

PAULA KYRÖ

# The Dynamics of a Scientific Inquiry in Entrepreneurship Research – From Revolutionary Development to Transitional Dialogue

## ABSTRACT

*This article suggests that an unquestionable use of a concept of the paradigm in entrepreneurship research has strayed us from the very identity of entrepreneurship and led to confusing outcomes. I argue though that we should broaden our awareness from Kuhn's idea of an endemic development of a scientific community to the interplay between science and surrounding reality. Accordingly the socio-historical research reveals two transitions that represent an arena for paradigm changes and the methodological renewal. However, rather than revolutionary, this development is transitional containing contradictory ideas of the relationship between society, economy and their interplay. Entrepreneurship emerges in these transitions when society needs on one hand to renew its current practices and on the other to break down its old practices. The identity of entrepreneurship though relates to and actually represents a paradigm change. Therefore rather than applying multi-paradigm approaches to entrepreneurship research as the contemporary discourse encourages us to do, we should consider pluralistic approaches and methodologies. As a conclusion this study indicates that the paradigm discourse does not only concern an elusive concept of a paradigm, but deeper intellectual awareness of entrepreneurship's socio-historical roots and its identity.*

**PAULA KYRÖ**, Research professor of entrepreneurship education

School of Economics and Business Administration at University of Tampere • e-mail: paula.kyro@uta.fi

## 1. THE DIALOGUE OF A SCIENTIFIC INQUIRY IN ENTREPRENEURSHIP RESEARCH

The methodological dialogue of entrepreneurship research has recently strengthened. The concept of a paradigm often emerges explicitly or implicitly in this context. This dialogue also shares a concern about research's ability to genuinely describe the essence of entrepreneurship or entrepreneurial processes and human behaviour. (Bygrave 1989a and b, Davidsson 2001, Grant and Perren 2002, Hofer and Bygrave 1992, Jennings, Perren and Carter 2005, Sexton and Smilor 1986, Stevenson and Harmeling 1990).

The current outlook of the methodology in leading journals in 1999 and 2000 indicates that this shared concern is valid. The study of their 337 articles showed that the majority focused on sophisticated statistical methods as a self-evident idol for rigorous scientific inquiry (Kyrö and Kansikas 2005). This is also evident in Grant and Perren's (2002) article that identified functionalism as a dominating paradigm in recent articles of leading journals. The conception of these difficulties has led to pursue the need for a multi-paradigm or pluralistic perspective for research (e.g. Jennings, Perren and Carter 2005). For example "The journal of Theory and Practice" published a special issue in 2005 in order to encourage applying alternative paradigms (Jennings, Perren and Carter 2005). This issue provided four articles, representing textual analyses, critical discourse analysis, narratives and finally sociological lens for presenting motion-driven explanation for entrepreneurial behaviour.

Also the use of a paradigm in the current dialogue treats this concept as self-granted or focuses on the logic of reasoning. Kuhn's concept of a paradigm and Burrell and Morgan's paradigmatic taxonomy have often provided the frames of references and inspired to study how entrepreneurship studies and learning could be positioned or interpreted within them (e.g. Bhalla, Hendersson and Watkins 2005, Grant and Perren 2002, Jennings, Perren and Carter 2005). Thus even these examples provide the multi-paradigm approaches to entrepreneurship research they also might set the limits for this dialogue.

For example Bygrave's (1989 a and b) articles "The entrepreneurship paradigm I and II" in the Journal of Entrepreneurship Theory and Practice applies Kuhn's ideas of a revolutionary development of a scientific inquiry. It argues that advancing methodology relates to its ability to describe and understand human behaviour. His epistemological contention relates to the logic of reasoning. He suggests that "entrepreneurship as an emerging paradigm, in the pre-theory stage" needs more inductive methods, based on empirical observations, than on deductive reasoning with statistical analyses. Per Davidsson (2001) arguments are parallel to Bygrave's. He claims that both inductive and deductive studies are needed. Both of these authors look for a solution from a logic of reasoning and use the concept of a paradigm, without explicitly defining

what they mean by it. They also raise the question of the difficulty of expecting a new paradigm to emerge without accidental discoveries or inventions. However, they don't explicitly refer to the logic of discovery and an abductive reasoning in this context.

Stevenson and Harmeling (1990) had similar thoughts but more intensively connected to the theory building. They argued that the theory of change and the theory of equilibrium are both needed and internally consistent. They also claimed that most of the present theory used to explain corporate entrepreneurship is based upon an implicit assumption that we are examining a set of equilibrium-based phenomenon. Its goal is in describing the world as it is. They also suggest that knowledge must be understood as behavioural processes rather than as outputs.

The problem with these applications is that even though Burrell and Morgan's (1979) essential argument and the other dimension of the matrix concerns the assumptions of how the change and role of the society is treated, the actual changes in society has not been harnessed to the analyses, but only the ideas of its nature.

Characteristic to both, the applications of Kuhn's and Burrell and Morgan's frame of references is though to take as a point of departure the contemporary research and the assumptions underlying these frames. The authors also usually only refer to the early contributors as a point of departure in order to start their own analyses (e.g. Bygrave 1989a and b, Huse and Landstrom 1997). These are actually serious problems in the contemporary research since its dominating profile seems to focus on firm/business in the present (Kyrö and Kansikas 2005). It is rare to find either historical or future methods.

Thus it is not only the question of elusive concept of a paradigm, but deeper intellectual shortage of the awareness of entrepreneurship's socio-historical roots and relationship to the historical methodological debate. These problems provide opportunities this article addresses its attention to. First I approach Kuhn's concept of a paradigm and its position in the dynamic debate of a scientific inquiry. Then I will reflect these results to the history of entrepreneurship research by applying the socio-historical method. I wish both to provide a new angle to the contemporary methodological dialogue and to reposition entrepreneurship research more fundamentally to its methodological roots. I think this might be something Grant and Perren (2002, 185) actually strive for in suggesting "whether a Hegelian or Kuhnian perspective on knowledge production is taken, it is clear that the health and future development of research in this area requires a broadening of perspectives to enable debate, friction, creativity and ultimately new theories and understanding". Finally this journey to the past actually provides a transitional alternative to Kuhn's revolutionary approach.

## 2. PARADIGM AND THE ELEMENTS OF A SCIENTIFIC INQUIRY

I start to approach the concept of a paradigm and the elements of a scientific inquiry through their history and context. Kuhn's revolutionary approach and the concept of "paradigm" are actually an outcome of an intensified discourse of the dynamics in science that has gained strength, especially in the latter decades of the 20<sup>th</sup> century. The purpose for this debate has been explained from two directions. First a tremendous growth of scientific knowledge has generated different suggestions about its nature, its relationship to surrounding reality and, on the other hand, to propositions on how this or relevant and valid knowledge, in general, is supposed to be acquired or created (Audi 1995, Feyerabend 1999, Kuhn 1962, Popper 1992/1959, Rorty 1986). This search has produced new concepts or conceptual units larger than a theory or a method, helping us to take into account, for example, the school system and structure and the time span of the theory building. (e.g. Kuhn 1962, 247–248, Popper 1992, 1959, 1986). Paradigm and for example tradition, are among the concepts generated for that purpose (Niiniluoto 1984).

Secondly is claimed that the dynamic debate basically challenges 'the empiricists' view towards the theory change as an ongoing smooth and cumulative process in which empirical facts, discovered through observation or experimentation, forced revisions in our theories and thus added to our ever-increasing knowledge of the world. It was claimed that, combined with this process of revision, there existed a process of inter-theoretic reduction that enabled us to understand the macro in terms of micro, and that ultimately aimed at a unity of science". (Audi 1995)

These motives provide some essential elements of a scientific inquiry. They highlight such issues as the assumptions of science's role in reality as well as the nature, structure and process of the dynamics of a scientific inquiry. As the introductory chapter reveals entrepreneurship research has neglected the connections and relationships between these aspects, presented them as self-granted in the context of a paradigm or explicated them through the structure of reasoning.

Next I try to reflect how these neglects have set the limits for the methodological dialogue of entrepreneurship research and sometimes even provided paradoxical results. For this purpose I have chosen from the dynamic debate those contributors I have found as different in their thoughts namely Gaston Bachelard (1884–1962), Karl Popper (1902–1994), Thomas Samuel Kuhn (1922–1996) and finally Feyerabend (1924–1994).

