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ROUTES TO INTELLECTUAL CAPITAL FORMATION: THE GENESIS AND DEVELOPMENT OF WEALTH CREATING KNOWLEDGE IN THE ENTREPRENEURIAL MINDS

The aim of this paper is to sketch out a knowledge perspective to aid the interpretation of a set of empirical patterns on entrepreneurial growth and development uncovered longitudinally across ten Hong Kong industries. In the course of trying to come to terms with these patterns, the researcher has found it necessary to a) Re-conceive what constitutes entrepreneurial knowledge; b) Re-conceive the relations between wealth creation and wealth creation knowledge; and c) Together with a new understanding about the nature of entrepreneurial work, re-conceive entrepreneurial knowledge in typological ways. In this new perspective, an archetypal view of entrepreneurial work has given rise to an archetypal view of wealth creation knowledge, which suggests that intellectual capital could be discovered in multiple locations.

INTRODUCTION

As the global preference for and reliance on market as the primary mechanism for wealth creation and economic transformation continues to pick up speed, the need for systematic understanding of the wealth creation processes and how these processes could be better fostered has become critical. In this paper I will firstly report on a line of research which systematically explore into the role of the entrepreneur, now increasingly entrusted with a central role for wealth creation and economic transformation. I will then ponder on the relation between wealth creation and knowledge creation by examining their empirical link. On the basis of this new discovery I will try to sketch a typological view of entrepreneurial knowledge.

LITERATURE REVIEW

The central concerns of our research has recently received endorsement from three lines of literature:

- ① One line of development is from the entrepreneurship field. There is an increasing felt need for longitudinal research on core entrepreneurial processes which might account for variation in their performance. (Van de van, 1992).
- ② Another line of development is also from the entrepreneurship field. There is a widely shared view regarding the role of entrepreneur as wealth creator, but so far there is no systematic exploration into how this is done, nor has there been any effort to found out the role of knowledge in these wealth creating processes. (Berger, P. 1990; Gunderson, 1989; Kao, 1995; Hodder, 1993).
- ③ Exploration into the knowledge variable is now progressing in earnest. (Nonaka & Takeuchi, 1995).; Stewart, 1997, Cole, 1998; Edvinsson & Malone, 1997) So far the empirical base has focused on the managers, with data coming largely from large and established organizations, (see, for example, Nonaka and Takeuchi 1995, Le-

onard-Barton, 1995) Entrepreneur, the agent most intimately associated with the wealth creation process, have received limited spotlight. The link between entrepreneur as the prototypic knowledge creator and intellectual capital builder remains unclear.

There are thus huge theoretical gaps that exist between the prototypical wealth generator, the processes of wealth creation, the type of knowledge required for wealth creation, and intellectual capital.

Given such a backdrop, there is strong reason for undertaking longitudinal research to understand the relationship between knowledge and the entrepreneurial process. This research, the result of which converges into this line of reasoning, did not started off because these perceived gaps. It was triggered out of an accidental encounter with an anomaly.

In the following we will try to re-trace the course of the development of the research. This includes the anomaly which pointed the researcher to a new direction of exploration, the subsequent longitudinal work involved in uncovering entrepreneurial patterns, and in the context of this paper, the key event leading to an awareness of the need to see entrepreneurial knowledge in a new light.

THE ANOMALY

In the course of trying to build Chinese Management Theory via field research some twelve years ago, the researcher has run into an anomaly. One of the entrepreneurs under long term observation had seeming violated most of the research recommended principles of management as described in textbook and yet has achieved spectacular success. This observation suggested that either the prevailing theory is wrong or the reality is wrong. To find out the researcher decided to suspend judgment and launched a new trail of inquiry.

This line of inquiry has involved tracking the development of ten entrepreneurs over ten years by field observations, and along the side, interviewing two hundred entrepreneurs across ten industries in depth. The research focus is to understand the complexity involved in the process of becoming successful in the entrepreneurial universe. At the base of the research are procedures for tracking the processes involved as entrepreneurs move from a modest beginning to arrive at a stage of spectacular performance, measured in financial terms. Diverse patterns have been uncovered from these processes, which become empirical referents in search of conceptualization and explanation, as well as triggers for further exploration.

For the purpose of this paper, the following patterns are relevant: there is entrepreneur-specific formula of success which might account for spectacular performance within the same industry, there are diverse formulae of success across industries, there are similar formulae of success.

