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The Value Structuring Role and Mechanisms of Education in Hungary 1978-2012/13

Theses of Doctoral (PhD) Dissertation

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Pécs

2018

## **I. Introduction and scientific theoretical identification, with outlook**

The concept of value in axiology is a concurrently important driving force and reference point for developing the quality of the human spirit. Value theory means the aspiration of human thinking for the abstract scientific interpretation, development and follow-up of quality, so it can be construed as yet another tread in the ascending spiral of Hegel's awakening. In this regard and in our age, the world of values and evaluation represent a cornerstone of personal and collective cognitive intellectual self-reflection, i.e. objective (as abstract value concept) and subjective (as internal interpretation) qualities.

The abstract and independent scientific institutionalization of the field can be considered the conception of a new quality in the development process of human thinking targeted at self-reflection, as it embarks upon the collection, systematization and interpretation of cognitive knowledge about value as an abstract concept. Owing to this, it could undoubtedly contribute to the creation of frameworks construed in the qualitative relation in several fields of science (e.g. theory and practice of pedagogies, sociology, anthropology and psychology). With regard to the impact of axiology on the development of Hungarian educational science, the work of Böhm, Pauler, Kornis, Prohászka, Weszely, Schneller or Karácsony should be taken into consideration, as they all comprise an imprint of this course of scientific thinking (see Köte's detailed analysis [1998] in this topic).

Embedded in the intersect of educational science and philosophical value theory, schooling can be construed as the institutionalized ambition of a society to develop the individual and collective human quality of the human base.

The social and economic transformation processes after the industrial revolution entailed the educational-scientific reinterpretation of developing the human quality, with regard to output evaluation. Consequently, education was under double pressure: it had to facilitate the development of a human base possessing the cognitive capacity to expand the knowledge underlying a kind of technological innovation adaptable to the labour demand of economy and identified as the driving force of economic and social development, on the one hand; and it also became the institutionalized driver of the social agent responsible for providing the mobility required by the masses, i.e. the social structure and transformation processes, on the other. The process concluded the universalization of the principle of educational performance within society, as highlighted by Forray and Hegedűs (1998, p58) and Parsons (1964, p193) in reference to Riesmann, therefore, effectiveness within the frames of modernization is no more limited to mastering merely cognitive information, just as Weber's bureaucratization, representing the institutional context, is also a qualitatively different form of state organization in comparison with pre-modernization administration-based governance, and just as Hegel's (1966, pp180-185) state defines the reality wherein man's rational existence is based, on the one hand, and where the active individual has his freedom (regarding his general knowledge, faith and will) and where pedagogy is the "objectivating" act in the process of an individual becoming moral, on the other hand. Consequently, a key momentum in this process is the

redefinition of the organization of society (its system and organizations). Taking account of all the above on the basis of the systems thinking of modern organizational development (see O'Connor and McDermott [1998, p231]), the bottleneck of social development (construed within the frames of modernization) is the institutionalization of education and the transformation of personality at the level of social processes and in regard to social psychology and psychology, respectively.

The articulation of individual needs, as driven by modern society i.e. through the state, can be effectively expounded with the process of bureaucratization, in Weber's (1947) sense, within the frames of organized institutionalization. In view of the dual nature of bureaucratization, construed in the context of modernization (criticism of tensions deriving from Merton's or Parsons' link between personality and institution, or the laudation of its rational operation by Weber), and Hegel's considerations on the philosophy of law, the state-managed process of the development of nations can also be taken as the formalized (in interest advocacy) process of collective efforts for creating the community foundations in support of increasing the good (welfare). The sociological researches rested on empirical data analysis (see e.g. results of the multi-variate analysis of Pugh et al. [1969]) have long ago highlighted the close correlation between bureaucratization and social circumstances. Owing to the social structure and the process of differentiation, the conclusion is the individual's continuous liberation within the social framework, in addition to functional loss in the units, according to Parsons (1964), and that correlates with Hegel's approach to the liberty-oriented state theory. The expedient utilization of these preventive experiences and correlations during planning and system organization can be facilitated by the process-based approach of the referenced systems thinking. Owing to this, it can be considered the modern organizational science-based approach to organizing the controlled transformation processes in the field of educational science, just as the process control following the Comenius organizational culture-developing PDCA cycle developed after the industrial TQM commenced in Hungary in the 2000's. Here, the Hungarian state practically means the historically defined context of the process of bureaucratization, being a controller of the relevant social behaviour inevitable for social existence, i.e. an organization supporting and transforming the (value) community in the sense of sociology and social psychology.

In the course of the transformation of educational science, nowadays we can already identify educational sciences as an umbrella term, according to Kozma (2013). Consequently, he thinks it has been reshaped as an academic discipline, leading to the split-up of the field to three paradigms (humanities, natural sciences and social sciences). He believes the primary reason for this is the period after the political changes in Hungary and then the realignment of the various fields of educational science during the subsequent accession to the European Union. This concludes that the bureaucratization process of education took place in correlation with the transformation of the arenas of educational science and its paradigms. The economy-oriented shift of the driver of social development could also be observed in the educational political objectives of the European Union. To give a good example, whereas the Council Declaration of 1987 declares (p15) that education cannot merely be considered a part of economic life, and

the development of common European identity and cultural awareness as the exceptional source of development ranked first among the objectives, still, the emphasis was continually shifted onto the coordination of tertiary education as the approach of governing through numbers (see Lawn and Grek 2012), in order to facilitate the European coordination of heterogeneous national educational policies from the second half of the 1990's, just as seen in the efforts for comprehensive international educational development projects commenced in as early as the 1970's. Moreover, the efforts in the coordination of tertiary education had an impact on the other levels of education, as much as permitted in the framework agreements of the European Union. On account of the shortages of the research methodology aimed at the general educational science-related measurability of the dimension of values, as well as the underdevelopment and difficulties of the methodology of measurement (Éger [2012]; Györgyi [2015]), the measurability of values both at the international and European Union level of education-political management also hits against difficulties. Therefore, the evaluation of the output quality of schooling, which also reacts on theoretical approaches, practically gets more and more distant from axiology approaches.

