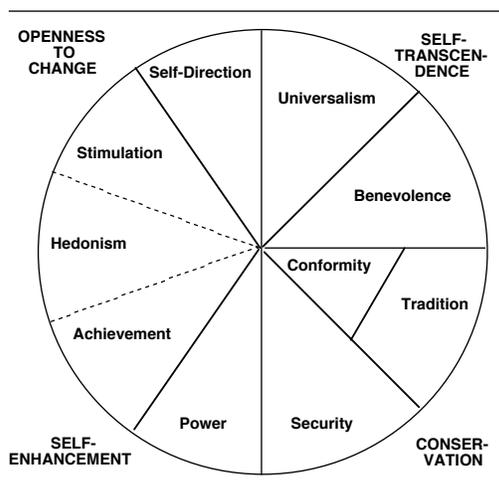


Initially, Schwartz found that if a culture values Self-Transcendence highly, the opposite side of the circle, Self-Enhancement, will be valued less, and vice versa (Schwartz, 1992). For those of us familiar with type, this makes enormous sense. It's like the difference between intuition and sensing, thinking and feeling (Myers at el., 1998; Moody, in press).

## 2. Empirical data, concerning values

Unfortunately, the hypothesized structure did not work out (e.g., Ros, Schwartz, & Surkiss, 1999). As Schwartz collected more data, he found that the graphs had humps in the wrong places. It made more sense to rank the value types by priority. Most cultures, he found, rank benevolence high and power low with the other values distributed in between. With this ranking it is possible to compare specific cultures with each other and with the composite to see to what extent the patterns and cultures differ (Moody, in press).

Values understood, as supreme mechanisms of regulation are powerful factor for different individual *life style* formation (Stoitzova, 1998). As it is known, J and P preferences represent life style in the psychological type paradigm. Therefore, the authors of the paper consider that in theory the relation between values and psychological type can be study explicitly. From the other hand, empirically the relationship could be investigated with the instruments - Schwartz Value Questionnaire and MBTI.

In connection with this aspect, a survey in Bulgaria (N=1162, age=19-65), based on Schwartz value model, show that Bulgarians are more Self-Enhancement and Conservation oriented in comparison with a pan-cultural value type norm (Baytchinska, 1997). Being in a process of social, political and economic transition from 15 years, and almost year and a half before the official join to the European Union, it is logical for the researchers to expect that there will be some change in the value types of the Bulgarians nowadays. We expect and hypothesize that a recent research will show a tendency towards Openness to Change value types (e.g. a preference towards internal values and feeling). The observed before Self-Enhancement and Conservation value types (e.g. a preference towards external values and intuiting and thinking), might be culturally or modally typical for the Bulgarians. Therefore, the authors of the propose paper expect that in a new survey intuition, thinking and feeling will be significant for the studied contingent again.

Implicitly, from a theoretical standpoint, value systems are recognized as tools for decision-making (T-F dimension of cognitive style) and conflict resolution (Kamakura & Novak, 1992). Explicitly, the theoretical assumptions are verified with empirical evidences, proving that N (intuition) and T (thinking) both had significant path coefficients to the internal values factor (Self-Enhancement and Conservation), whereas, F (feeling) had a significant path coefficient to the external values factor (Openness to Change and Self-Transcendence) (Claxton et al., 1996).

The proposed conceptual analysis aims to serve as a basis for further investigations. Moreover, it could help the practitioners to improve their knowledge about individual, group and organizational differences.

## DISCUSSION

As we already emphasized, in Jung's type theory and its later operationalization from Myers and Briggs, type preferences towards certain way of life are seen as P and J characteristics (Myers at el., 1998). As well, values are seen as a

factor for different life style formation (Stoitzova, 1998).

From a theoretical standpoint, value systems are recognized as tools for decision-making and conflict resolution (Kamakura & Novak, 1992). Thus, we could also connect them with T-F dimension of cognitive style.

