Implication of Two New Paradigms for Futures Studies[1]

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Abstract

The paper considers the emergence of two recent perspectives in futures work. One is evolutionary futures studies. The other is critical futures studies. After describing aspects of each, the paper considers them as alternative rival paradigms in relation to criteria that include: the role of the human being as a subject, the role of interpretation and differences in methodological premises. It concludes that both have contributed to the development of futures methods but that a number of theoretical and methodological problems still remain unsolved.

1. Antecedents and main theoretical-methodological problems

What has most characterised the road covered by studies of futures up to the 1980s was its emergence as an independent and structured field of science and as an independent sphere of social activity. Despite the fact that the theory and methodology of futures research had crystallised and solidified, the studies of futures had by no means become united. The paradigmatic differences interpreted according to Kuhn remained palpable[2]. This was most detectable in the cultivation of two differing systems of approaches, namely in futures research, which adopts the criteria of classical science, and in futures studi*es*, which is more culture-based.

Futures research, which moulds the particular criteria of science it wishes to adhere to more and more, worked on developing and adapting new methods and on uniformly solidifying the process of forecasting in different areas. Futures studies, however, interpreted the determination of the future, the future-shaping role of culture and the methodology of futures studies through the filter of research into culture. Yet in specific prognoses the two types of approaches can be disentangled only via thorough analysis. The use of futures methods and combination of various method as well as the application of varying ways of proving and justifying things, have become general in both types of studies of futures. Forecasts are made as alternatives or variations and contain both verbal and numerical descriptions. The use of

different types of forecasting methods has become widespread in describing complex social futures called future shapes or future models.

Paradigmatic differences became interesting and contested yet again when the proportion of fulfilled forecasts and social futures, and their reliability as grounds for decision-making, had significantly dropped. This happens during instability and sudden random changes, as well as accidental factors, affect the present. Such changes became apparent mainly in the late-1980s. Again, they gave a boost to theoretical and methodological research within the studies of futures and to the analysis and assessment of the road hitherto covered by studies of futures[3]. The results highlight the weaknesses of studies of futures and the areas in need of better and more effective answers in the following theoretical-methodological problems:

- If futures research as a science does not place the main emphasis on exploring the expectable and most probable future, then what determines and what is the extent of the domain of the possible futures already or yet to be explored? The classic answer to this question is that it is the probability breakdown of the domain of the future that must or can be determined. Practice shows, however, that the shaping of a new present falls outside this domain due to the sudden changes. Nor are anticipated futures and models projecting the continuity of cultural differences into the future any more fortunate either, as globalisation invariably modifies these futures as well to a considerable extent.
- How can forecasts be made amid unstable, intermittent and shifting conditions? The tried and tested futures methods provide no answer to this question. Studies of futures being a science, it ought to answer that no forecasts, only premonitions of change, are possible amid such conditions. But then studies of futures must yet again give up its claim that it is a science.
- What is the place and role of human being in shaping the future? The answer of classic studies of futures to this question is that the subject can explore his possible future (by means of studies of futures) and then is at liberty to choose which one he or she wishes to achieve through his or her own activity. Reality has lately failed to corroborate and prove the validity of this answer. But is it right if we answer this question so simply in theory too?
- What is the role of values in studies of futures and in exploring possible futures? If studies of futures constitute a science, it must make values explicit, i.e. it must present possible futures together with their value content. This is a requirement that can be met in the case of existing values and value systems, but nothing can or

may be said as to what makes values and value systems change. Although such considerations can be excluded from the sphere of studies of futures, they also reduce the domain of possible futures to be explored. Amid these conditions, however, the future-generating role of a change in values can gain significance. Thus, the question to be answered can be modified as follows: How can studies of futures retain its claim to being a science if the object of its investigation is how value and value change influence the future?

New and potent answers to these questions must be sought, in agreement with Bell, on the basis of critical realism[4]. Having studied and been involved in efforts to renew studies of futures, I believe, however, that they adhere to alternative paradigms and systems of thinking. These new trends are evolutionary and critical futures studies[5].