Kozma's (2013) conclusion regarding the training of, and research in educational science, stating that the decline of educational philosophical approaches could be observed within the paradigms of humanities, along with the clear upsurge (as autonomous disciplines) of paradigms in natural sciences and social sciences can be interpreted in accord with this process.

In line with the general bureaucratization process in education, educational science endeavoured to synthesise, in its own field, the expectations of the new economic and social system through paradigm shift and by redefining its own positional notation. So, the meritocratic (in alignment with the social expectations) and efficient fulfilment of the process with academic (cognitive) emphasis, treated as of primary importance for the knowledge-based economy, was given preference in the educational science researches aimed at the controlled (organized, i.e. bureaucratized) development of the human base.

The subdivision of educational science researches based on empirical data analysis aimed at the new paradigms-compliant system-level comprehensive development efforts into cognitive and non-cognitive investigational areas gained due grounds in international literature (see Postlethwaite 1974 or Husén 1974). In the meanwhile, according to the leading cultural politician Ferenc Gázsó (Báthory, 2001 p63) in Hungary "*The real expert for him could only be a sociologist. He did not take educational science or pedagogy as sciences*". The fact of having been shifted to the unfortunate opposition camps could have also contributed to failing to put emphasis on the sociology-type parts (see IEA test) of researches in the national adaptation of international educational researches. Cognitive development in international literature (Postlethwaite 1974, Husén 1974) was aimed at vindicating the meritocratic approach and promoting social mobility through better labour-market employment potential, whereas the non-cognitive factors were, in practice, mainly evidenced as mechanisms influencing and shaping these factors at the system level and as factors influenced by cognitive development and

evolution (dependant variable) (e.g. Wentzel's and Looney's [2007] observations regarding the reform efforts of the schools). However, the researches on the non-cognitive areas of schooling (Vári 2003; Györgyi 2014, 2015; Coneus, Gernandt and Saam 2011; Stankov and Lee 2014) clarified that excessive system-level shift towards academic emphasis can greatly contribute to hindering the validation of the meritocratic approach and stagnating the students' unequal opportunities. Relying on these experiences, more and more serious efforts have recently been made (e.g. USA NAEP in 2002 and ESSA in 2015, comprehensive systems efforts for educational management reforms) and developments urged (see e.g. Pepper's [2011] criticism of the excessively cognitive measurement practice of the EU) for the deeper than current integration of the regional measurements of non-cognitive factors in educational science, both regarding the development of theories (García 2014; Tough 2012) that support educational-political developments on the bases of educational science and the efforts of education for its systematized development. Educational scientific observations (Lee and Stankov 2016) have led to conclude the still applicable difficulty in measuring non-cognitive factors and the limitation of their applicability across diverse educational systems and cultures, mainly due to their culturally and socially considerably contextualized character, which all complicate these ambitions. As regards the definition of non-cognitive factors, scientific agreement has been reached in literature (Petway et al. 2016; Camfield 2015; Lipnevich et al. 2013) on the still ongoing definition of the concept. Non-cognitive researches (Duckworth et al. 2015; Lipnevich et al. 2013; Tough 2012 etc.) share the feature of generally integrating the concept of attitudes proven in psychology, sociology and social psychology in their research frameworks. Additionally, the educational scientific surveys on non-cognitive areas have highlighted that the world of values is not manifested by its objective place primarily taken from the conclusions of experiments and the empiric data analyses of large sample questionnaires in the fields of sociology, psychology or social psychology. As a matter of fact, the results of researches adapted to the natural scientific paradigms in social psychological studies (Stotland et al. 1959; Rokeach 1968, 1969, 1973, 1979; Schwartz and Bilsky 1987; Smith and Schwartz 1997; Schwartz 2003) take account of values, over and beyond attitudes, as the key structuring factor of actions. However, alongside the primary attitude structuring impact of values, the similar reaction of attitudes could not be identified in the area of values in researches based on empirical data analysis (Stotland et al. 1959; Rokeach 1968, 1969, 1973, 1979, etc.).

With reference to the experimental psychological research results on the conscious operation of our decisions (see Bear and Bloom [2016] postdiction, Hall et al. [2010] and Johansson et al. [2005] choice blindness, or theories based on the neuroscientific experiments of free will, e.g. Libet [1973,1985] and Libet et al. [1983]), the extrasubjective existence of the actually self-construed rationality of our actions (i.e. within the frames of cause and effect of objectivity, in its scientific sense) is queried. However, the statistical data analyses on the results of surveys integrating human beliefs in complex psychological experiments analysing the background of decisions (Genschow et al. [2017], Baumeister et al. [2009], Vohs and Schooler [2008], etc.) highlighted the relationship of belief-based decisions even beyond occasional situations.

Following Schwartz [1977, 1973], experimental researches in social psychology created (Stern [2000], Stern et al. [1999, 1995a, 1995b]) the theory of activation of moral norms, i.e. their Value-Belief-Norm (VBN) theory, interpreted as the extension (related to the anticipating capacity of the beliefs norm) of Ajzen's (1991) theory on the prediction of behaviour. Later, using second-generation statistical procedures (SEM), these researches are confirmed on the basis of the empirical research results of Oreg and Katz-Gerro (2006), Dietz et al. (1998) (which identify the place in social structure on the basis of schooling, age and income, i.e. the driver of individual values), also emphasizing the value-defining role of the cultural context.

Therefore, according to the current state of science, the world of values represents an important borderline in the possibilities of objectively assessing the area within the cause and effect frames of the scientific rationality approach, following from an assessment on the relationship of man and society in actions (behaviour). So, it is also a basic component (assessed by cause and effect within objective and rational frames) of the abstract indicator, variously defined and assessed in the different areas of science, of the orientation of human will to action-related situations, so generally of actions and all in all of the internal selection mechanisms defining our behaviour. Moreover, in this sense, it is a relevant and measurable area "responsible" for the intentional influence of action, which inter alia Dolch and Bábosik declared as the primary responsibility of education.