As it is indicated in an empirical study, Bulgarians are more Self-Enhancement and Conservation oriented in comparison with a pancultural value type norm (Baytchinska, 1997).

Empirical evidences are proving that N (intuition) and T (thinking) both had significant path coefficients to the internal values factor (Self-Enhancement and Conservation), whereas, F (feeling) had a significant path coefficient to the external values factor (Openness to Change and Self-Transcendence) (Claxton et al., 1996). All this proofs emphasize the existing link between cognitive style and values and the actuality of its further empirical verification.

Being in a process of social, political and economic transition from 15 years, and almost year and a half before the official join to the European Union, it is logical for the researchers to expect that there will be some change in the value types of the Bulgarians nowadays. We expect and hypothesize that a recent research will show a tendency towards Openness to Change, Self-Enhancement and Conservation value types, as well intuition, thinking and feeling type preferences.

Jung's concepts of individuation and psychological types underline some premises as: "People who have different psychological types have different attitudes, needs, and values in relation to work and play, and this is reflected in their differing behaviors" (Provost, 2001).

Moreover, the idea that `style awareness' may help reach the `hard to teach', and perhaps contribute to reducing failure generally by enhancing the learning process, is an elusive but tantalizing prospect which clearly merits further attention. The current interest in teaching and learning style is evident not only in schools, but also in higher education, work-place training and professional development. What remains apparently beyond reach is the systematic operationalization of style in learning, teaching, training or management (Ryner & Riding, 1997).

## References

Allinson, C. W. & Hayes, J. (1996) The Cognitive Style Index: a measure of intuition-analysis for organisational research, *Journal of Management Studies*, 33, 119-135.

Banaji, M. R. , Prentice, D. A. (1994). The self in social contexts. *Annual Review of Psychology,* 45, 297-332.

Bartlett, F. C. (1932) *Remembering.* Cambridge, Cambridge University Press.

Baxter, S. R. & W. D. Baxter (1994). Student MBTI type-characteristic behavior: correlations with the adjective checklist; and teacher and school psychologist judgment of social acceptance and emotional health. In: *Orchestrating Educational Change*, CAPT, Gainesville, FL.

Baytchinska, K. K. (1994). *Values, Value stress, Value crisis.* Sofia, Academic publishing house "Professor Marin Drinov". (in Bulgarian)

Baytchinska, K. K. (1997). Dimensional organization of value system of the

Block, J. H. , Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behavior. In: *Development of Cognition, Affect, and Social Relations. Minn. Symp. Child. Psychol.* , ed. WA Collins, 13, 39-101, Hillsdale, NJ:Elbraum.

Bond, M. H. , & Chi, V. M. -Y. (1997). Values and moral behavior in mainland China. *Psychologia, 40,* 251-264.

Bronson, W. C. (1966). Central orientation: a study of behavior organization from childhood to adolescence. *Child Development*, 37, 55-125.

Bulgarians (typological-structural approach). Sofia, *Jubilee collection*, Academic publishing house "Professor Marin Drinov". (in Bulgarian).

Cairns, R. B. , Cairns, B. D. , Neckerman, H. J. , Gest S. , Gariepy, J. L. (1988). Peer networks and age aggressive behavior: peer support or peer rejection? *Developmental Psychology,* 24, 23-815.

Casas, E. (1993). Diversity of patterns of type distribution among cultures: what do the differences mean? In: *Psychological type and culture – east and west: A multicultural research symposium.* CAPT, University of Hawai'i at Manoa, January, 6-8, 65-76.

Casas, E. (1996). Interpreting cultural differences with the MBTI: possibilities and limitations. In: *Psychological type and culture - east and west: A multicultural research symposium.* CAPT, University of Hawai'i at Manoa, January, 5-7, 77-79.

Chen, Z. (2002). Analogical problem solving: a hierarchical analysis of procedural similarity. *Journal of Experimental Psychology*: learning, memory, and cognition, Vol. 28, 1, 81-98.