2. New trends

2.1.Evolutionary futures studies

In the opinion of the representatives of evolutionary futures studies, doing studies of futures is not satisfactory because their subjects are simplified and their theories, applied methodology and methods are not adequate to explore reality in constant change and its future conditions. What kind of future does and must futures studies examine when profound changes are taking place? The answer evolutionary futures studies provides to this question is that *it should be a kind of future that is open, defined and undefined at the same time, and is the scene of human activity.* The uncertainty of the future is evolutionary, as the risk is the survival of human society.

According to this notion the subject of futures studies is the evolution of so-called emergent complexities, which include everything, even the human being[6]. Thus futures studies as a social science focuses on complexities of which human being and his or her society are organic parts. Human being plays a part in these complexities not only as a biological but as a psychosocial being too. His or her biological participation and evolution are less significant for the purposes of futures studies because changes of this nature are very slow and their time span transcends the sphere of interest of futures studies. Human being's ability to feel, to think and to form different social organisations, however, is considerably more changeable than his or her biological entity. This is why the real subject of futures studies is the interaction between the former quality and its natural and artificial environment as well as its evolution.

To use Ervin Laszlo's phrase, futures studies must deal with the cultural-social evolution of culturally mutant homo sapiens[7].

The representatives of evolutionary futures studies accept the hypotheses of the general evolutionary theory as regards its general features. They stand for the notion that the evolutionary change of emergent complexities is generated by external environmental changes, but the development of complexities unfolds through inner counter-reactions. An evolutionary change takes place when the mechanisms that reduce fluctuations are no longer able to hinder errors, and the growing fluctuation sets complexity on a new course by generating bifurcating mechanisms. In this so-called *critical phase* a number of options, including possible social futures, emerge and it is extremely uncertain which of the possible futures will transform complexity and saturate its subsystems[8]. Once the competition among the futures is settled, a period of dissipation ensues when the changes engulf and reshuffle complexity, thus giving rise to a new level of evolution.

The cumulation of tensions and deviancies of differing character and crises precede evolutionary shift. These can be recognised by means of society's information system. Evolutionary shift, however, is a great deal more difficult to forecast due to its uncertainty. For this purpose an evolutionary approach is necessary but insufficient. An ability to recognise the possible new values and patterns unfolding in society is also required.

From and evolutionary view of futures studies there are two main tasks. One is to examine development trends and their completion, something studies of futures already does. The other is to investigate future evolutionary shift and to explore what (in the evolutionary sense) constitute qualitatively new future prospects. Forecasting development trends and their completion is necessary and can be reliably accomplished in periods between evolutionary shifts. On the other hand, evolutionary shifts and possible futures cannot be forecast in the conventional sense, because those are radically influenced by chance and the changing values. The subject can and must be tackled with an evolutionary approach, however. In such cases we must bear in mind that we are not making forecasts in the classic sense of the word but presenting evolutionary prospects[9].

Evolutionary futures studies wishes to further develop its methodology in order to cope with its new approach and tasks. By focusing on the non-linear concept of evolution, evolutionary futures studies sets as its principle task the many-sided exploration of non-linear development trends of past, present and future. In the time of evolutionary shift it wishes to deal with society's future *in a holistic way*, creating the future not by placing aspects of social change together but by examining the evolutionary dynamics of the whole. This is the approach that

can explore the possible changes in the general pattern of social evolution and in the human cognitive map of evolution, namely in the system of principles organising knowledge, values and life itself. With a view to this, the so-called *phase-space metaphor* is easily applicable to break down multidimensional social phenomena into reduced dimensional spaces. With the help of the phase-space metaphor certain evolutionary models can be constructed that are able to indicate a transition from stability to instability, the setting in motion of bifurcating mechanisms and the domain of possible futures.