Eight basic archetypal formula set seem to have exhausted the empirical patterns, in isolation or in combination these eight archetypes are founded to be inter-related, indicating the possible existence of some forms of division of labor involved in meeting collectively the challenge of specie adaptation and transformation. There is variation in the proliferation and distribution of entrepreneurial stock across economies, pointing to a need to understand their survival and prosperity perhaps in ecological terms (Tarn, 1998a).

ATTEMPT TO LINK ENTREPRENEURIAL SUCCESS TO KNOWLEDGE

Until now the above anomaly still serve the purpose of a regular reminder for the explanatory challenge ahead of the researcher. Over the years countless conjectures had been put forward, some of which had triggered interesting exploratory leads. One such conjecture concerns whether knowledge really makes a difference at all in the entrepreneurial success equation. Very soon, through pursuing this possible link, the researcher was put into a puzzle. It is widely known that on the whole entrepreneurs do not read the academic journals on entrepreneurship to acquire their knowledge. Since the most authoritative findings about entrepreneurial work fail to reach this group, one has to wonder whether the entrepreneurial processes are really guided by scientific theories at all? In the end, this researcher has found it necessary to make a choice in order to proceed. Either I have to assume that the entrepreneurial process is not one that requires scientific knowledge, or I would have to assume that the entrepreneurial process might involve „*other kinds of knowledge*“. This „*other kind of knowledge*“ might be acquired via routes other than textbooks and journals, and might be transmitted via different diffusion vehicles other than the scholarly conduits, or might even be created by the entrepreneurs themselves in the course of conducting their affairs. If there indeed is such a kind of entrepreneurial knowledge, if there is indeed an alternative knowledge universe which exists to facilitate collective entrepreneurial functioning, then it will be of benefit for us to find it out.

UNCOVERING THE PUZZLE

A search for understanding the process of wealth creation thus triggered a set of fundamental questions:

- ☞ What is knowledge?
- ☞ What constitutes entrepreneurial knowledge?
- ☞ If there is such a thing called entrepreneurial knowledge, how could we make it visible so that it could be subjected to empirical exploration.

To answer the last question would involve the construction of new conceptual lenses.

The search process has been haphazard, but eventually the evolutionary idea has seized hold of the researcher's mind because the researcher has throughout this period been exposed to the fates and fortunes of the entrepreneurial population, moving in and out of multiple sites and industries. Such a wide exposure makes it easier for the researcher to conceive of a possible link between ecology and the diversity of the entrepreneurial processes. (Aldrich, 1979). The evolutionary position held sway over me because of its explanatory power over my data and its rich suggestiveness over the variation, selection and retention processes. Thinking along this line might give us a model for structuring our observations about the rampant entrepreneurial success and failure scenario as it got played out in and around Hong Kong.

One of the procedures employed to make sense of the data is the comparative method. For the researcher to find an empirical referent to compare from within the human evolutionary drama has presented some problem, so the evolutionary patterns in the biological world has been drawn upon for comparison. This choice of

referent has resulted in some very illuminating contrasts and formed the basis of this new conceptualization.

From this it is actually possible for us to conceive of two major forms of adaptation: biological and socio-cultural. Whereas the first form of adaptation could be hypothesized to be the result of natural causation, the second form of adaptation could not. The socio-cultural form could better be hypothesized as affected by human design. It is thus possible for us to analytically think of the development of the human specie as subjected to both a socially constructed as well as a nature caused forms of evolution and adaptation. Because of this, the human species has actually walked along an evolutionary path quite different from animals. The consequences of our dependence on humanly constructed environments has been vividly described recently by Amato:

„(Our) constructed world (is brimming) with metals, ceramics, plastics, fabrics, glass, and thousands of other specific materials that are found nowhere in the wilderness. „ Imagine that every material thing in your life suddenly disappears. Your car. Your home. Your clothes. Your jewelry. Everything, everything, is gone: the steel, concrete, glass, plastics, and thousands of other materials that make up your modern habitat are nowhere to be found in ready-to-use form. Naked in the wilderness, you are going to have to figure out how to transform the raw materials of the world into forms suitable for making things" (Amato)

RE-THINKING WHAT CONSTITUTES KNOWLEDGE UNDER ALTERNATIVE EVOLUTIONARY SCENARIOS

From a Universal Darwinian point of view, adaptation is knowledge and knowledge is adaptive. They consider instinct (unlearned and unthinking behavior) is as much knowledge as *..camouflaging coloration of an insect constitutes knowledge of its surroundings" (Plotkin,xvii)*. And if knowledge contributes to adaptiveness, where is it to be found retained? *„The chromosomes retain fit variations in biological evolution; memory preserves knowledge acquired through learning; and cultural transmission through socialization and education saves valuable customs and techniques in sociocultural evolution" (Simonton, 1988)*.