*Gaston Bachelard* (1884–1962), the early representative of the dynamic debate of a scientific inquiry, a French philosopher of science and a literary analyst generated a dialectical and cyclical approach to the scientific inquiry in his books "The New Scientific spirit", 1934, and "Rational Materialism", 1953. For him, scientific knowledge proceeded through a dialectical process of reason and experience. He claimed that new scientific knowledge may lead to a fundamental reformulation of reality (The Columbia Encyclopedia 2002). He viewed science as

developing through a series of discontinuous changes (epistemological breaks). Such breaks overcome epistemological obstacles: methodological and conceptual features of common sense or outdated science that block the path of inquiry (Audi 1995, 59). Thus Bachelard suggests that scientific knowledge is a cultural product, both describing and creating reality. The experience also binds his claim to reality and content.

*Popper* (1992/1959) on his behalf, claimed in his world famous book "The Logic of Scientific Discovery", that, science is not a system of certain, or well-established, statements; nor is it a system which steadily advances towards a state of finality. Our science is not knowledge (episteme): it can never claim to have attained truth, or even a substitute for it, such as probability. According to him the old scientific ideal of episteme – of absolutely certain, demonstrable knowledge – has proved to be an idol. He used the expression, a theories theory, describing the advance towards theories of an ever-higher level of universality. As a theory of rules for scientific method he applied the term "quasi-inductive". It refers to a sort of interplay between a deductive and an inductive method. The idea of a theories theory and a quasi-inductive process are his proposition of scientific dynamics and structure (Popper 1992/1959).

Popper's main concern was the problem of cosmology: the problem of understanding the world – including ourselves, and our knowledge, as part of the world (Popper 1992/1959, 15). However, his main point in this context on one hand, is the idea of science as a dynamic open-ended and open-minded process, and on the other, it highlights a need for larger conceptual units, as he expressed it, a theories theory or, from a methodological perspective, a theory of rules of scientific method.

These ideas were moulded in Kuhn's hand, a bit later, into the idea of a revolutionary development of paradigms. For Kuhn, the paradigm is a key component in the development of scientific knowledge. In his world-famous book, "The Structure of Scientific Revolution" he suggests that paradigms are conceptual world-views. Immature sciences are characterised by not having established any paradigms yet. Paradigm shifts occur when the old one is shown to be inadequate. Then a total re-evaluation of research is needed. Concepts are turned upside down, earlier research must be reinterpreted and nothing is what it seemed to be, despite its still being the same phenomenon that is described. This is called crises leading to paradigm shifts.

Kuhn suggests that scientific work and thought are defined by paradigms consisting of formal theories, classic experiment and trusted methods. (Kuhn 1996). The starting point for Kuhn was the difficulties between the natural and social sciences.

"Yet, somehow the practice of astronomy, physics, chemistry, or biology normally fails to evoke controversies over fundamentals that today often seem endemic among, say psychologists or sociologists. Attempting to discover a source of this difference led me to

recognise the role in scientific research of what I have since called 'paradigms'. These I take to be universally recognised scientific achievements that for a time provide model problems and solutions to a community of practitioners. Once that piece of my puzzle fell into place, a draft of this essay emerged rapidly." (Kuhn 1996, x)

It should be noted that Kuhn seems to found his concept of paradigm from endogenous debates of specific fields of science. Kuhn proclaims that paradigm change profoundly concerns how to see reality, not the changes of reality itself.

"...the historian of science may be tempted to exclaim that when paradigm changes, the world itself changes with them. Led by a new paradigm, scientists adopt new instruments and look in new places. Even more important, during revolutions scientist see new and different things when looking with familiar instruments in places, they have looked before. It is rather as if the professional community had been suddenly transported to another planet where familiar objects are seen in a different light and are joined by unfamiliar ones as well. Of course nothing like that occurs. There is no geographical transplantation: outside the laboratory everyday affairs usually continues as before. Nevertheless, paradigm changes do cause scientists to see the world of their research-engagement differently. In so far as their only recourse to that world is through what they see and do, we may want to say that after a revolution scientists are responding to a different world" (Kuhn 1996, 111)

Also his explanation of the dynamics of science excludes the role of technological advance or of external social, economic, and intellectual conditions that might make a difference in a paradigm discussion (Kuhn 1996). Finally he seems to be interested in the internal dynamics of the scientific community rather than science's role in society.

"Effective research scarcely begins before a scientific community thinks it has acquired firm answers to questions like the following: What are the fundamental entities of which the universe is composed? How do these interact with each other and with the senses? What questions will legitimately be asked about such entities and what techniques employed in seeking solutions? At least in mature sciences, answers (or full substitutes for answers) to questions like these are firmly embedded in the educational initiation that prepares and licenses the student for professional practice." (Kuhn 1996, 5)

Kuhn's ideas were not approved without criticism. Perhaps one of the most extreme one was presented by Feyerabend. His main thesis concerning the structure of science was that "the events and results that constitute the sciences have no common structure; there are no elements that occur in every scientific investigation but are missing elsewhere" (Feyerabend 1997, 280). Suc-

cessful research does not obey general standards: "it relies now on one trick, now on another, and the moves that advance it are not always known to the movers. He was concerned about science's ability to catch the reality. He claimed that philosophers complicated their doctrine, but they did not bring it closer to reality" (Feyerabend 1999, 282).

The summary in Table 1 indicates that the elements of a scientific inquiry vary between contributors. There are four different explanations of its dynamics; cyclical, evolutionary, revolutionary and ad hoc. Comparing Kuhn's position to the other explanations reveals that he is only one who is primarily interested on one hand in the dynamics of a scientific community, on the other hand, in the endemic nature of a specific fields of science. This parts Kuhn from the surrounding context and thus justifies Fayerabend's concern. Considering the interplay between science and reality, the ideas of these contributors varies. For Bachelard science fundamentally

**TABLE 1. Summary of analysis of the dynamics of a scientific inquiry.**

Contributor	Role of science in reality	The nature of the dynamics of the development of scientific inquiry	The process of scientific inquiry	The structure of reasoning
Gaston Bachelard (1884–1962)	A fundamental reformulation of reality	Cyclical: science develops through a series of discontinuous changes	Science develops through a series of discontinuous changes (epistemological breaks). Such breaks overcome epistemological obstacles	A dialectical process of reason and experience
Karl Popper (1902–1994) evolutionary	To understand the world including ourselves, and our knowledge, as part of the world	Evolutionary	Science as a dynamic open-ended and open-minded process proceeding towards theories of an ever-higher level of universality	"Quasi-inductive", a sort of interplay between a deductive and an inductive method
Thomas Samuel Kuhn (1922–1996)	Science has its own internal dynamics in reality	Revolutionary		Based on consensus of a scientific community
Paul Feyerabend (1924–1994)	Science needs to describe reality	Ad hoc	Accidental discoveries and invention	No specific structure

reformulates the reality and for Popper there is a need to understand the world and human actors in that world and finally Feyerabend seems to demand understanding of reality. Thus the interplay between science and reality seems to be social condition for all these contributors no matter what kind of explanation they generate for it. The structure of reasoning plays important role only in Popper's explanation.

Reflecting this on the contemporary dialogue of entrepreneurship research leads to a confusing result. The unquestioned use of paradigm frames has led to accepting the revolutionary development as a self-granted model for the dynamics of a scientific inquiry. On the other hand the focus on the structure of reasoning between inductive and deductive method seems to lead to a dualism that none of these contributors rely on. Finally the shared concern about research's ability to genuinely describe the essence of entrepreneurship or entrepreneurial processes and human behaviour seems to refer to the same concern Feyerabend had. This indicates that the methodological dialogue is still fragmented and strives for more holistic, context-bound approaches for understanding its current position, historical roots and future opportunities. The method of social history provides an opportunity for that purpose.