In the mirror of the referenced psychological, sociological and social psychological research results, Arthur Schopenhauer's frequently referenced "*Man can do what he wants, but he cannot will what he wills*" quotation could accordingly be rephrased as "We can freely decide about what we do, but we cannot in the specific situation decide about what we want". In this correlation, man's quality derives from his actions (structured in alignment with the long-term strategy), which accords with Hegel's (1983, p182) concept of virtue (as a man capable of virtuous action), given that it is conditional on the permanent human trait of "moral virtuosity". Institutionalized in modern society, our will can be shaped in a high-quality long-term structure in the form of pedagogy through schooling, with the art of making humans moral after Hegel (1983, p183), in accordance with the previously defined interpretation (in the frames of modernization) of Weber's referenced bureaucratization process. Given this, Comenius' (1953, p201) statement concerning morality in connection with pedagogical quality ("*he who makes progress in knowledge but not in morality retreats rather than advances*") can also have a new interpretation (where morality means the harmony of long-term structured personal and social will) in modern educational system development. The results of the earlier interdisciplinary literary review, wherein values related to schooling play a crucial role not only in the process of transferring cognitive knowledge, also accord with this approach. Based on the research results following empirical data analysis (see e.g. McClelland's [1961] examinations identifying a change in personality prior to economic development), the sphere of schooling (measurable by values) is also an area of knowledge decisively influencing its personal and social exploitation in modern ages.

In consideration of all the above, schooling can be construed as the collective effort of society for the creation of a community foundation inevitable for improving personal welfare, articulated through a(n institutionalized) system formalized by the state. The theory of the systems thinking of modern organizational sciences (O'Connor and McDermott 1998 pp231-232) emphasizes that a system will always function as good as its weakest link, which always implies some undoubted mental model. Following the results of the latter and McClelland (1961), the bottleneck of economic development is assumed to be in the citizens' mental/psychological modalities adapted to modern age. In this sense, mastered knowledge is a factor decisively determining final utilization, structuring the action, i.e. a factor determining behaviour (personal choices, decisions) and, as such, personal and social quality. Accordingly, educational scientific researches and academic knowledge-centred approaches will need to be reconsidered within the frame of paradigms that highlight the priority of schooling in its contribution to economic development, regarding its role in the creation of social good (welfare). Based on this all and on the whole, the world of values represents a promising interdisciplinary area in the assessments (focusing on the non-cognitive sphere) of educational scientific researches.

As regards the outlined theoretical relations, the thesis can undertake to update the educational scientific surveys (according to the natural and social scientific paradigm in its non-cognitive measurements), in the frames of a practical survey directed at the dissolution of disharmony among the scientific areas identified in the literature, and the solution of the arising problems can also contribute to facilitating the development of the science-based educational system and curriculum-related programs defined as a condition in the pedagogical research program of the Hungarian Academy of Sciences published in 2016.

Owing to the existing complicated interdisciplinary relations described in the chapter, considering the criteria of systems thinking and interpreting the development of the theory of educational science as the mental model of science-based action, the option of continuously integrating (in the fields of science and as regards historical development) the results of the research following the previous objective should reasonably be taken into consideration. Taking account of Kuhn's scientific development model deriving from the same stem as Polányi's scientific theoretical approach (which has actually been widely accepted with regard to interpreting the development of science history), non-classical logics can later be recommended as a non-monotonous and fuzzy logical approach primarily applied in programming. The application of non-monotonous logics helps make recommendations built on research results and the individual correlations can be corrected without changing the individual assumptions or the rules of correlations. Additionally, the expansion of theory according to fuzzy logics can considerably help the logical approach to extend scientific concepts (e.g. value concept), in the spirit of continuous (in science history) practical utilization.

The continuous educational scientific interpretation of human quality, adapted to output efficacy construed after the actual paradigm, can be provided by a longitudinal assessment based on empirical data analysis, within the European and Hungarian social organizational frames. This represents a basis concordant with its scientific theoretical definiteness (from the aspect of the

problem), while it can also provide a starting point for applying the previous scientific development vision in efforts for the subsequent development of the results for scientific theoretical approaches.

## **II. Topic and objective of the research**

Following the industrial revolution, the traditional social roles and responsibilities were transformed and this implied the expectation to provide a scientific base facilitating the creation and operation of an educational system that serves the public interest, reconciles the needs of the individual and the society and has an acceptable open technical impetus, contrary to the fields of educational and related sciences. The principle of open, technically initiated selection and feedback-based systems operation became measurability and comparativity (also granted in international terms). The international comparative educational scientific reviews made pioneering efforts to enforce these ambitions. Even the IEA investigations were intended to create an input-output development model and integrate the non-cognitive factors in the investigations. Later on, progressing along the same trend, OECD developed PISA tests where the importance of sociological conditions represents an equal factor in the assessments. This approach is still considered valid, and according to Varga (2016) one of the most important issues in the forthcoming period for the considerations of educational science will be to disclose the outputs of schooling.

The process of cultural and value transfer in school socialization and the norm transmission role both mean a phenomenon affected or processed by educational science, its frontier and related sciences, based on their assessment from various aspects (Durkheim 1980; Bourdieu 1988; Jenks 1993; Forray 2009; Fehérvári 2015c).

The scientists working both on educational scientific and sociological researches faced the (seemingly irreconcilable, according to Parsons [1968]) contradictions between normative and individualistic approaches in their educational scientific value researches and the (value) sociological investigations. As Füstös-Szakolczai (1994) highlighted, value surveys start from external abstract schemes as “social facts” in the normative approach and from the individuals’ personal characteristics deriving from their intrinsic nature in the individualistic approach. In this sense, neither educational sciences nor sociological (social psychological) researches made one or the other approach exceptional for themselves. Yet another important common characteristic of pedagogical value research is that the norm and value transfer process itself is, in general, also further assessed. Consequently, educational-sociological researches challenge the chance of testing educational processes in a value neutral form, whereas sociological and social psychological researches have for decades tried to implement such. Hence, one of the objectives of the research was to develop an adequate test framework that could help explore relationship between schooling and personal value structures, while taking account of the



peculiarities of the research area. With this latter, the research was aimed at developing a comprehensive picture conforming to the actual (according to Kozma [2013]) scientific paradigm on the world of values that plays a determinative role in the development of the non-cognitive sphere (in the sense of educational science).