Evolutionary futures studies continues to develop procedures that explore and collect subjective visions of the future, as well as the methods of scenario building. This allows the application of a wide variety of subjective procedures through the significant role attributed to the future view and future orientation of experts and non-experts alike. Linking the results of these surveys with evolutionary models, or incorporating them in the verbal evolutionary model allows the conception of so-called evolutionary scenarios that differ from previous ones[10].

2.2. *Critical futures studies*

Critical futures studies finds problematic the notion of the future embodied in studies of futures and their associated methodology. It regards as erroneous the assumption that futures work focuses only on the future yet to be and its preliminary cognition. Studies of futures adhere to this limited and one-sided notion of the future only in order to ensure that they are considered a real science. Consequently, it dispenses with the interpretation and exploration of the future in its real relation to human beings.

According to critical futures studies the future can be interpreted not only as something that will materialise as time passes but also as something *that already exists in the present, both in people's thoughts and emotions*. This future affects the present and forms an organic part of life's rules. It is not only a peculiar form of cognitive interpretation but an emotional attitude (optimism, pessimism, hope or fear) too. *This kind of future that exists in the present is the most developed form of human foresight*. Foresight is a human capacity, an ability that protects human being from harm and makes his or her activity continuous and smooth. Foresight is set in motion by the indelible sense of uncertainty rooted in the uncertain nature of biological existence. It develops through learning and can be enhanced. At the present level of human being's development thinking about the future and having a notion of the future can no longer be regarded as separate forms of thinking[11].

Critical futures studies also distinguishes the different time zones: the sequence of past, present and future. Yet these time zones exist in the present as well. In the present the past manifests as history, achievement and the condition of identity, the present means understanding, perception, facts and activities. The future evokes expectations, objectives, plans and the scheduling of future acts. The time zones in the present exist in the mind and in our cognitive interpretation not only as separate entities but in their constant interaction. The past affects the present through its interpretation and can provide a means of escaping from the present. The future shapes the present through anticipation and can also be a way out from the present. The time zones constantly intertwine, undulate and permeate one another in our mind and psyche.

The present is, on the one hand, the limited time category of 'here and now' and, on the other hand, an 'extended present' in our mind which is able to interrelate the past, present and future simultaneously and update the outcome. This latter present also has a historically changing time span that may extend to 200 years at our current level of civilisation. It is in this 'extended present' that human foresight functions. Critical futures studies, therefore, focuses on this future conceived as human foresight, which is also the extended present. Its task is to explore human foresight on the one hand and to further develop this activity so as to raise it to a social level on the other hand.

The kind of futures studies that focuses on human foresight breaks with the time honoured and extensively used concept of studies of futures that, by forecasting the future, they can provide preliminary knowledge about it. Critical futures studies holds this impossible and undertakes no more than to explore and to critically analyse the future content existing in the present, thus providing help for the individual and social institutions to develop their foresight capability. Owing to its link to human foresight and to its critical approach to it, *this type of futures studies calls itself foresight or critical futures studies.*

Its birth and development are justified by the fact that foresight must be raised to a social level at a time of rapid and profound changes. The prevailing theory and practice of studies of futures have been unable to do so, as they ignored individual foresight and made dealing with the future the privilege of special interest groups. Critical futures studies *envisages and accomplishes* social foresight *in a democratic way* by linking individual foresight into the full process of institutional-social foresight and by making the full development of a participative view and processes the principal task of futurists. It also fulfils the role of moderator in the foresight process. By undertaking this social role, it encourages the individual to participate, make choices and act in a responsible way, while it strives to generate and improve the

efficiency of the social learning process.

In this approach the activity of a critical futurists is both scientific and practical at the same time. It is scientific inasmuch as it applies and develops methodology and processes, and also explores, understands and critically analyses the content of individuals' notion of the future and foresight. It is practical inasmuch as it forms part of and guides foresight activities.