### **3. SOCIO-HISTORICAL METHOD AND TRANSITIONAL APPROACH TO THE DEVELOPMENT OF ENTREPRENEURSHIP**

Social historical method has revived during the last 30 years as history in general has risen in interest. It does not concern only the methodology but also its efforts to cross the boundaries between different fields of science and to integrate different problems in society. Instead of government and power, the emphasis has focused on action, interaction and comparisons. In entrepreneurship research, however, it seems to be nonexistent. Out of 337 articles published in 1999 and 2000 in leading entrepreneurship journals only one used historical method, and none socio-historical (Kyrö and Kansikas 2005).

This method aims to provide explicit answers to contemporary questions in society (Haapala 1989). The most popular research area in social history has been industrialisation and the most recent trend applies a cultural approach in its broadest sense. Through culture, successful patterns of behaviour and values guiding that behaviour will be transferred from the past to the present and on to the future (Aaltio-Marjosola 1991, Hofstede 1991, Kyrö 1996). Culture means a collectively-created reality, conscious or unconscious; it is not something that just happened, it is made (Hofstede 1991, Kyrö 1996). In this process science is not independent of the environment and its incidents, or only describing what is taking place around it, but rather it takes part in constructing the reality around us. This assumption is perhaps closest to what Bachelard understands as the dynamics of a scientific inquiry.



Conceptions can be approached historically from two perspectives; we can either take the concepts as they are defined now and apply them to history or we can regard them as reflections of the time and place of their birth and approach them from their history as interplay between science and reality. For example Baumol (1990) has used the first approach in his historical article of Entrepreneurship: Productive, Unproductive and Destructive. He defined first what entrepreneurship is and then found evidence from history in order to verify his hypotheses. I apply the second alternative and start from history by following the development of scientific discussions through time as an interactive, discursive process between scientific descriptions and events in the environment. Such an approach is chronological and theoretical, at the same time reaching both the substance and the structure, even though more emphasis is put on the process than the structure (Haapala 1989, Topolsky 1976). The data consists, on the one hand, of scientific theories, and on the other, incidents in reality.<sup>1</sup> In this context it should be pointed out that culture, as it is described here, is not worldwide, but implies instead Western civilisation.

The transitional approach, though, questions the evolutionary approach to entrepreneurship and revolutionary approach to the development of a scientific inquiry. It argues that as a cultural phenomenon entrepreneurship has developed through two transitions. Its role in these transitions relates to change in its broad sense from two perspectives: on one hand it creates new practices, while on the other it breaks down old systems and institutions.

The first, modern transition, took place at the beginning of industrialisation from the 18th to the beginning of the 20th century, when the traditional era finished. The descriptions of entrepreneurship followed the industrialisation and liberalisation processes from country to country. Since these processes are country-specific, this transition as a whole was relatively long. Out of the modern transition developed the modern era, which, for its part, started to draw to its close in the 1970's, when the post-modern transition occurred.

The scientific descriptions of entrepreneurship were born in France during the Enlightenment. (Schmoller 1881, Weber 1969) Their roots can be found from the ideas of the French physiocrats during the 18th century. They opposed mercantilism, feudalism and the craft system. For them entrepreneurship referred to a farmer and farming in free circumstances. (<http://www.mtsu.edu/~atvs2/quesnay.html> 24.3.1999) A bit later entrepreneurship started to be applied to emerging industry. It started to refer to extraordinary human beings who, with freedom and responsibility for their own life, through their own efforts and thinking, created something new, which in turn generated economic progress. (e.g. Barreto 1989, Casson 1982, Wilken 1979).

---

<sup>1</sup> The transitional framework used here is based on several studies more thoroughly described e.g. in Kyrö 1996, 1997, 2000 and further elaborated in different contexts Kyrö 1999, 2001. In this article I will present only the main conclusions.

Each phase, transition or era produced its own modifications of entrepreneurship according to its specific needs. In the transition from traditional to modern the focus was on the one hand the economic process at the macro-level, on the other hand, the extraordinary individual producing this process. The firm was not at that time the target of these descriptions, since the guild system tried to prevent the accumulation of capital e.g. through legislation, that prevented founding a company in Europe. The situation in the USA was easier in this respect.

In the modern era, when other conceptions of welfare started to dominate, explanations of economy were based on Adam Smith's ideas of free trade and the importance of expanding demand for an efficient economy. Smith thought that by expanding trade, it was possible to create work and thus satisfy citizens' needs. (Smith 1937) The growing demand and the separation of demand and supply created the illusion of an 'invisible hand' that was guiding the market. The human being as an actor was lost and the focus was on rational equilibrium from the macro as well as the micro-perspective. (Barreto 1989, Baumol & Blinder 1985, Bell 1981). Both the economy and society were enlarging their organisations and becoming detached from individual, human behaviour. The need for growth as well as institutional, collective and externally-organised rules and norms started to replace and subordinate human choices and small-scale practices. (Etzioni 1968, Schumpeter 2000, Zuboff 1988) When these ideals gained dominance, entrepreneurship was subordinated too and lost its role as a main creator of economic progress, starting to refer to small business management and ownership.

When the Western world met a decline in growth rates in the 1970's, followed by the notions of complexity and unpredictability, a new stream of discussions emerged (Piore & Sabell 1984). The discovery that rather small firms than large organisations created new work stimulated this discussion (e.g. Drucker 1986). There is much similarity between this discussion and that in France during the transition from traditional to modern. Again we are searching for new models for succeeding in new circumstances. In this post-modern transition, entrepreneurship has penetrated into e.g. organisational and learning theories with its original features, aiming to renew practices and to break up old systems. (Fiet 1999, Gibb 1993, Petrin 1991, Pinchot & Pinchot 1996).

Here I try to follow the methodological debate on these transitions. I refer to those contributors that have had an essential place in generating methodological debate in entrepreneurship research. It should be noticed, however, that shortly reporting the essential findings and ideas of these contributors does not do full justice to their ideas, but would require reading their original writings. Transitions also provide an arena for paradigm changes and the methodological renewal as Kuhn suggests. However, rather than revolutionary, this development is transitional containing contradictory ideas of the relationship between society, economy and their relationship.

The socio-historical method is always open to critics, since it aims at the same time to compile chronologically and theoretically valid answers to such questions as what happened, how

and why did it happen, in short what was it all about. On the other hand the dynamic debate of a scientific inquiry focuses on these aspects and on the other hand the current dialogue of the entrepreneurship methodology neglects them. Thus to give some new ideas that might eventually help to transfer and to reflect on the valuable openings of last transition into this one, can be regarded as a contribution of this article. The final evaluator is always the reader, who decides how coherently the story has been told, how "truth"full it seems to be.

## 4 ENTREPRENEURSHIP AND THE TRANSITIONAL DIALOGUE OF A SCIENTIFIC INQUIRY

### 4.1 The dialogue of three competing schools in the modern transition

Three competing schools parted from the French Physiocrats in the modern transition; The Classical School, the German historical School and The School of Entrepreneurship later known as the Austrian School. The chronological order and position of the French physiocrats as the grandfather of these three different schools has not always been noticed in entrepreneurship research. As a result the Classical school has been identified as a grandfather for all other schools (e.g. Bygrave 1989 a and b).

Parting from the physiocrats *The Classical School* started to challenge the German historical school, the grandfather of sociology. The School of Entrepreneurship on its behalf focused on individual action and challenged both of these (e.g. Ricardo 1821). The development of these schools has been a dialectical process, which means that even the same contributor can be positioned in two different schools depending on what phase of his writings is referred to. Therefore only strict historical context gives guide lines for identifying the differences between these schools. These differences emerge in the methodological bases and the context they emerge for and from.

All three schools parted from the physiocrats' ideas of the utmost conditions of natural laws. Each of them, however, focused on quite different ideas of the society and the economy as well as their relationships. The main concern of the Classical and later Neo-Classical school lay in the problems of increasing demand and supply as efficiently as possible. (Baumol and Blinder 1985, Bell 1981, Ricardo 1821). The German Historical School disagreed with the Classical school. For it the collective power of society formed the basis for all economic progress and mercantilism represented it. Entrepreneurship on its behalf took its assumption from human action and interaction of individuals with different wants and expectations. These differences emerge as methodological differences, which became evident in the 19<sup>th</sup> century's large methodological debate (e.g. Böhm-Bawerk 1890–1891).