The theories of traditional socialization still emphasize the primacy of the role of the family, as regards value and norm transmission. However, due to the changes following the mentioned social and economic processes, schooling is assumed to have by now become a stronger (value) socialization agent in society than family, as regards modernization values. The additional essential objectives of the research were to facilitate the assessment of the value structuring role and mechanisms of schooling in an adequate framework and to explore the phenomena within Hungarian modernization and European social frames.

The novelty of my research lies, on the one hand, on the highly interdisciplinary study procedure developed and relying on educational sociological literature. This integrates the sociological and social psychological results and procedures developed, in relation to values, in the past 50 years in the field of related sciences and conforming to the criteria of the educational scientific paradigm in social and natural sciences (Kozma 2013) into the educational scientific studies. On the other hand, the results of a research updated according to the above can provide new and relevant information about system-level relation between the factor basically influencing the non-cognitive area, which is becoming increasingly important in literature on educational science, a current phenomenon within modernization social frames, and schooling. These subsequently dual-purpose (Báthory 2003, p97) and complex researches can later provide a safe basis for re-interpreting educational political planning and management (e.g. international comparative tests), efficiency increasing tests (e.g. reconsidering Rayman's and Varga's [2015] approach from Forray's [2017] perspective), the conflicts originating from the bicultural socialization of the Gypsy population (Forray and Hegedűs 1998 pp175-217) or correlation between family background and school success (Fehérvári 2015a, Lannert 2008, 2015) in Hungary. So, in general, the study provides information scientifically founded with regard to the non-cognitive factors and relevant for promoting social development in the frames of modernization with schooling, to understand the "black box" (García 2014) of the educational process. So, the research expounded in the thesis and its results in educational sciences supply new information not only about a factor that basically determines the development of the components of the non-cognitive sphere but provide an opportunity to develop new interpretation frames in line with the expectation concerning Meleg's (2015, p19) educational sociology.

### **III. Questions and methods of the research**

Based on the above-outlined considerations, I in my thesis was basically trying to find an answer to the way relation between schooling and personal values (belonging to the area of non-cognitive factors that decisively influence behaviour) can be measured in Hungarian modernization social frames, in accordance with the social and natural scientific paradigms that, according to Kozma (2013), nowadays reign over educational sciences. Additionally, yet another topic in my research, while taking Hungarian society as a partaker of European society, was the type of relation between schooling, in the frames of modernization, and the individual personal psychological dispositions structuring action at the highest level, i.e. the development of personal value structures.

In the field of educational scientific researches, the research results based on qualitative and quantitative investigations clearly defined (Forray and Hegedűs 2003, Forray 2007, Fehérvári 2015) the determining responsibility of the family background in school failure in Hungary, on the one hand, and international researches (see e.g. Parsons 1964, Inkeles and Smith 1974, Coleman et al. 1966, Scheerens and Bosker 1997) pointed out the impact of schooling on equalized opportunities regardless of family disadvantages, due to the modernization processes, on the other hand (for instance, with regard to the Arany János opportunities program, Fehérvári [2015c] states that the successful participants underwent a socialization process dissimilar from the family). Therefore, a key question of the research was what value-structuring impact schooling has, as a result of the socialization processes relevant to the family, within the current modern Hungarian social frames. Clarifying the resolvability of contradictions among normative and individualistic scientific-theoretical approaches preventing the process of getting independent of the cultural contextualization (which restricts the assessment of the non-cognitive sphere of educational scientific investigations based on the empirical data analysis that conforms to the social and natural scientific paradigms) and the enforcement of the criteria of objectivity was also one of the important questions to be answered through the research. Only afterwards could the question of the development (compared to one another and the European society) of personal value structures deriving from the diverse levels of educational attainment be answered, to ensure that the theory and practice of educational science could have the option of scientific self-reflection in accordance with the paradigms actually in effect with regard to the values.

### **IV. Methods of the research; databases used**

The databases of the representative (by age, sex, school qualification) Hungarian Academy of Sciences (incl. Rokeach's survey with the application of value test, between 1978-1996) and European Social Survey (ESS) (international, incl. Schwartz's value test in the 2002-2012/13

period) researches underlay the assessment of the questions and the related general and operationalized research hypotheses. The criteria of data recoding were that the results of the two researches should be approximated to each other; the item number of the respondents in the individual categories of the databases should be adequate; the results of the second-generation statistical modelling procedures should be interpretable; and the ISCED category system for the international uniform classification system of education.

The tests using first-generation statistical data analyses (e.g. regression, factor analysis) are primarily suitable for exploring data structures or confirming priori theories, however, as evidenced in earlier researches, the borderline among the approaches is not always so sharp, which had to be taken into consideration in the research on schooling as based on an empirical data analysis contextualized within modernization social frames. Such a problem was faced on account of the failure to facilitate the adequate interpretability and controllable scientific-theoretical integration of empirical educational-sociological research results not conforming to the traditional socialization theory (see Inkeles and Smith 1974; Parsons 1968). The second-generation methods, called as Structural Equation Modelling (SEM) (Füstös 2010) were developed to overcome the weaknesses of the first-generation procedures. One of the SEM models is SEM-PLS, or by its other name LVPLS path modelling. This latent variable path analysis indicates the extension of the assessment using the partial least square method as the classical criterion. The latter is done by breaking up the parameters into subsets, partitioning and then assessing them with the least square method. The method assumes the value of the other parameters as known. This procedure contributes to making an explorative contextual assessment of the manifest variables (in this case: schooling, age, sex, parent's highest school qualification), in comparison to the measurement data (the world of values) in current Hungarian society, based on the 2012/13 database of the ESS assessments. Yet another criterion in the research was that not the abstract concept of values but the probabilities concerning the impact of schooling on the development of social dispositions should be assessed. On account of the above, the fact that value tests are especially sensitive to the individual respondent's attitude and that value structures should be statistically mappable after Schwartz's theoretical model had to be given consideration. To filter out the attitude, there was a need for a procedure centering the observation units to their averages, so the ipsative transformation of the dataset had to be carried out. Moreover, for the option of mapping the bipolarities (underlying Schwartz's theoretical model) of value structures through statistical data analysis, a procedure was required that - in space - places values close to each other that attract one another (frequent joint occurrence in the responses) and the ones that repel each other are placed far from one another (so, the appearance of one will most likely imply the absence of the other). MINISSA J. E. Lingo's (University of Michigan) and Edward E. Roskan's (University of Nijmegen) procedure was assumed to be appropriate for this, as the relation of the values with