Criticism is a central category in critical futures studies. It implies much more than a simple criticism. It refers to a range of viewpoints and depth understandings that permit the fuller realisation of the human potential for dealing with the future. This trend draws on a number of sources - the philosophies of structuralism, post-structuralism and post-modernism - for its critical capabilities[12].

A starting point for constructing future social reality is the so-called *post-structural conversation,* in which communication through language plays an outstanding role. Other forms of communication, e.g. pictures, drawings, films, the multimedia, can also be carriers of the future. In post-structuralist conversation futures with new qualities and new regimes of truth can be constructed. Another step in constructing the future is involvement in the social innovation process, making the desired future shapes legitimate and transplanting them into reality. For this futures studies must possess profound and manifold knowledge about society and its mobility. One way to achive this is through the so-called *'social architectural metaphor'*, which is based on the view an architect might have[13]. A good architect understands both the visible and invisible parts of structures, is able to synthesise that knowledge and materialise it in specific buildings. On this analogy the 'social architectural approach' considers the overall merging of the superficial structures of society (language, symbols, customs, laws and institutions) and the defining structures of society (cultural norms, suppositions, ethical-moral patterns) the underlying paradigms and world views (reality, the interpretations of nature and of human and social character).

For critical futures studies the main trend of developing methodology is not in expanding the circle of numerical and quantitative methods and ways of calculating but in broadening and deepening the circle of verbal-qualitative methods. Several methods have been elaborated, adopted and further developed in this field. An independent futures studies method has emerged for the production of so-called participant forecasts. This is the futures workshop technique, which is also a means of putting the post-structural conversations into practice. In its various forms the method can project alternative futures and, in addition, pacify related fears. It is this flexible and modular technique that serves as a basis for so-called' visionary management', which is a form of corporate-institutional forecast-foresight activity renewing

in the spirit of critical futures studies[14]. Thanks to the flexibility of the method so-called 'technology foresight' has become a highly successful method in technological forecasting[15].

3. Shift in paradigms with rival paradigms

The new trends in futures studies not only further develop futures research that by the 1980s had become an independent branch of science and a sphere of social activity but also has the potential to renew it paradigmatically. Seeing that they share the same premises but react in different ways to them and formulate differing answers, the new trends constitute alternative, rival paradigms within contemporary futures studies.

3.1.Shift in paradigms in the new trends

One of the weak points of scientific studies of futures is that when it turns to alternatives, to the qualitatively differing possible futures, on what basis does it claim that they really are possible? If it explores the possible futures with reference to verified knowledge, then it can only produce different variants of a probable future. If it poses diverging premises, then its choices will invariably be arbitrary even if it sets out from existing (but not typical) phenomena, then supposes and backs up the argument that these new phenomena may transform the future. These possibilities cannot be verified, only their logic can be checked. These are the conclusions we must reach if we strictly adhere to the criteria of traditional or normal science. If the future that is to materialise does not show up among the range of possible futures, the problem or the limits of the scientific paradigm become visible at once. If futures studies is ready to turn towards qualitatively different futures even on the level of developing its methodology, it must transcend its earlier paradigm too.

The other weakness of scientific studies of futures is that they only consider rational futures. They suppose that society or the individual always make rational choices or act in a rational way; or at least that the roots of social acts are rational. This supposition also arises from the paradigm. In this case such studies may have to face the fact that society does not follow or opt for the futures it has projected, and those, therefore, do not materialise or follow different patterns and timetables. But if scientific studies turn their attention to the social medium, to the attitude of people and their social institutions to the future, they will encaunter the fact that scientific rationality is limited. Hence they will necessarily acknowledge the joint future

influencing and future-creating role of conscious and unconscious factors. If such studies accept this as a future-creating and influencing factor and wish to take it into consideration in methodological terms (e.g. when preparing projections) scientific studies will also transcend the limits of earlier paradigm and start building towards what can perhaps be called an 'interpretative scientific paradigm'.