This was the debate when the content was left under the method. Before that they were mainly treated together. Up till Enlightenment the aim of historical writings was very practical. It

was not a science but a form of practical, life-oriented activity consisting of narratives of single and separate facts where the content had the leading role. Only after that called as the critical phase, historical science was born out of the conflict with poetry. Its aim was to search for the truth about the past i.e. formulation of truth statements based on strict inductive reasoning from historical facts. (Topolsky 1976). In table 2 the process of a scientific inquiry of the physiocrats refers to these roots, since it is not clear what the Physiocrats actually thought about methodological issues. Thus I think this general lack of methodology might best describe their ideas.

The Classical school, called as "abstract-deductive school" challenged the inductive method of the German Historical School. It regarded it as too slow and unable to find really valuable explanations what was going on and what would happen in future in the political-economy.

"If now we review the grounds upon which stand the objections of the historical school to the "abstract-deductive" method and I use this name because it is convenient as a name, not because I am entirely satisfied .... I would point out the curious fact that though the historical school looks so contemptuously on deduction, yet to establish the proposition that abstract-deductive reasoning is not applicable to political economy, they make a brave use of abstract deductions. ..It is implied that all knowledge which could be derived by their methods they had derived to perfection from the material within their reach, so that a "further distillation of the abstract theses of the old dogmatism already a hundred times distilled" offers absolutely no prospect of further gain." (Böhm-Bawerk 1890–1891)

Böhm-Bawerk points out that following the inductive empirical method does not bring any answers to the contemporary problems needed to be solved and therefore there was a need for theory that organises the empirical findings as well as gives some light to the causes and their effects as well as gives credit to the experience and thus could give better explanations of reality. (ibid.)

"What then shall we do who come after? The answer, both metaphorical and literal, is a simple one. We have evidently a double task: we must by means of an improved, more careful, process, a stricter "distillation," extract the countless grains of truth still in the old one, and we must at the same time mine new empirical material for future refining, the richer the better. To speak plainly, there are those who suspect that in order to extract an adequate general theory from the given empirical material, just that due measure of abstraction and use of deduction is necessary which the historical school definitely reject." (ibid.)

Böhm-Bawerk seems to suggest that we invent theories not as a priori bases, but based as far as possible on both past experiences and immediate observation on reality and then we try to test

them through observations and correct them when needed. The problem he wanted to solve was the tremendous amount of useless empirical data that didn't get valid answers to contemporary problems. Accordingly it needed to be organised into the theories that give more universal explanations about the reality in order to help in improving society's welfare. This need for generalisation led to the domination of empiricism with rational equilibrium theories as explanations for economy as well as the process of revision and of inter-theoretic reduction.

These methodological and theoretical solutions were profoundly criticised even in its own time and by the members of its own school. Menger for example regarded Böhm-Bawerk's theory "as one of the greatest errors ever committed" (Garrison 1990)

Entrepreneurship research methodologically parted from both The Classical and The German Historical School and focused on subjectivity. Its difference to both the followers of the German Historical School, the Institutionalists and the Neo-classical school is evident in Ludwig von Mises (1981) writings about the praxeology, the science of human intentional action (Böhm-Bawerk, 1890–1891, Buchanan 1982, Rizzo, 1982). Garrison describes these differences as follows:

"Economics was increasingly coming under the sway of institutionalism, which denies economics altogether, and positivism, which sees no distinction between the social and physical sciences. Mises's answer was "praxeology," the science of human action, which sees each individual economic actor as having his own purposes and goals... Mises regarded positivism as especially dangerous. Not only was it scientifically invalid, but by treating people as inanimate objects to be manipulated at will, it gave would-be social engineers the perfect intellectual framework and justification for their activities. (Garrison 1990)

Mises tried to understand the method of the old subjectivists. He argued that economic science could not be verified or refuted through the analysis of observable data, but by deriving all definitions of terms from the fundamental proposition that human beings act. To the extent that this can be done, the terms will be useful, to the extent it cannot, they should be discarded or replaced. This he called as methodological apriorism. Whereas a priori assumptions in mathematics are useful in describing objective, physical phenomena; the a priori assumption that human beings act is useful in describing subjectively interpreted human action and interaction. (Gunning 1996) Mises suggested that praxeological reasoning consists of using logic (as opposed to mathematics or scientific observation) to construct images of human action and interaction. Interaction refers to how actors anticipate, react, and adjust to each other's wants, abilities, knowledge and plans. This was and still is methodologically problematic and also has been criticised, since it leaves us only the idea of image of human action that should be separated from the physical world and the problem to differentiate economic action from other branches of human action.

The comparison between these three schools summarised in table 2 though indicates that their differences are evident. Each of them represents different focus of the relationship between society and economy, explicates different structure of reasoning, different ideas of the process of a scientific inquiry and the role of science. It is also obvious that none of these issues alone can describe the essence of each school, but rather the interplay of all of them.

On the other hand this comparison also indicates that in the modern transition we can identify the School of Entrepreneurship with its own methodological and theoretical roots. As Kuhn suggests theories and methodology are irrevocable intertwined to each other (Kuhn 1996, 66). Accordingly rather than claiming that entrepreneurship is an emerging paradigm, in the pre-theory stage, it suggests that entrepreneurship should return to its paradigmatic roots.

However, it is not obvious that the explanations and accordingly the dynamics of a scientific inquire they represent offer universal solutions, but rather strictly context bound solutions to the contemporary problems. This becomes evident by following how the dialogue between these three schools proceeds in the modern time and finally in the post-modern transition.

## **4.2 Dominating debate and entrepreneurship in the modern era**

The modern era developed from the transition when societies, in this case western industrialising societies, reached the consensus about the models and behaviours for providing their prosperity. For the Classical school the premise for welfare was growth generated by open competition and rational, homogeneous actors with economic motivation. For the Institutionalists, state and collective power was the premise for welfare and economic progress. The role of Institutionalists was on one hand, to control the market and look after its marginalities and externalities, on the other hand, to provide the infrastructure for economic progress, i.e. growth. Thus both of these maintained their position and the debate between them dominated the modern time.

Entrepreneurship lost its connection to economy and society in large. It also lost its methodological roots and adopted dominating methods of the modern time. It maintained its own but at the same time a diminishing identity, which focused on the relationship between business and individual.

To explicate this process I reflect on the development of Schumpeter's ideas by looking into three directions; first into his original theory of business cycles, second into the form it took in his response to the critics towards the theory and finally his broader perspective to the economic development (Clemence 2003, Schumpeter 1996a, and 2005). His original explanation of business cycles leans on entrepreneurial behaviour and binds together an individual heroic entrepreneur, the internal development of a business system in the capitalistic economy.

However, his responses to the critics his theory received and his later arguments focused on the dynamics of the cycle as a contradiction to the equilibrium theory and as reflection to other

cyclical theories. The role of an individual entrepreneur became "merely the bearer of the mechanism (Schumpeter 2005, xxv). His ambition to develop a general theory of economic development also parted his explanation from its context. He argued that "I have taken into account not of one factor of historical change, but of none" (Schumpeter 2005, xxv) Quoting his words we should make a difference between the causes and effects. Transitional approach suggests that during the development of the modern era his theory of business cycles actually described the effects of the dominating equilibrium theory.

In "Capitalism, Socialism and Democracy" Schumpeter takes a broader approach to economic development and view it as the reflection of society's development at large (Schumpeter 2000, 169). I think Schumpeter started to be uncertain of the power of an overall explanation of the capitalist economy. He abandons the concept of destruction and adopts the concept of transformation. (Schumpeter 2000, 162). He also starts to ponder human social behaviours in large. Now he creates a new concept of "commercial capitalism". The transitional approach explicates this as a result of the dominating debate between the Institutional and Neo-classical schools. Thus Schumpeter's original idea of an entrepreneurial capitalist economy vanished from his theory. His concept of a commercial capitalism actually summarises the ethos and consequences of the modern era.

In the modern era, the focus on entrepreneurship research addressed either to the small-business ownership and management or to the individual features of an entrepreneur. As an individual level research focused either on identifying personal traits of entrepreneurs as different from non-entrepreneurs or on studying demographic background of an entrepreneur. As small business level the focus was on understanding different functions of small businesses as a reduction of large businesses. (Fayolle, Kyrö and Uljin 2005)

Methods were looked from the psychology, social psychology, in some respects from anthropology and towards the end of the era also from management and organisation science. The idol for methodological choices came from empiricism, from deductive reasoning and statistical analyses (e.g. Brush 1992, Churchill and Lewis 1986, Kyrö and Kansikas 2005, Wortman 1986).