the observed events to find the  $n$  point coordinates in the  $r$  dimension output space is enabled while the sequence of distances among the points could coincide with the sequence of differences. This procedure helps model the correlations of multiple polarities (typical in values), i.e. map the Schwartz-type bipolar latent dimensions or value indicators in rotated factor space with mathematical statistical accuracy. A procedure mapping the scaling of individual differences (even as the measurement data of several waves) from the multidimensional space into a two-dimensional space was needed to be applied to explore the identical attributes deriving from the characteristics of the data, i.e. to assess the individual structural attributes (mechanisms) of the values. This was required on account of making a comparative aggregated spatial statistical modelling of personal value-structural changes identified in the various waves of data collection, in the function of educational attainment. According to the mathematical statistical literature (Füstös 2010), Individual Differences SCALing (the model of the INDSCAL model developed by Carroll and Chang [1980] specifically to scale individual differences) is the most appropriate method to represent this. The Value Change (VC) index of Füstös-Szakolczai (1994), elaborated for the Rokeach test, was tested to identify the existence of the value crisis, the validity of the stamping procedure within the theoretical frame of axial momentums and the value crisis by the levels of educational attainment. This index is a well-tried methodological tool in value sociological researches, however, it has not yet been used in educational sociological researches so far.

## **V. Structure of the thesis**

As a prime step, the thesis assessed the relevant social and scientific changes affecting the present age, and this provided a starting point for the research. Based on this, I defined the scientific framework of the research and the questions to be answered in the first chapter. In character with the concept, the applicability in the school context of value research theories and methods was defined, and the value research theories and models and their one-to-one potential correlation were reviewed here. All this led to defining the general and operationalized research hypotheses of the research. The methods and instruments adjusted to the strategy were specified in the second chapter of the thesis.

The structural model of value transmission in schools, construed within the Hungarian social framework, was assessed in the third chapter of the research, followed by a survey, based on the 2012/13 ESS database, of its role mapped in the specific personal psychological dispositions by each level, i.e. its (relative, as interpreted in the absolute, national and European context) value structuring role. The mechanisms underlying the developed value structures were also expounded in this chapter. This included a calculation, based on the Rokeach test, of the index (calculated between 1978-1996) and processes of value change, on the one hand; and a

survey on the change, in the value space between 2002-2012/13, of educational attainment-based groups in comparison with themselves and the general value transformation processes in Hungary, on the other hand.

The fifth chapter of the research outlines the fulfilment of general research hypotheses, based on the operationalized research hypotheses. In chapter six, the consequent results are summarized in a broader context, and, based on the experiences, some potential forward-looking proposals are also made.

## **VI. Fulfilment of hypotheses**

In accordance with the MINISSA model depicting the relationship of value types in 2012/13, the operationalized research hypothesis, which was related to the general hypothesis established to answer the first question of the research and which was intended to identify the modernization frames in Hungarian society, was clearly acceptable. Following from this, the LVPLS path model could be edited to assess the value transmission processes. In the model, Educational Attainment and the Grade of Urbanization provided the background pattern for Modernization, the Father's and Mother's educational attainment level provided the Family pattern, and Age and (biological) Sex represented the Ascriptive pattern. On the basis of the results from MINISSA spatial statistical modelling and the preliminary literary analysis, the values in the LVPLS model could be split up to Schwartz's 5 value indicators, Modernization and Ascriptive value patterns. Relying on the path coefficients calculated in the model, the second hypothesis assuming the presence of a modernizing social framework was also acceptable. In the Ascriptive background patterns, Age had a bigger impact on the value pattern than (biological) Sex. This relation is a clear sign of the allocation by social roles (based on sexual discrimination) of the traditional social structure being separated at the level of psychological dispositions. Moreover, the impact of educational attainment (bigger than that of family) on the Modernization value pattern was also observed, which concluded the acceptability of the third operationalized hypothesis in the research. The Modernization background pattern was noted to have a bigger impact on the Modernization value pattern than family, whereas it had an adverse impact on the Ascriptive value pattern, so the fourth hypothesis also proved acceptable. As expected, the value preferences of the family background did not have any ponderable impact in the represented relationship, so the fifth operationalized hypothesis was also acceptable. In the model, with regard to the two parents' educational attainment, the mother's attainment had just a little bit bigger impact on the path coefficient of the family background pattern than that of the father's in the Family background pattern, so the size of the mother's lack of modernization proved to be a slightly stronger value influencing background variable in the ascriptive values (as it hardly has any impact on the modernization values). In view of all the above, the sixth

operationalized hypothesis of the research is also acceptable, meaning that, as regards the parents, the mother's value preference has a slightly bigger influence on her child's value system than the father's educational attainment.