Perceiving the future as a possibility, evolutionary futures studies place the emphasis on the ability to show these possibilities, which differ both in their conditions and in their system of values, through the means of science. Critical futures studies concentrates on the future that exists in the present on human foresight, and studies their content as well as their role in shaping and moulding the future. Thus *both trends have transcended the paradigmatic limits of traditional or normal science.* Neither can be considered a new manifestation of classic futures studies because both focus on changing cultural values and their relevance in time rather than on the unchanged continuity of traditional cultural values.

The new trends seek support in philosophy and theory of science, which they find in post-modern currents of thought[16]. Their reactions to the new challenges have been bolstered by these currents of thought, which have in turn led to an acceptance of the shifts in paradigms. Since post-modern currents of thought offer no homogeneous philosophy or theory, on the contrary, they are essentially about the end of the age of great narratives, the new trends cannot be associated with individual post-modern concepts either. Evolutionary futures studies is the most intimately related to a system of thought (general evolutionary theory) which is part of its emerging future theory too. At the same time it borders on mature post-modern thoughts as well, since some its representatives (e.g. Ervin Laszlo) are inclined to blur the differences between science, religion and the arts[17]. Critical futures studies, due to its pragmatic standpoint, cannot be linked to any of the post-modern currents of thought. It believes that for the solution of its practical problems it is enough for the time being to locate the most convenient points of reference and views in post-modern currents of thought. Among these we can find ideas based on post-structuralist, mature post-modern and general evolutionary theories alike. We believe that the link between the new trends and post-modern currents of thought also promotes the shift in paradigms. Their eclectic research philosophy, however, is part and parcel of their explorations at this stage.

3.2. New trends: alternative paradigms

Both trends formulate a new position concerning the future. Positivist scientific futures

studies makes deductions about the future and about what may materialise in the future from the verified knowledge of the past and the present. Evolutionary futures studies, although it also conceives the future as a time yet to come, defines its content as something that embraces evolutionary possibilities. Thus, it emphasises not the developmental trends, the conclusions that can be drawn for the future from what is already known, but their change and split into several branches. Believing that conceptual constructivism is of a defining nature in the evolutionary possibilities of the future, it states that future can be produced and realised in a number of speculative constructions. The source of this multiplicity lies in the different conceptual comprehension and interpretation of the changes and of the future. This way evolutionary futures studies considers both knowledge and skill as a certain interpretation - cognitive interpretation - that makes its notion of the future different from the notion of the future of positivist studies of futures. Critical futures studies, on the other hand, focuses on the general existence of the future in the present, i.e. foresight. The theoretical difference between the two positions is that while evolutionary futures studies approaches futures from the standpoint of conscious understanding and knowledge, critical futures studies approaches them from the standpoint of interpretation, understanding and feeling in the general sense of the words. *Conceiving the future as a cognitive interpretation and as a general interpretation provides two differing, alternative manifestations of the interpretative scientific paradigm.*

The paradigmatic character of the difference in the notion of the future between the two trends can be detected in the fact that evolutionary futures studies also recognises the existence of the future in the present when it speaks about the so-called cognitive map of the future and its role in evolution. Critical futures studies too takes it for granted that the future is a time category which follows the past and the present and which arises from those two. The cognitive interpretative or interpretative concept of knowing the future, however, fills the existence of the future in the present and its existence in the future with a different content and significance. This is so because if we take the future to be the preliminary knowledge and understanding that can be acquired about a time that is yet to come, then the means of acquiring that knowledge is obviously more important than its existence in the present. But if the future is taken as a certain interpretation and understanding of the present, then its discovery and display are far more important than whether the future will really happen or not.