Consequently the development of the modern time explicates, how the schools of thought are not isolated from each other or the incidents in surrounding reality, how the dominating debate moulds others and finally how the dynamics of a scientific inquiry develops as interplay between these. On the other hand identifying these three different schools, their interplay and development makes understandable the claims of the pre-mature phase of entrepreneurship in the post-modern transition. These reflect rather the outcome of the debate of other schools than entrepreneurship. Compared to Kuhn's idea of the endemic nature of a paradigm change, it rather reflects and interacts with changes in reality, not only changes the view of that reality. This becomes apparent in facing the post-modern transition.

TABLE 2. Transitional approach and competing schools and methodologies.

MODERN BREAKS FROM TRADITIONAL - 18 <sup>TH</sup> CENTURY	
School of thought and the Contributor	Physiocrats Quesnay, Turgot (1727-1781)
Focus on the idea of society and economy	Welfare came from the land under the laws of nature. Opposed the feudalism, the crop system and mercantilism.
Process of the scientific inquiry	(Holistic) descriptions about reality through experiences and observations
Assumption about the science's role in reality	Nature as a complete integrated, purposeful system with man an integral part of it.
Structure of reasoning	(Narrative)
THE MODERN TRANSITION DEVELOPS 1800 <sup>TH</sup> AND 19 <sup>TH</sup> CENTURIES	
The dialogue between three different competing schools	
School of thought and the Contributor	<p><b>German Historical school</b>                      Wilhelm Röpcher (1817-1894), Bruno Hildebrandt, Karl Kohler, Gustav Schmoller (1838-1917)                      Max Weber (1864-1920)</p> <p><b>Classical school</b>                      Adam Smith (1723-1790)                      David Ricardo (1772-1823)                      Thomas Robert Malthus (1766-1834)</p> <p><b>Entrepreneurship</b>                      Eugen von Böhm-Bawerk (1851-1914)</p> <p><b>Neo-Classical school</b>                      Leon Walras (1834-1910)                      William Stanley Jevons (1805-1882)                      Karl Menger (1840-1921)                      Eugen von Böhm-Bawerk (1851-1914)</p> <p><b>The early phase of the Austrian school</b>                      Friedrich von Wiesner (1851-1926)                      Joseph Schumpeter (1883-1950)                      Joseph Schumpeter in Austria in 1910's                      Ludwig Von Mises (1881-1973)</p> <p><b>Early American institutional school</b>                      Thorstein Veblen (1857-1929), John R. Commons (1862-1945)                      Wesley Mitchell</p>
Focus on the idea of society and economy	<p>The collective power of society is the utmost for welfare                      Mercantilism provides best result for economic progress.</p> <p>Expanding demand creates welfare in free markets                      'The national equilibrium between supply and demand leads to most successful result'</p> <p>The action and interaction of different individuals create economic prosperity.</p>
Process of the scientific inquiry	<p>The present and future could be understood through past</p> <p>Science should explain past and future                      needs into theories</p> <p>Not clearly explicated</p>
Assumption about the role of science in reality	<p>Science's role is to understand how the collective power of society takes place as a result of past.</p> <p>Science should be able to understand contemporary and future problems that have clear connections</p> <p>Science understands the economy provided by human action, values and choices</p>
The structure of reasoning	<p>Inductive</p> <p>Abstract-deductive</p> <p>Focus not a reasoning but human action as a prior assumption</p>



<p><b>THE MODERN ERA 1900-1945-</b>  <b>Debate of two dominating schools, empiricis and quantitative methods as an idol for rigorous reseach</b></p>			
The School of thought	The contemporary institutional school (1900-)	The Neo-Classical school (1945-)	The American-Austrian School
The focus on the idea of society and economy	Focus on society	Focus on economy	Focus on entrepreneur and small business
The idol of the process of the scientific inquiry	Empiricism	Empiricism	Melied to empiricism
Assumption about the science's role in reality	Science describes reality	Science describes the reality	Science describes the reality
The structure of reasoning	Deductive	Deductive	Deductive
<p><b>THE POSTMODERN TRANSITION 1970's onwards</b>  <b>The dialogue between three schools is about to start, methodological dualism, and debate between quantitative and qualitative research</b></p>			
School of thought	Institutional school	Neo-Classical economics	The school of entrepreneurship
The focus on the idea of society and economy	Still challenges the Neo-Classical School and starts the dialogue with entrepreneurship	Still dominates but is challenged by entrepreneurship and institutionalises	Expanding contexts and contents returning to the dynamics of human action
The process of scientific inquiry			dualism-quantitative/qualitative
Assumption about the science's role in reality			Varies describe/create
The structure of reasoning	inductive/deductive debate	Deductive	Inductive/deductive debate
<p><b>THE POSTMODERN ERA 2010-???</b>  <b>ENTREPRENEURIAL ECONOMY?? – ENTERPRISING SOCIETY??</b>                      human action enters the dialogue, process theories and methods, the boundaries between qualitative and quantitative methods fade and intelligent soft computing solutions create new opportunities for methods and global virtual communication, methodological pluralism</p>			

### 4.3 The dialogue of a paradigm change in the postmodern transition

In the post modern transition, when societies again entered in the complex and complicated transition the position of entrepreneurship strengthened. It has brought along a need to study and demand for new methods of the dynamics of individual, organisational and cultural changes. In this transition also the Institutionalists and entrepreneurship has opened the dialogue. Both of them challenge the Neo-Classical school from their own perspectives.

The focus of the contemporary entrepreneurship research has expanded. Besides the dialogue between business and innovation and the individual-oriented approach, it has started to expand its content and scope towards collective entrepreneurial processes. We have moved from the question of entrepreneur's role in the economy through identifying the assumptions of specificities of an individual entrepreneur and the basic functions of the small firm, towards the idea of the importance of entrepreneurial practices and processes first for the growth, but also for more extended cultural and networking view of its contribution in renewing society. (Fayolle, Kyrö and Uljin 2005)

The dialogue between business and innovation focuses on new venture creation, new economic activities and innovativeness (e.g. Timmons 1994). Growth is often combined with the debate on newness or is taken as a measure of it (e.g. Davidsson, Delmar & Wiklund 2002, Venkataraman 1997). These explanations in many respects return to Schumpeter's original ideas of entrepreneurship and his ideas of a business cycle. Compared to the modern era, now the focus has turned from the functional approach to the process approach. (Bygrave & Hofer 1991, Gartner 1985, 1988, 1993, Kirzner 1982, Stevenson & Jarillo 1990, Van de Ven 1992).

The research of the individual entrepreneur has left behind the biological interpretations. It has turned to behavioural theories and started to inquire into education. Its aim has been to support and develop models and theories for entrepreneurial and enterprising behaviour (Gibb 1993). Its essence leans on human behaviour as a prerequisite and as a result (e.g. Carland & Carland 1991). In this respect it follows Mises foot steps and faces also same methodological problems.

The aim of these two is to enhance the development of entrepreneurial and/enterprising economy and society, not only in the western countries but also in transitional economies all over the world. Hence entrepreneurship research has started to expand its concept and scope to networks, regions and nations. In this respect we return to the aims and means of the modern transition. Thus the problem faced already in last transition is still valid – how to combine individual human behaviour, businesses and the economy.

Even the empiricism has still sustained a strong position, but in the recent studies also non-dualism and qualitative methods are about to take their places. (Choi, 1993, Neergaard & al. 2006, Hill & Wright 2001, Macmillan & Katz 1992, Stevenson & Harmeling 1990). Perhaps this current state of entrepreneurship might be best described as methodologically dualistic, but as

searching again for non-dualistic ontology based on a priory assumption of human behaviour. This is manifested in the contemporary paradigm discourse of entrepreneurship.

The hidden agenda of dualism emerges as the debate of the structure of reasoning which ponders the need of both deductive and inductive reasoning and their relationship to quantitative and qualitative research as for example Bygrave and Davidsson do. On the other hand the transitional approach reveals that Stevenson and Harmeling's argument for the need of both the theory of change and the theory of equilibrium is contradictory to the very phenomenon of entrepreneurship. It reflects and can be regarded as an outcome of the influence of the modern era.