The seventh operationalized hypothesis, established to study the general hypothesis in connection with the second open question of the research, assumed the mapping of value crisis by educational attainment levels, which was also observed after calculating the Value Change (VC) index. Owing to the methodological considerations related to the axial momentum, the fact of having an axial crisis at the individual educational attainment levels, manifested in the diminishing (at each level) official values of the socialist ideological system, was also acceptable. Due to the value change index, the lack of value crisis was seen in the group with no completed school qualification, which implied the acceptability of the next operationalized hypothesis. The latter means a new and fairly strong confirmation of the emphatic role of schooling in the value-oriented development of personal psychological dispositions. Those with vocational school qualification will tend, with increased probability, to make decisions on personal enjoyment and pleasure in various social situations requiring some cooperation, instead of an adaptive and cooperative behaviour. Owing to this, the hypothesis concerning the early school leaving of students in vocational training was also acceptable.

The operationalized research hypothesis established in connection with the general hypothesis dedicated to answering the third question assumed the presence of individual value patterns originating from the various levels of educational attainment. After an ipsative transformation, by educational attainment levels, of the Schwartz value test results of the ESS database, MINISSA spatial statistical modelling could be executed in accordance with the mathematical statistical criteria. The probabilities of the consequently created individual value structures at the various levels and the transformation mechanisms of these structures could be equally assessed. Accordingly, the acceptability of a new modelling procedure in educational sociology, conforming to the modern educational scientific paradigm and providing comparative results in the non-cognitive sphere of schooling in an international scope, was also confirmed. The results could even be compared with a European outlook, using Schwartz's value theoretical model and the described research methodological approaches. So, the operationalized hypotheses, expected to answer the last question of the research, could also be verified. The results clearly showed that the various schooling levels significantly influence the probabilities of the respondents' development compared to the European value structure. The data proved that the development of a value structure similar to the European has the biggest probability among the students in tertiary education. However, to complete the latter statement, it is important to note that full match could not be proven in any single case. The assumption of direct increase between the rise of educational attainment and the similarity, to Europe, of the value structures was also partly proven in the test. However, in general, this could only be

observed in the arrangement of the regional value indicators serving personal interests, whereas the regional value indicators serving community interests were considerably different from the European indicators, generally in each qualification level. Additionally, similarity to the European standards was bigger concerning the value preference of university or college graduates (BA/BSc) and the value structure of those with the highest qualifications. Finally, the last operationalized hypothesis also proved acceptable because the value structure of those with no school qualification was the most different from the European structure.

## **VII. Answering the questions, conclusions, recommendations and outlook**

Essentially, statistical correlation between the acceptance of modern values, i.e. the non-cognitive ability, at the level of personal psychological dispositions, to adapt to the requirements of the modern age and educational attainment was stated to be acceptably represented. In this relation, in accordance with the assumption rested on the relevant literature on educational science (e.g. Parsons 1969; Inkeles and Smith 1974; Forray 2007; Lannert 2015), schooling, in comparison with the family, has a more considerable impact on the assessed area. Additionally, the acceptability of the hypothesis practically confirms the phenomenon referred to as the risk of social break-away by Forray (2007, p121) or as social bridge-burning by Parsons (1964, p147). Moreover, this also supports Lannert's (2008) research result whereby the potential difference between two students going to schools of identical background but with different social backgrounds will be less, so the social environment of the school is more determinative than that of the family. The question regarding the resolvability of antagonisms in personal and normative scientific-theoretical approaches with regard to the stamping and ipsative transformation procedures selected after theoretical and scientific considerations was also answered in the research, as they proved adequate in the statistical data analyses. This, at the same time, supports the option of the alternative development of measurement issues related to the non-cognitive sphere noted by Humphries and Kosse (2016), Lee and Stankov (2016), Duckworth and Yeager (2015) with objective educational and social-scientific investigations based on statistical data analysis. This measurability of the educational scientific dimension of values provides an adequate basis to identify the prevention strategies urged by García (2014), Trent et al. (1985, p309), to promote development and reduce inequalities (from the bases defined in the pedagogical research program of the Hungarian Academy of Sciences) from the non-cognitive sphere, using a new approach, even if at systems level.

The statistics-based structural analyses also helped note that the various levels of schooling have a traceable impact on psychological mobility among values, i.e. on conflict-prone probabilities occurring in the social action space. Mobility among personal value structures and their adaptation to Schwartz's value theoretical model and the European value structure was gradually increasing with the increase of school qualification. Hence, having a highest possible

school qualification is of critical importance not only with regard to knowledge and learning but also to its impact on personal psychological dispositions supporting a headway among modernization frames. This will especially apply if we consider Riesmann's statement in the *Lonely Crowd*, stating that the product necessary now is not a machine or crop but the personality itself, as a developed resource on its own.

Dedicated to the subsequent educational scientific researches, the following results should be highlighted regarding the planned systems-level Hungarian developments in schooling:

1. Solely the highest school qualification could increase the probability of mapping (in an interconnectible way, in accordance with the theoretical model) the value types in the personal psychological dispositions. Consequently, the purely dual-purpose and/or complex surveys should generally assess (in conformity with the unique characteristics of the various levels) the possibilities of improving mobility among value regions.

2. The low modernization value orientation of those with no completed school qualification is recommended to be developed with complex pedagogical experiments, to support the well-being of the narrow environment, built on positive and helpful attitude in the micro environment.

3. From 8 completed elementary school years up to and including college (BA) schooling levels, instead of directing the development of personal psychological dispositions toward a region serving personal interests, in the direction of Performance with the direct and indirect motivation of Security for Power (for social status, prestige, control of humans and resources, respect and the collection of material assets), they rather contribute to the development of a structure most probably excluding one another. This deviation from Schwartz's value model should reasonably be measured and developed with pedagogical methodological tools, in the frames of comprehensive and complex experiments.

4. In the case of Independence, 8 completed elementary school years rather contribute to positioning the personal value structures as a factor most likely motivating Hedonism (affiliated to the region serving personal interests) than to openness for variedness, i.e. motivation for excitement, novelty and search for challenges. Moreover, the probability of a gap to develop between the Adaptive and Power value indicators increases in the group with this highest school qualification. Owing to this, it would be reasonable to make some complex pedagogical tests to pedagogically promote, at this level, the vindication of compliant behaviour through self-realization.