Human being plays a defining role in both trends. His or her position and role, however, depend on the cognitive interpretative or interpretative notion of the future. In evolutionary futures studies human being plays an important role as one of the components of progressive

complexities. When we acquire knowledge about progressive complexities and their evolutionary movement, we also gain an insight into the values, goals and activities of human being and his or her social institutions as well as their changes. This explains the importance of the new values and goals of the social periphery, or the new kernels of values and needs surfacing locally, or the activity of intellectuals that produces new values. This knowledge forms part of the cognitive map of reality. Evolutionary futures studies, therefore, examines the dynamics of different social complexities in order to explore the map of possible prior knowledge and understanding of the future. Human being is placed at the centre of critical futures studies as a being with foresight. The subject of futures studies is human being's ability to have foresight, his or her awareness of the future, his or her relationship to the future, his or her anticipation and the way his notion of the future influences his or her activity. Examining this, improving it in the learning process and raising it to a social level comprise the field of activity of critical futures studies. Critical future studies uses knowledge gained about society and its change, of course, but will not define the future shape, objectives and plans of the subjects or groups of subjects. In other words, it will not solve this task for them.

The fact that human being as subject is seen differently in each of the two trends also implies that the latter conceive society in different ways, or rather view social democracy and the task and social function of futurists differently. Evolutionary futures studies works along the lines of indirect democracy as it focuses on institutionalised knowledge, skills and notions of the future in order to assure that futurists may explore the different possible futures. Critical futures studies, on the other hand, deals with foresight and expectations for the future from the premise that there is direct democracy or at least participation democracy and the individual's activity is consciously meant to build the future. It concentrates on understanding, comparing and assessing these. While an evolutionary futurist represents a kind of institutionalised notion of the future, the critical futurist is a moderator of different foresights, expectations and anticipations. Evolutionary futures studies also counts on participation democracy: not the kind that exists in the present but as a possibility for the future. Critical futures studies, however, considers the established forms of institutionalised classic studies of futures a bad solution to be superseded because they refuse to take into account or hinder the responsible and independent foresight activities of people and social groups.

Due to the above differences in concepts, the differences in the methodological standpoints are also conceptual. Evolutionary futures studies relies on its holistic approach to concentrate on the transformational regularity of the different complexities. Critical futures studies relies

on its social architectural approach to endeavour to show the gist of different social phenomena, their embedment in cultural values and world views, as well as the fact that they can be superseded, in order to promote the construction of a new social reality. Holism and social architecture coincide in as much as future changes range on a scale from phenomena through values to world views, and this must be reflected in contemporary futures studies too. They differ, however, in how this can be accomplished in futures studies. According to holism, this can be accomplished through futures studies (evolutionary futures studies, of course), on the one hand, and through the joining of forces between futures studies and science as forms of a cognitive interpretation, and between art and religion (as forms of a non-cognitive or not solely cognitive interpretation), on the other hand. According to social architecture approach it can be accomplished with service activities of critical futures studies in which those involved create their own new and manifold attitude to the future, which range from expectations through objectives to values, as well as an active and optimistic approach to the future.

If we compare the methodological premises of the two trends from the point of view of scientific theory, it is the differences that emerge first. Evolutionary futures studies is closely linked to the new scientific approach and research trends, while critical futures studies displays no such striking link. Evolutionary futures studies is linked to general evolutionary theory and to chaos theory in particular because it is in this scientific theory that it sees the connection between the different time zones (past, present and future) based on up-to-date features[18]. On this basis it can indeed deal with the future as a science, a contemporary and interpretative science. Critical futures studies, however, feels no need to try to be scientific. It sets out from practice to develop its understanding, interpretative and explanatory notion of the future and methodology. Although it does not consider the positivist interpretation of science modern, for the solution of tasks it uses the knowledge and methods gained from it as a starting point. It definitely turns to post-modern philosophy and scientific theory without wholly adopting any of the positions. It picks and chooses from among them pragmatically and undertakes a pioneering role in the construction of meaning. By virtue of its strong links to post-modern currents of thought and its interpretative approach to the future, critical futures studies also represents a post-modern scientific solution.