Searching for non-dualistic ontology relates to the shared concern about research's ability to genuinely describe entrepreneurial processes and human behaviour. The transitional approach reveals that now we are returning to the essence of the original roots of entrepreneurship and its contradiction to two other Schools of thought. Transitional approach indicates that entrepreneurship emerges in complexity that requires understanding human behaviour and this is the case when society needs to on one hand to renew its current practices and on the other to break down its old practices. The requisite of a methodological reform relates to this need. As Bygrave argued advancing methodology relates to its ability to describe and understand human behaviour.

The transitional approach gives some light to the claims of a pre-mature phase and the pre-theory stage of entrepreneurship. Transitional approach explicates that the change and its relationship to human action and the welfare of societies are in the core of entrepreneurship and entrepreneurship emerges when societies need to change their previous practices and idols for their prosperity. Thus the contemporary dialogue rather returns to the historical roots of entrepreneurship than reflects the pre-theory stage. On the other hand still valid critic towards the problems of praxeology indicates that we did not proceed very far in solving the methodological problems of investigating human action before we faced the modern era. Thus considering the relationship between theories and methodology entrepreneurship seems to hold to the pre-mature phase. I think advancing this relationship is one of the most important future challenges for entrepreneurship research what ever context it relates to.

The post-modern transition discourse of the need for a multi-paradigm or pluralistic perspective for research looks now a bit different. This relates to my claim that the unquestioned use of paradigm frames has led to accepting the revolutionary development as a self-granted model for the dynamics of a scientific inquiry and further this has also set the limits for the contemporary paradigm discourse. To reflect this I revisit the conclusions of the concept of a paradigm and its relationship to the elements of a scientific inquiry.

## 5. FROM REVOLUTIONARY DEVELOPMENT TO THE TRANSITIONAL DIALOGUE

The motives for developing the concept of a paradigm suggested that we should broaden our awareness from Kuhn's endemic development of a scientific community to the interplay between science and surrounding reality. A short comparison between four contributors in this field provided four different explanations of the dynamics of a scientific inquiry; cyclical, evolutionary, revolutionary and ad hoc. This socio-historical investigation indicates that perhaps the transitional approach offers an alternative that combines Kuhn's elements of a paradigm to the interplay between science and surrounding reality. By following Table 2 that summarises the results of the transitional approach chronologically and theoretically, provides also an opportunity to profile the identity of entrepreneurship and its relationship to the paradigm change.

The dialogue between three different schools – The Classical School, The German Historical School and the School of Entrepreneurship – parted from The Physiocrats in the modern transition. The comparison between these schools indicated that their differences were evident. Each of them represents different focus of the relationship between society and economy, explicates different structure of reasoning, different ideas of the process of a scientific inquiry and the role of science. It is also obvious that none of these issues alone can describe the essence of each school, but rather the interplay of all of them. In the modern transition we can identify the School of Entrepreneurship with its own methodological and theoretical roots. Accordingly rather than claiming that entrepreneurship is an emerging paradigm, in the pre-theory stage, it suggests that entrepreneurship has its own identity and paradigm. However, it is not obvious that the explanations and accordingly the dynamics of a scientific inquire they represent offer universal solutions, but rather strictly context bound solutions to the contemporary problems.

Entrepreneurship was in marginality in the modern time. It lost its connection to economy and society in large. It also lost its methodological roots and started to methodologically melt into the prevailing idol of empiricism. However, it still managed to maintain its own but at the same time a diminishing identity, which focused on the relationship between business and individual. The dominating dialogue took place between the Institutional and Neo-classical schools.

But as soon as the qualities of its identity were needed in chancing reality, it revived again. This took place in the second transition in its life cycle. Now it is rebuilding its identity and revisiting to the methodological problems it faced in the first transition. These transitional emergences indicate that perhaps we do have the concept of an entrepreneurial economy. Entrepreneurial development has gained dominance only in transitions, in this respect it has turned out to describe changes as Schumpeter declared. This development does not reflect only the changes in the interest of entrepreneurship researchers, but also how different disciplines evolved their own identities.

This historical path explicates, how the schools of thought are not isolated from each other or the incidents in surrounding reality, how the dominating debate moulds others and finally how the dynamics of a scientific inquiry develops as interplay between these.

Transitional approach though suggests that Kuhn's definition of a paradigm should on one hand delimit, on the other hand, expand its scope. Kuhn proclaims that paradigm change profoundly concerns how to see reality, not the changes of reality itself. The transitional approach highlights that on one hand transitions occur when reality is changing and more over science rather reflects and interacts with changes in reality, not only changes of the view of that reality.

The key in understanding how the process of a scientific inquiry develops is thus to see it on one hand in its historical and cultural context and on the other hand to identify how the interplay between theories and methodology has taken place. It is not obvious though that the explanations and accordingly the dynamics of a scientific inquire they represent offer universal solutions, but rather strictly context bound solutions to the contemporary problems.

Entrepreneurship's relationship to the paradigm change is problematic, since transitions are characterised by changes. Transitional approach indicates that entrepreneurship emerges in complexity that requires understanding human behaviour and this is the case when society needs to on one hand to renew its current practices and on the other to break down its old practices. The requisite of a methodological reform relates to this need. Its identity though relates to and actually represents a paradigm change.

The modern era between transitions seems to have those characteristics Kuhn describe as a mature science. Characteristic to this is that it concerns all three schools providing a mutual models and methodologies. It is though larger agreement than Kuhn suggest.

As a conclusion of these perceptions it is not difficult to see that unquestionable use of a concept of the paradigm have strayed us from the very identity of entrepreneurship and led to confusing outcomes. Thus it has set the limits for the contemporary paradigm discourse

The identity of entrepreneurship this transitional approach exposes might also provide the cornerstones for the ontological bases of entrepreneurship – the shared world view in Kuhn's concept. Accordingly we cannot encourage applying multi-paradigm approaches as the contemporary discourse in entrepreneurship does. But we can encourage employing pluralistic approaches and methodologies. To revisit the ontological base that the history of entrepreneurship offers, might lead to more holistic, context-bind approaches for understanding the current position, historical roots and future opportunities of entrepreneurship. This might broaden our perspectives "to enable debate, friction, creativity and ultimately new theories and understanding" as Grant and Perren suggest. The transitional approach though might give us some seeds for a new angle to methodological discourses and to elusive concept of a paradigm. However, as in all investigations these seeds should be evaluated from methodological perspective in order to see how trustworthy the results are.

## 6. CONTRIBUTION AND ITS EVALUATION

Social historical study should be evaluated from two perspectives, first according to the questions it aims to answer, namely 1) what happened 2) how did it happen 3) why did it happen 4) what was it all about? Secondly it needs to be evaluated how coherently the story has been told; how "truth"full it seems to be. These questions, of course, relates to the specific aims of the study. In this case the current problems of neglecting the history of entrepreneurship and unquestioned use of paradigm frames led to suggest that the methodological dialogue of entrepreneurship research might benefit from studying its own intellectual heritage and its position in the development of a scientific inquiry.

The answer to the question "*what happened*" indicates in the course of history entrepreneurship research has lost its own roots and thus part of its historical identity. To explicate this required to follow its development in its socio-historical context.

The question "*how did it happen*" provided as an answer a concept of a transitional development of a scientific inquiry that suggests that a scientific inquire develops through transitions, rather than revolutions as Kuhn suggests. The process of developing a scientific inquiry in transitions is characterised by dialectical debates between different schools. The dominating position relates to those debates that provide the immediate success to the society.

The answer to the third question "*Why did it happen*"; *gives us the most exiting task for the future, since* entrepreneurship's role in paradigm changes seem to be the change itself.

*What was it all about?* Perhaps this question in this study concerns the very nature of science. The study indicates that the relationship between science and surrounding reality seems to be dialogical. Science gives some suggestions that mould reality and vice versa. In this respect besides Kuhn, it is possible also to learn from other contributors of the dynamic debate of a scientific inquiry. From Bachelard we can learn that scientific knowledge proceeds through a dialectical process of reason and experience. His epistemological breaks have many similarities with a transitional approach in the sense that there is effort to overcome epistemological obstacles: methodological and conceptual features of outdated science that block the path of inquiry. From Popper we can learn that science is not a system of certain, or well-established, statements; nor is it a system which steadily advances towards a state of finality that can claim to have attained truth, or even a substitute for it.