5. Completed skilled worker and vocational school trainings contribute to the probability of conformance getting in sharp opposition to being motivated for a behaviour in search of direct enjoyment and pleasure. Consequently, those with this highest school qualification will, in various social situations implying a conflict between hedonistic and compliant behaviours, most probably not balk at non-compliant or less adaptive behavioural forms for the sake of direct enjoyment and pleasure. This also leads to conclude that the (value) socialization power of the



school is the weakest in this school type, and this impact cannot be considered satisfactory regarding the modernized character of individual values. Therefore, a critical point in developments planned in vocational schools is that not only the effectiveness of socialization should be increased but the content of value transmission should equally be developed when the sociological-educational objectives of the school type are being defined. It is of utmost importance to carry out complex investigations that can prepare the measures intended to remedy this psychological condition (probably leading to a conflict) with specific pedagogical methodological solutions.

6. The researches planned in reference to vocational school developments represent a priority test area in the group of Gypsy students as well, because, according to Cserti-Csapó (2015), the most typical continued educational form in the Gypsy population is skilled worker training, and they hardly tend to opt for types ending in a secondary school leaving exam. So, even in continuing education, they get into an area offering the most disadvantaged socialization in the modern social frame, in addition to having a significant (compared to the average) drop-out in their case. This proves that a systematized improvement in the value transmission capability of the vocational school provides a promising area for the social inclusion of the Roma population and the prevention of their drop-outs, so special attention needs to be paid to their condition in planning these investigations.

7. At the secondary school level, the complex experiments in preparation for specific pedagogical interventions should primarily be planned with a focus on the possibilities of mitigating the impact on the probability of striking antagonisms being developed between Power and Adaptation.

8. The complex pedagogical researches in preparation for development measures in completed university BA-level studies, college trainings and tertiary level vocational trainings should primarily focus on developing psychological mobility between the value motivations of Adaptation and Power through the value motivation of Trust.

9. At the level of university or college master courses or scientific works in universities, any further researches supporting pedagogical interventions for personal psychological development should reasonably be planned for the increased appreciation of social responsibility conforming to the achievable qualifications. Here, one should take into consideration that the probability of self-reliant and independent thinking and action, selection, creation and investigation, i.e. the framing of new things, creativity, achieving a personal lifestyle, making own decisions, independence, i.e. the pursuit of personal independence is bigger at this graduate level than at any other schooling level. Additionally, their lower motivation for self-restricting behaviour is also noticeable. This, in their case, assumes a much internally controlled personal psychological disposition.

10. In regard to the changes, in the value space, in the condition of educational attainment-based groups (between 2002 and 2012/13), research(es) with an emphasis on personal and public security, facilitating pedagogical interventions adapted to the specific characteristics of the individual school levels should reasonably be planned.

11. Similarity between the studied EU and Hungarian value structures increases, both structurally and in preference, along with the increase of educational attainment, which means that the strengthening of school influence can assist the manageability of value variance implied in the take-over of the EU value system. In general, European citizens tend to have a pro-social inclination, whereas Hungarians are rather ego-oriented and have a stronger quest of direct pleasures, while they are a bit more interested in exercising their power over others, in possession and in the appreciation of others.

The test results of the introduced new value theoretical model contributed to the system-level scientific measurement of the output of socialization micro processes at the individual school levels, so far invisible for educational scientific researches in an international comparative regard. Therefore, the method can be competent to serve as the tool of process control organized for the common management (linked to the pedagogical cycles) of conflicts connected to the value and related performance of school-based Institutional Quality Management Programs and Plan-Do-Control-Action (PDCA) cycles. Due to the seemingly unavoidable “dual-purpose complex” nature of the test (mentioned in the analysis and connected to subject pedagogical tests based on sociological researches applied in school researches), sociology, despite its soft nature, can, in the interest of successful cooperation, make a proposal for subject pedagogy, with the help of an educational sociological research in the field of educational science. Through this, while minimizing the risk, it can actually assist the more efficient, dual-purpose and complex fulfilment of measures. As, in accordance with other sociological researches, residence seems to be a key factor in educational chances in Hungary (which, based on the relevant literature, especially applies to the Gypsy), the development of social mobility beyond geographical determination, in the dimension of cultural spaces can be recommended as a promising objective.

However, when planning educational political development on the grounds of value, Forray's (1998, p15) warning must definitely be kept in mind: no miracle should be expected of educational policy, however, problems will reproduce in lack of an adequate educational policy built on local initiatives. In the case of drop-out and early school leaving, the thesis concludes in a research methodological tool (in the world of educational scientific planning called “project indicator fetish” by Györgyi [2015, p69]) that can facilitate the system-level development of the area of values related to the psychological factors of personality (and, through that, the non-cognitive sphere as a key factor in modern society). This is important also because, according to Fehérvári (2015b), personal factors play a decisive role in the phenomenon of drop-out, and

its termination, by Varga (2016), is the key objective in the educational policy of the European Union, in addition to the generation of social cohesion. Moreover, the inclusive pedagogical approach (which, relying on national literature, see Forray [2017] or Rayman and Varga [2015], is a promising development trend in the fight against drop-out) can provide a safe basis for the educational political system-level management of the external and internal factors of resilience tests. Resilience forms a part of educational scientific researches on the non-cognitive sphere in international literature (see Petway et al. 2016; Kautz 2014; Lipnevich et al. 2013), which simplifies relevant developments.