The different trends develop different futures methods as a result of the conceptual diversity of their methodologies[19]. Evolutionary futures studies endeavours to renew modelling methods above all, while critical futures studies strives to renew subjective methods. The most diverse solutions can be found in the combination of methods. Evolutionary futures

studies combines the different old and new methods in evolutionary models and scenarios to obtain information, while critical futures studies does the same by enableing a subjective vision of future possibilities. The identification of individual social future orientation is an important new element in both, albeit with different aims and in varying forms arising from their different methodological premises.

The current notion of the future in both trends displays post-modern features. *Evolutionary futures studies stresses the uncertainty of future by showing a number of possible futures*, but it supposes and believes that the world will realign itself and a new order as well as a new regime of justice will emerge. *The mosaic-like current notion of the future of critical futures studies reflects* not only the uncertainty of the future but also *the fact that the future will retain its mosaic-like quality and different nature even when it materialises.* The current notion of the future in critical futures studies is, therefore, an expression of the mature post-modern current of thought.

4. Conclusion

The comparative analysis of trends shows that they are closely related to the renewal of the field. They contribute to the further development of its knowledge base by providing a new impulse, a methodological framework and methods for the practice of futures studies. Both new trends develop futures studies through a shift in paradigms and contribute to enabling futures studies to meet the challenges of the turn of the millennium. They also embody altarnative paradigms within contemporary futures work.

The above notwithstanding, the new paradigms have not solved several theoretical and methodological problems. The most important of these are the falsification of the different notions of the future, the elaboration of new coherent methodologies that make it possible to integrate old and new methods, and the exploration of the limits of application of the different paradigms.

Endnotes

1 This paper is based on the article published under the same title in the *Futures* (34 (2002) pp. 283-294) and on the results of a research program, entitled 'Paradigms in futures studies', No T 35070, supported by the National Scientific Research Fund. Program leader: Éva Hideg.

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2 See the book of Kuhn, T (1970) *The Structure of Scientific Revolution*, University of Chicago Press, Chichago.

3 See the article of Hideg, É (1992): 'Irányzatok a jövőkutatásban', *Magyar Tudomány*, new vol 37, no 7, pp. 797-810.

4 See the book of Bell, W (1997) *Foundation of Futures Studies*, Transaction Publishers, New Brunswick.

5 See the study of Hideg, É (1998) 'Versengő irányzatok a jövőkutatásban' in Hideg, É (ed) *Posztmodern és evolúció a jövőkutatásban,* Budapesti Közgazdaságtudományi Egyetem, Budapest, pp. 150-177.

6 See the article of Mannermaa, M (1991)'In search of an evolutionary paradigm for futures research', *Futures*, vol23, pp. 349-372, Elsevier.

7 See the book of Laszlo, E (1991) *The Age of Bifurcation*, Gordon and Breach, New York.

8 See also the book of Laszlo, E (1991) *The Age of Bifurcation*, Gordon and Breach, New York.

9 See The conference paper of Nováky, E, Hideg, É (1993) 'Futures research under chaotic circumstances in Hungary' in Mannermaa, M, Inayatullah, S, Slaughter, R (eds) *Coherence and Chaos in Our Uncommon Futures - Visions, Means, Actions - Selections from the XIII World Conference of the World Futures Studies Federation*, Turku, Finland, August 23-27, 1993, WFSF, Turku, pp. 303-310.

10 See the book of Hideg, É, Nováky, E (1998) Szakképzés és jövő, Aula Kiadó, Budapest.

11 See the book of Slaughter, R (1995) *The Foresight Principle*, Adamantine Press Limited, London.

12 See the study of Kiss, E (1998) 'A posztmodern eszmeáramlat és a jövőkutatás' in Hideg, É (ed) *Posztmodern és evolúció a jövőkutatásban,* Budapesti Közgazdaságtudományi Egyetem, Budapest, pp. 3-38.