Claxton, R. P. , McIntyre, R. P. , Clow, K. E. & Zemanek, J. E, . Jr. (1996). Cognitive style as a

potential antecedent to values. *Journal of Social Behavior & Personality*, Vol. 11, 2, 19-355.

Curry, L. (1983) *An Organization of Reaming Styles Theory and Constructs*, ERIC Document 235 185.

Feather, N. (1994). Values, national identification and favoritism. Towards the in-group. *British Journal of Social Psychology*, 33, Part 4, 467-476.

Fieldbeck, G. & Smith, L. (1996). Learning styles, teaching strategies, and predictors of success for students in corporate finance. *Financial Practice & Education*, Vol. 6, 1, 12-74.

George, M. , Jones, G. (1997). *Experiencing Work: Values, Attitudes and Moods, Human Relations*, Vol. 1, p. 112.

Huteau, M. (1985). *Les Conceptions Cognitives de la Personnalite*. Paris, P. U. F. (in French)

Kagan, J. (1965) Impulsive and reflective children: significance of conceptual tempo. In: J. D. Krumboltz (Ed. ) *Learning and the Educational Process*, Chicago, Rand McNally.

Kamakura, W. A. & Novak, T. P. (1992). Value-system segmentation: Exploring the meaning of LOV. *Journal of Consumer Research*, 19, 119-132.

Kirton, M. (1976). Adaptors and Innovators: A Description and Measure. *Journal of Applied Psychology*, Vol. 61, 5, 622-629.

Kirton, M. (1989). A Theory of Cognitive Style. In: M. Kirton (Eds. ), *Adaptors and Innovators: Styles of Creativity and Problem Solving.* London and New York, Routledge, 1-37.

Kogan, J. , Kogan, N. (1970). Individual variations in cognitive processes. In D.

Kruglov, B. (1983). The role of value orientation in the formation of student personality. Moskva, *Psychological features in formation of student personality.* (in Russian).

Magnusson, D. (1992). Individual development: a longitudinal perspective. *European Journal of Personality*, 6, 38-119.

McClanaghan, M. E. (2000). A strategy for helping students learn how to learn. *Education*, Vol. 120, 3, 8-479.

McIntyre, R. P. , Claxton, R. P. , & Jones, D. B. (1994). Empirical relationships between cognitive style and LOV: Implications for values systems. In C. T. Allen & D. R John (Eds. ), *Advances in consumer research* (Vol. 21, pp. 141-146). Provo, UT, Association for Consumer Research.

Messick, S. (1996). Bridging cognition and personality in education: the role of style in performance and development. *European Journal of Personality*, 10, 353-376.

Moody, R. (1993). Introduction and overview. Psychological Type and Culture – east and west. In: *A Multicultural Research Symposium*. CAPT, University of Hawai'i at Manoa, January 6-8.

Moody, R. Cultural Values and Type: Explaining Values (in press).

Mussen (Ed. ,) *Carmichael's Manual of Child Psychology*, Vol. 1, New York, Wiley, 1273-1365.

Myers, I. , McCaulley, M. , Quenk, N. , Hammer, A. (1998). *MBTI manual. A guide to the development and use of the Myers-Briggs type indicator, third edition*, Palo Alto, Consulting Psychologists Press, Inc.

Myers, I. B. , & McCaulley, M. H. (1985). *Manual: A guide to the development and use of the Myers-Briggs Type Indicator*. Palo Alto: Consulting Psychologists Press.

Olson, J. , Zanna, M. (1993). Attitudes and Attitude Change, *Annual review of Psychology*, 44, 117-154.

Papazova, E. B. (2001a). Self-concept in the contemporary psychological literature: essence and structure. *Psychological researches*, 1, 43-56. (in Bulgarian)

Papazova, E. B. (2001b). Psychological type and self-concept – cross-cultural studies. *Psychological researches*, 2, 25-30. (in Bulgarian)

Papazova, E. B. (2004). Psychological types in different ethnic groups in Bulgaria. *Psychological researches*, 1, 45-61. (in Bulgarian)

Pavio, A. (1971) *Imagery and Verbal Processes*. New York, Holt, Rinehart and Winston.