This dialogue actually is the measure for the success of the socio-historical study. Since the reader will be the evaluator of its validity. She/he will decide how coherently the story has been told, how "truth"full it seems to be. In entrepreneurship this means action. Is the picture painted here holistic and reasonable enough to be able to give raw material for acting upon.

In this respect I am sure there are many shortages. As the reader can see the table summaris-

ing this historical journey has gaps, which are waiting to be filled in the future. Methodological dialogue in the post-modern transition could be far more precise and arguments for anticipating the future are still open. For that I have sketched out some ideas. But as this investigation indicates, perhaps entrepreneurship will be an active partner only in this transition and lose its position again when the next era develops. Or perhaps the reader might be the painter for the future developments.

It is also easy to address critics to the argumentation of this investigation, since there is always a danger of circular reasoning and reductionism, both of which I have tried to avoid, but not necessarily succeeded. Most evident this is when it comes to the points of departure and the conclusions. It is easy to say that by stating a priori assumptions the results are bound to fit into these assumptions. Partly that is true in this study partly we can say that some of the assumptions are verified by this study. However, it is a matter of further studies if these results lay a solid enough ground for further developments.

Also it should be noticed that the concept of reality is not always consistent with the results. Saying that there is science and reality is not correct if science, as results of this study indicated, is a part of that reality and actually constructing it.

Thus whether this explanation of the interplay between entrepreneurship and a scientific inquiry is sufficient or has it at least some seeds for a coherent explanation, will seen in the future. If a scientific inquiry is dialectical, each explanation after all is just waiting for those other explanations. Perhaps this is the very core of a science. ■

## REFERENCES

- AALTIO-MARJOSOLA I.** 1991: Cultural Change in a Business Enterprise: Studying a Major Organizational Change and Its Impact on Culture, The Helsinki School of Economics and Business Administration, Helsinki.
- AUDI R.** 1995, gen.ed: The Cambridge Dictionary of Philosophy, Cambridge: Cambridge University Press. USA.
- BACHELARD G.** 1953: Rational Materialism, 1934 The New Scientific Spirit
- BARRETO H.** 1989: The Entrepreneur in Microeconomic Theory. Disappearance and Explanation. London-New York. Routledge.
- BAUMOL W.J. & BLINDER A. S.** 1985: Economics. Principles and Policy 3. edition. San Diego: Harcourt Brace Jovanovich Publishers
- BAUMOL W.J.** 1990: Entrepreneurship: Productive, Unproductive, and Destructive. Journal of Political Economy, volume 98.
- BELL D.** 1981: Models and reality in economic discourse, In Bell, D. & Kristol, I.(eds.) The crisis in economic theory, pp. 46–80. USA: Basic Books.
- BHALLA A.& HENDERSSON S. & WATKINS D.** 2005: The Origins and Lessons of Entrepreneurial Achievement: a Multi-Paradigm Perspective via the Case Method. In A. Fayolle, P. Kyrö and J. Uljin (eds.), Entrepreneurship Research in Europe: Perspectives and Outcomes. Cheltenham: Edward Elgar.
- BRUSH C. G.** 1992: Research on women business owners: Past trends, a new perspective and future directions. Entrepreneurship Theory and Practice, 16 (4) Summer 1992, pp. 5–30.

- BUCHANAN J. M.** 1982: 'The domain of subjective economics: Between predictive science and moral philosophy', In Kirzner I. E. (ed.) *Method, process and Austrian economics. Essays in Honour of Ludwig von Mises*, Lexington books. Toronto. Pp 7–20.
- BURRELL G. AND MORGAN G.** 1979: *Sociological Paradigms and Organizational analysis*. Hienemann Educational. London.
- BYGRAVE W. D.** 1989a: The Entrepreneurship Paradigm (I): A philosophical look at its research methodologies. *Entrepreneurship Theory and Practice*, 14(1), 7–26.
- BYGRAVE W. D.** 1989b: The Entrepreneurship Paradigm (II): Chaos and catastrophes among quantum jumps. *Entrepreneurship Theory and Practice*, 14(2), 7–30.
- BYGRAVE, W. & C. HOFER** (1991). Theorizing about entrepreneurship. *Entrepreneurship Theory and Practice* 16:2, 13–22.
- VON BÖHM-BAWERK E.** 1890–91: The Historical vs. the Deductive Method in Political Economy. Translated by Henrietta Leonard. *Annals of the American Academy*. Volume 1, (1890–91) <http://socserv2.mcmaster.ca/econ/ugcm/3113/bawerk/bohm001.html>
- CARLAND J.W. & CARLAND J.A.** 1991: An Empirical Investigation into the Distinctions Between Male and Female Entrepreneurs and Managers. *International Journal of Small Business*, 9(3), April-June, 62–72.
- CASSON M.** 1982: *The Entrepreneur. An Economic Theory*. Great Britain.
- CHURCHILL N.C. & LEWIS V. L.** 1986: 'Entrepreneurship research. Directions and Methods', In Sexton D.L. and Smilor R.W. (eds.) *The Art and Science of Entrepreneurship*. Cambridge: M.A. Ballinger, 333–366.
- CLEMENCE R.** 2003: *Esseys on entrepreneurs, innovations, business cycles, and the evolution of capitalism*, Schumpeter, Joseph A. With a new introduction by Richard Swedberg. Originally published 1951. (Transaction publishers. New Brunswick. USA).
- THE COLUMBIA ENCYCLOPEDIA**, 6th ed. 2002: New York: Columbia University Press, 2002. [www.bartleby.com/65/](http://www.bartleby.com/65/).
- CHOI Y.B** 1993: *Paradigms and Conventions: Uncertainty, Decision Making and Entrepreneurship*. Ann Arbor: University of Michigan press.
- DAVIDSSON P.** 2001: 'Towards a paradigm for entrepreneurship research', *Rent XV Research in Entrepreneurship and Small Business*, November 22–23. 2001. Turku, Finland. Conference proceedings, Vol. 1. Small Business Institute. Turku School of Economics and Business Administration.
- DAVIDSSON P., DELMAR, F. and WIKLUND** 2002: Conceptual and Empirical Challenges in the Study of Firm Growth In: *Handbook of Entrepreneurship* (2002), ed. by Donald, L. Sexton and Hans Landström. Blackwell Publishing Ltd, UK, 26–44.
- DRUCKER P.** 1986: *Innovation and Entrepreneurship*, London: Heinemann.
- ETZIONI A.** 1968: *Nykyajan organisaatiot. Foorum Kirjasto. Kustannusosakeyhtiö Tammi*. Helsinki.
- FAYOLLE A., KYRÖ P. & ULJIN J.** 2005 (eds.): *Entrepreneurship Research in Europe: Perspectives and Outcomes*, Cheltenham: Edward Elgar.
- FIET J. O.** 1999: *The Pedagogical side of entrepreneurship theory*. October 1999. Published 2000.
- FEYERABEND P.** 1997: *Against Method*, Third edition. Verso. London and New York
- GARRISON R. W.** 1990: *Austrian Capital Theory: The Early Controversies* supplement to vol. 22, 1990, pp. 133–154. Published in hardcover as Bruce J. Caldwell, ed. *Carl Menger and his Legacy in Economics* Durham, NC: Duke University Press, 1990. <http://www.auburn.edu/~garriro/d1bohm.htm> 22.2.2005
- GARTNER W.B.** 1985: A framework for describing the phenomenon of new venture creation, *Academy of Management Review*, 10, p.696–706.
- GARTNER W.B.** 1988: Who is an entrepreneur ? Is the wrong question ?, *American Journal of Small Business*, 12(4), Spring 1988, p.11–31
- GARTNER W.B.** 1993: Words lead to deeds : towards an organizational emergence vocabulary, *Journal of Business Venturing*, vol.8, n°3, p.231–239.
- GIBB A.** 1993: The enterprise culture and education. Understanding enterprise education and its links with small business, entrepreneurship and wider educational goals. *International Small Business Journal*, 11(3), 11–24.
- GUNNING J.P.** 1996: The old and new subjectivism. [http://www.gunning.cafeprogressive.com/subjecti/mean\\_sub/old\\_new.htm](http://www.gunning.cafeprogressive.com/subjecti/mean_sub/old_new.htm) 22.2.2005
- GRANT P. & PERREN L.** 2002: Small business and entrepreneurial research, meta-theories, paradigms and prejudices. *International Small Business Journal*, Vol. 20 (2), pp.185–211