13 See the book of Slaughter, R (1995) *The Foresight Principle,* Adamantine Press Limited, London.

14 See the book of Nanus, B (1992) *Visionary Leadership,* Jossey Bass, San Francisco.

15 See the manuscript of Nováky E, Hideg, É (1996) Módszertani útmutató technológiai előretekintési program készítéséhez. Jövőkutatás Tanszék, Budapesti Közgazdaságtudományi Egyetem, Budapest, p 19.

16 See the study of Kiss, E (1998) 'A posztmodern eszmeáramlat és a jövőkutatás' in Hideg, É (ed) *Posztmodern és evolúció a jövőkutatásban,* Budapesti Közgazdaságtudományi Egyetem, Budapest, pp. 3-38.

17 See the book of Laszlo, E (1991) *The Age of Bifurcation*, Gordon and Breach, New York.

18 See the study of Hideg, É (1998): 'Az általános evolúciós elmélet és a jövőkutatás', in Hideg, É (ed) *Posztmodern és evolúció a jövőkutatásban,* Budapesti Közgazdaságtudományi Egyetem, Budapest, pp. 39-67.

19 See the study of Nováky, E (1998) 'Módszeretani megújulás az előrejelzés-készítésben' in Hideg, É (ed) *Posztmodern és evolúció a jövőkutatásban,* Budapesti Közgazdaságtudományi Egyetem, Budapest, pp. 93-120.

Short Bibliography

1 Bell, W (1997) *Foundation of Futures Studies*, Transaction Publishers, New Brunswick.

2 Hideg, É (1992): 'Irányzatok a jövőkutatásban', *Magyar Tudomány*, new vol 36, no 7, pp. 797-810, Magyar Tudományos Akadémia, Budapest.

3 Hideg, É (1998) 'Versengő irányzatok a jövőkutatásban' in Hideg, É (ed) *Posztmodern és evolúció a jövőkutatásban*, Budapesti Közgazdaságtudományi Egyetem, Budapest, pp.150-177.

4 Hideg, É (1998): 'Az általános evolúciós elmélet és a jövőkutatás', in Hideg, É (ed) *Posztmodern és evolúció a jövőkutatásban,* Budapesti Közgazdaságtudományi Egyetem, Budapest, pp. 39-67.

5 Hideg, É, Nováky, E (1998) *Szakképzés és jövő,* Aula Kiadó, Budapest.

6 Kiss, E (1998) 'A posztmodern eszmeáramlat és a jövőkutatás' in Hideg, É (ed) *Posztmodern és evolúció a jövőkutatásban,* Budapesti Közgazdaságtudományi Egyetem, Budapest, pp. 3-38.

7 Kuhn, T (1970) *The Structure of Scientific Revolution*, University of Chicago Press, Chichago.

8 Laszlo, E (1991) *The Age of Bifurcation*, Gordon and Breach, New York.

9 Mannermaa, M (1991)'In search of an evolutionary paradigm for futures research', *Futures*, vol 23, pp. 349-372, Elsevier.

10 Nanus, B (1992) *Visionary Leadership*, Jossey Bass, San Francisco.

11 Nováky, E (1998) 'Módszeretani megújulás az előrejelzés-készítésben' in Hideg, É (ed)

Posztmodern és evolúció a jövőkutatásban, Budapesti Közgazdaságtudományi Egyetem, Budapest, pp. 93-120.

12 Nováky, E, Hideg, É (1993) 'Futures research under chaotic circumstances in Hungary' in Mannermaa, M, Inayatullah, S, Slaughter, R (eds) *Coherence and Chaos in Our Uncommon Futures - Visions, Means, Actions - Selections from the XIII World Conference of the World Futures Studies Federation*, Turku, Finland, August 23-27, 1993, WFSF, Turku, pp. 303-310.

13 Nováky, E, Hideg, É (1996) Módszertani útmutató technológiai előretekintési program készítéséhez. Jövőkutatás Tanszék, Budapesti Közgazdaságtudományi Egyetem, Budapest, p 19.

14 Slaughter, R (1995) *The Foresight Principle*, Adamantine Press Limited, London.