All this concludes that, in addition to identifying the specific impact mechanisms of schooling, mapped from the system level to the individual level and perceptible in the past over three decades, and making specific development proposals in the field of educational sciences, the thesis offers a reliable and substantiated solution model for a long unsolved methodological issue. Apart from the academic outputs-based development of measured student performance, also urged in international literature, it helps integrate the development of sociological and psychological conclusions in educational policy efforts. They can underlie the recommended developments to process the problem of excessive knowledge-orientation, a phenomenon long ago indicated in national literature and anchored in the Hungarian public educational system, to conquer the primary issues in the measurability of the non-cognitive sphere (in the fields identified by Duckworth and Yeager 2015; Lee and Stankov 2016 etc.), while meeting the expectations phrased in the Program of the Hungarian Academy of Sciences published in 2016 and related to the development trend of Kozma's (2013) educational scientific paradigm. Based on the model, the (re)introduction of the method equally open to the conditions of sociological and subject pedagogical tests but so far unilaterally introduced for the development of the organizational culture is considered recommendable, in a way stronger adapted to the pedagogical conditions of PDCA cycle management (proven in industry), considering the subsidiarity interrelations of subject pedagogical and sociological measures and the loadability of schools. Essentially, the proposal facilitates the option to interpret the "dual-purpose" or complex experiment, i.e. the cooperative management of competitions as a "mixed game theoretical strategy" (see M<sup>ér</sup>ó 2000, pp72-81 and pp124-131). This method can be recommended for the joint management of the conflicts of school-based Institutional Quality Management Programs and the Plan-Do-Control-Action (PDCA) cycle in relation to value and related performance, in the form of process control organized in conformity with the modern IT and organizational theoretical requirements linked to the pedagogical cycles. Based on the researches of Zoltán Báthory and the experiences from the (introduced as sociology-centred) concept of Ferenc G<sup>azs</sup>ó, there are due grounds to assume that subject pedagogy, in lack of sociology, is unable to identify the social constructional consequences and the sociological reasons for inequalities, still, sociology, in lack of subject pedagogy, proves helpless to prevent

and manage the phenomenon. To counterbalance the chances in an efficient and controllable manner, proposals concerning subject pedagogy should also be essentially made from the aspect of sociology, due to the balance of dual-purpose experiments. With regard to methods selection, the leading role of subject pedagogy should be recognized, noting that (educational) sociology should have a bargaining position or, potentially, veto right in relation to issues basically determining the social structure, e.g. methods leading to strengthened segregation. In arranging the tests in this concept, the driver in introducing the methodological measures can be subject pedagogy, whereas (educational) sociology can act as the brake or as partial orientation, to achieve balance in the relevant educational policy. On the whole, sociological influence belongs to the so-called “soft” methods of organizational theory-based management, whereas certain elements of pedagogical management can also function as a direct normative. However, in this regard, the outcome of the research at the level of pedagogical practice can only be construed as the initial phase of continued deeper work. Using the outlined model, the pedagogical and educational political portfolio can carry out directed changes not only at the level of personal psychological dispositions but also regarding the modernization reality of our current Hungarian society (defined as a part of the European community).

Henceforward, the only question is if there is a requisite educational political will and satisfactory (at the level of practice) pedagogical patience to commence and execute a development process to this end. However, the importance of the analysed issue should further on be handled as emphatic, and it will hopefully remain in the focus of later researches, especially if Riesmann’s statement (defining the personality as a highly developed resource) and the need for citizens capable of cooperative action strategies fundamental for the development of the modern society are both taken into consideration.

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## **IX. Relevant publications by the author**

### **Books**

1. **Value Changes in Hungary 1978-2009** (coauthor) – 2013  
Published by Present Ltd. with the support of Hungarian Academy of Sciences, Budapest. Language: Hungarian.
2. **Social Indicators and Social Spaces 2002-2012** (coauthor) – 2015  
Published by Pázmány Péter Catholic University, Budapest. Language: Hungarian.
3. **Value Changes in Hungary 1978-2009.** (coauthor) – 2016  
Published by Present Ltd. with the support of National Cultural Fund and Hungarian Academy of Sciences, Budapest. Language: English.
4. **Structural Equation Models** (coauthor) – 2017  
Published by GlobeEdit, Mannheim, Germany. Language: Hungarian

### **Articles**

5. **The Easterlin Paradox** (coauthor) – 2015  
In: Társadalmi füzetek, 2015/3. Pázmány Péter Catholic University, Faculty of Humanities and Social Sciences, Institute of Sociology, Department of Social Research.  
Language: Hungarian
6. **Social Statistics** (coauthor) – 2016  
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7. **The Models of Multivariate Data Analysis** (coauthor) – 2017  
In: Módszertani Füzetek (Methodology Papers), 2017/2. Corvinus University of Budapest, Workgroup for Applied Social Researches, Budapest. Language: Hungarian
8. **The Role of Education in the Changing Value Systems in Hungary** – 2018  
In: Változó értékrendszer, 2018/2. Corvinus University of Budapest, Workgroup for Applied Social Researches, Budapest. Language: Hungarian
9. **The Aspects of Modern Education Science Approach for the Perception of Human Values** – 2018  
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**Presentations**

**12. The Socialization Role of Traditional and New Media Devices (coauthor) – 2012**

European Social Survey Conference, Hungarian Academy of Sciences, Institute for Political Science, Budapest. 2012.04.24. Language: Hungarian.

**13. The Philosophical Foundations of the Application of Quantum Theory in Social Sciences – 2015**

2015 Atlantic Causal Inference Conference at Wharton Department of Statistics, University of Pennsylvania, USA. 2015.05.21. Language: English.

**14. Effective Group Organizing Practices in High School Settings – 2015**

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**15. The Cultural Cohesion of Europe. On the Edge of East and West – 2015**

East-West Cohesion International Conference, Dunaújváros. 2015.11.12. Language: English.

**16. Value Structuring Role of Education in the Age of Technology – 2016**

The Fourth Asian Conference on Society, Education and Technology, Kobe, Japan. 2016.10.24. Language: English.

**Researches that are accepted for publication (unpublished)**

**17. Alternative Research Model for the Non-cognitive Effects Measurement of Education System on Individuals in International Comparative Context – 2018**

2018 Congress of World Education Research Association, Cape Town, South Africa. Accepted for presentation. Language: English.

**18. The Socialization of Education Systems in Modern Societies. *Approach and Research Method for the Universal Measurement of Education Systems' Socialization Effect***

2018 Congress of World Education Research Association, Cape Town, South Africa. Accepted for presentation. Language: English.