- HAAPALA P.** 1989: Sosiaalhistoria. Johdatus tutkimukseen. Suomen historiallinen seura. Käsikirjoja 12. Helsinki.
- HILL J. & WRIGHT L. T.** 2001: 'A Qualitative research agenda for small to medium-sized enterprises', *Marketing Intelligence & Planning*, 19/6 2001, MCB University Press. 432–443.
- HOFFER C. & BYGRAVE W. D.** 1992: *Researching entrepreneurship. Theory & Practice*. Spring 92. Vol. 16 issue 3.
- HOFSTEDE G.** 1991: *Cultures and Organizations. Software of the Mind. Intercultural Cooperation and its Importance for Survival*. McGraw-Hill Book Company. London.
- http://www.mtsu.edu/~tvs2l 24.3.1999**
- http://www.mtsu.edu/~tvs2/quesnay.html 24.3.1999**
- HUSE M. & LANSTROM H.** 1997: Preface: European Entrepreneurship and Small Business Research Methodological Openness and Contextual Differences. *International Studies of Management and Organization*. Fall97, Vol. 27. Issue 3. p. 3–10
- JENNINGS, PERREN & CARTER** 2005: *Alternative Perspectives on Entrepreneurship Research. Theory & Practice*. March. 2005 pp. 145–152. Vol. 16 issue 3.
- KIRZNER I. E. (Ed.)** 1982: *Method, process and Austrian economics, Essays in Honour*
- KUHN T.** 1996, 1962: *The Structure of Scientific Revolutions*, University of Chicago Press.
- KYRÖ P.** 1996: The points of transition in reforming the understanding and meaning of entrepreneurship. In *Academy of Entrepreneurship Journal. European Edition. Volume 2, Number 1. 1996.* (pp. 71–94). Ref.
- KYRÖ P. & KANSIKAS J.** 2005: Current State of Methodology in Entrepreneurship Research and some Expectations for the Future. In A. Fayolle, P. Kyrö and J. Uljin (eds.), *Entrepreneurship Research in Europe: Perspectives and Outcomes*. Cheltenham: Edward Elgar.
- MENGER C.** 1981: *Principles of Economics*, Translated by James Dingwall and Bert Hoselitz, New York: New York University Press, 1981. (Originally published in German in 1871).
- VON MISES L.** 1981: *Epistemological Problems of Economics*, translated by George Reisman, New York: New York University Press, 1981. (originally published in German in 1933)
- VON MISES L.** 1996: *Human Action: A Treatise on Economics*, Chicago: Henry Regnery Company.
- NEERGAARD H. & ULHØI, J. P.** 2006: *Handbook of Quality Research in Entrepreneurship*, Cheltenham: Edward Elgar
- NIINILUOTO I.** 1984: *Johdatus tieteen filosofiaan. Käsitteen ja teorianmuodostus*, Helsinki: Otava.
- MACMILLAN I. C. & KATZ J. A.** 1992: 'Idiosyncratic milieus of entrepreneurial research: the need for comprehensive theories', *Journal of Business Venturing*. New York: Jan 1992, Vol. 7 Issue 1 pp. 1–8.
- PETRIN T.** 1991: Entrepreneurship and its development in public enterprises. s. 15–20 In *Entrepreneurship development in public enterprises, 1991: ed. by Prokopenko, Joseph – Pavlin, Igor. International Labour office Geneva. management Development Series No. 29. International Center for Public Enterprises in Developing Countries, Ljubljana.*
- PIORE & SABELL**, 1984: *The Second Industrial Divide: Possibilities for prosperity*, Basic Books, New York
- PINCHOT G. & PINCHOT E.** 1996: *Älykäs organisaatio*. Mermerus. Maarianhamina.
- POPPER K. R.** 1992: *The Logic of Scientific Discovery, USA and Canada: Routledge.* (First published in English 1959 by Hutchinson Education)
- RICARDO D.** 1821: *On the principles of Political Economy and Taxation*. John Murray, Albemarle-Street. London.
- RIZZO M. J.** 1982: 'Mises and Lakatos: A reformulation of Austrian methodology' In Kirzner I. E. (Ed.), *Method, process and Austrian economics*, Toronto: Lexington books, pp. 53–74.
- RORTY R.** 1986: *Consequences of Pragmatism, (Essays: 1972–1980) third edition USA: University of Minnesota Press, Minneapolis.*
- SCHMOLLER G.** 1897: *The Mercantile System and its Historical Significance. English edition 1897. A chapter from Studien über die wirtschaftliche Politik Friedrichs des Grossen, published in German, 1884. Lähde: http://socserv2.socsci.mcmaster.ca/con/ugcm/3113/schmoller/merchant*
- SCHUMPETER J.** 1996a: *The March into Socialism*, in Schumpeter J, *Capitalism, Socialism and Democracy*. Routledge, London. 421–431.
- SCHUMPETER J.A.** 2000: *Briefe/Letters*, ed. U. Hedtke and R. Swedberg. Tübingen: Mohr.

- SCHUMPETER J.** 2005: The theory of economic development. With a new introduction by John E. Elliot. Originally published 1934. (Transaction publishers. New Brunswick. USA).
- SEXTON D.L. & SMILOR R.W.** eds. 1986: The Art and Science of Entrepreneurship, Cambridge: M.A. Ballinger.
- SMITH A.** 1937: An Inquiry into the Nature and Causes of the Wealth of Nations. Ed. by Edwin Cannan. New York. First published in 1776.
- STEVENSON H. AND HARMELING S.** 1990: 'Entrepreneurial management's need for a more "chaotic" theory', *Journal of business venturing* vol. 5, pp 1–14.
- STEVENSON H. AND JARILLO, J.C.** 1990: 'A Paradigm of Entrepreneurship: Entrepreneurial Management' in Kao, J and Stevenson, H.(eds) *Entrepreneurship: what it is and How to Teach it.* Cambridge MA Harvard Business School
- TIMMONS J.** 1994: New Venture Creation. Entrepreneurship for the 21<sup>st</sup> century. 4<sup>th</sup> edition. Irwin. Illinois.
- TOPOLSKY J.** 1976: Methodology of History. D. Reidel. Poland.
- TURNER B. S.** ed. 1990: Theories of Modernity and Postmodernity. Theory, Culture and Society, SAGE Publications. London.
- VAN DEVEN A.H.** 1992: Longitudinal Methods for studying the process of entrepreneurship, in : Sexton, D.L., Kasarda, J.D. (Eds); *State of the Art of Entrepreneurship*, Boston : PWS-Kent Publishing Company, p.214–242
- VENKATARAMAN S.** 1997: The distinctive domain of entrepreneurship research: An editor's perspective, in J. Katz et R. Brockhaus (Eds), *Advances in Entrepreneurship, firm, emergence, and growth*, vol.3, Greenwich, CT: JAI Press, p. 119–138.
- WEBER M.** 1969: The Theory of Social and Economic Organization. First paperback 1947. Sixth printing. Edited with an Introduction by T. Parsons. New York: A Free Press Paperback Collier-MacMillan Ltd.
- WHITEHEAD A. N.** 1929: Process and Reality An Essay on Cosmology. Free Press 1929/1969. New York
- WILKEN P.H.** 1979: Entrepreneurship. A Comparative and Historical Study. Ablex Publishing Corporation. USA
- WORTMAN M. S. JR.** 1986: 'A unified framework, research typologies, and research prospectuses for the interface between entrepreneurship and small business', In Sexton D.L. and Smilor R.W. (eds.) (1986), *The Art and Science of Entrepreneurship* Cambridge: M.A. Ballinger, pp. 273–332.
- ZUBOFF S.** 1988: In The Age of The Smart Machine. The future of Work and Power. New York.