Pencheva, E. S. (1998). *School, Values, Transition*. Sofia, University publishing house "St. Kliment Ohridsky". (in Bulgarian)

Pencheva, E. S. , Bojinova, R. B. , Vassileva, S. I. , Boyanova, D. (2003). The influence of psychological type on cognitive style and decision-making style. *Journal of the Bulgarian academy of sciences*, 2, 27-32. (in Bulgarian)

Pencheva, E. S. Psychological typology and educational practice. Sofia, Academic publishers "Prof. Marin Drinov". (in press) (in Bulgarian)

Provost, J. A. (2001). *Work, Play and Type*. CAPT: Gainesville, FL

Pulkinen, L. , Ronka, A. (1994). Personal control over development, identity formation, and future orientation as components of life orientation: a developmental approach. *Developmental Psychology*, 30, 71-260.

Rayner, S. & Riding, R. (1997). Towards a categorization of cognitive styles and learning styles. *Educational Psychology*, Vol. 17, 5-24.

Riding, R. (1997). On the nature of cognitive style. - *Educational Psychology*, 01443410, Mar-Jun, Vol. 17, Issue _.

Riding, R. J. & Cheema, I. (1991) Cognitive styles - an overview and integration. *Educational Psychology*, 11, 193-215.

Riding, R. J. & Rayner, S. (1995) The information superhighway and individualised learning.

*Educational Psychology,* 15, 365-378.

Riding, R. J. & Taylor, E. M. (1976) Imagery performance and prose comprehension in seven-year-old children. *Educational Studies,* 2, 21-27.

Riding, R. J. (1991) *Cognitive Styles Analysis User Manual.* Birmingham, Learning and Training Technology.

Riding, R. J. (1994) *Personal Style Awareness and Personal Development.* Birmingham, Learning and Training Technology.

Ros, M. , Schwartz, S. H. , & Surkiss, S. (1999). Basic individual values, work values, and the meaning of work. *Applied Psychology: An International Journal, 48,* 49-71.

Schwartz, S. & W. Bilski. (1987). Toward a psychological structure of human values. *Journal of Personality and Social psychology,* 53, 550-562.

Schwartz, S. (1992). Universals in the Content and Structure of Values. Theoretical Advances and Empirical Tests in 20 Countries. In: M. Zanna (Ed. ). *Advances in Experimental Social Psychology,* Orlando, Vol. 25,1-65.

Schwartz, S. H. (1994). Are there universal aspects in the content and structure of values? *Journal of Social Issues, 50* (4), 19-45.

Schwartz, S. H. , W. Bilski. (1990). Toward a theory of the universal content and structure of values: Extention and cross-cultural replications. *Journal of Personality and Social psychology,* 58, 878-891.

Stoitzova, T. A. (1998). *Living With Others.* Sofia, New Bulgarian uviversity. (in Bulgarian)

Uto, M. (1994). On some questions in connection with cognitive styles. *Bulgarian journal of psychology,* 4, 3-19. (in Bulgarian)

Wheeler, P. (2001). *The Myers-Briggs Type Indicator and Applications to Accounting Education Research.* Issues in Accounting Education, Vol. 16, 1, 26-125.

Witkin, H. A. (1962) *Psychological Differentiation; studies of Development.* New York, Wiley.

Witkin, H. A. , Goodenough, D. R. & Oltman, P. K. (1979) Psychological differentiation: current status. *Journal of Personality and Social Psychology,* 37, 1127-1145.

Witkin, H. A. , Oltman, P. K. , Raskin, E. & Karp, S. A. (1971) *Manual for the Embedded Figures Tests.* Palo Alto, CA, Consulting Psychologists' Press.

Wohlwill, J. F. (1973). *The study of Behavioral Development.* New York, Academic.