This brings forwards the idea that whatever contributes to adaptation constitutes knowledge. In the biological path, knowledge is internalized and reflected in bodily formation and blueprints for metamorphosis. In the sociocultural path, knowledge, as responses to the challenge of adaptation, is externalized, collectively constructed, and is embodied in various institutions, symbolic systems and artifacts. Viewed in this way, the scholars and entrepreneurs could be seen as each making their respective share to facilitate specie adaptation and transformation through contributing different forms of knowledge.

How then could we see where the entrepreneurial collective makes its contribution to specie evolution?

Our inter-specie comparison has suggested that the unfolding of the collective adaptation drama has taken on a path quite different from species described in the Darwinian tradition. An intra-specie comparison, say between a tribal community and that of a metropolitan city, will suggest the latter's increasing detachment from the impact of natural causation, and deepening reliance on artificial habitat composed of endless variety of instrumentation, artifacts and symbol systems of human construction.

The pervasive construction and ongoing transformation of our artificial habitat

requires some mechanisms for organizing human efforts and resources for the task of extracting, gathering, converting, distributing and exchanging these artifacts. These functions were not historically the preserve of the entrepreneurs, nor were the mechanisms employed to do so purely transactional. Recent global trend has however increasingly placed the entrepreneur into the leading role, and established the market as the leading mechanism for discharging these functions. The role of the entrepreneurial collective is in the construction and refinement of the transactional order, and in the generation of endless variety of artifacts for pervasive distribution via the transactional order. The move from centrally planned allocation mechanism to the market mechanisms would involve the engagement of the entrepreneur in the construction and refinement of the transactional order. The move from scarcity to plenty would involve the engagement of entrepreneur in the generation of new artifacts for pervasive distribution via the transactional order. In both cases, entrepreneurial work could be seen as transformational.

Our empirical research on entrepreneurial role system across ten industries in Hong Kong has lent support to the above functional view of the entrepreneurial population. On this level of understanding we have arrived at a new vantage point from which to re-examine the nature of entrepreneurial knowledge. We take the view that entrepreneurial knowledge could perhaps be understood instrumentally, that it is created at the service of fulfilling the entrepreneurial functions.

Aimed with this new insight, the researcher began to explore the world of wealth creation, from which to empirically identify entrepreneurial knowledge.

EMPIRICAL EXPLORATION INTO ENTREPRENEURIAL KNOWLEDGE SITES

In trying to capture entrepreneurial knowledge empirically, we started with identifying what contributes to the fulfillment of the entrepreneurial functions. Since entrepreneurial work is intimately associated with the transaction order, we will start with observing what is transacted. What gets transacted becomes the major vehicle for transforming the artificial habitat. What is transacted also becomes the starting point from which to trace the more elusive states of knowledge existence over and beyond the concrete level. The procedure we have employed for this aspect is for the researcher to team up with entrepreneurs to visit sites and situations that involve or relate to objects of transaction. From these observations the researcher will flexibility structure questions relating these transacted items to the central task of the entrepreneurs. These questions are related to the four pointers listed below, which serves as the entry point into understanding the knowledge structure informing the transformational processes.

Throughout the years, pursuing this has led to the visits of multiple entrepreneurial knowledge sites:

- [1] It soon occurs to the researcher that exhibitions, trade-fairs and industry shows could be regarded as entrepreneurial knowledge sites. Industry shows are the functional equivalent of academic conference. In an academic conference, knowledge is codified in academic symbols; in the industrial show, knowledge is embodied in artifacts. Since the research tried to cover ten industries, the researcher has structured his visits to at least ten of these places, industry after industry. As a result, he has visited shows in Dusseldorf, Frankfurt, London, Chicago, Seoul, Tokyo, Taipei, Bangkok, Hong Kong, and Basel, in the company of entrepreneurs knowledgeable about the respective sites.
- [2] Another category of location where knowledge could be found expressed in

concrete form are factories, showrooms, distribution centers, logistic depots, research and development laboratories. On average, the researcher visits ten such sites per country. In studying entrepreneurs with multi-nationals presence, the researcher has endeavored to probe into their sites across countries. As an academic proudly displays his/her lists of books, entrepreneurs proudly display his collection of innovations. With the new conceptual lenses, it become possible for the researcher to see historical development pattern by walking through the factory layout. Knowledge could be found crystallized in the form of machinery design, in the structuring of distribution format across space, in network building efficiency, in turnaround milestones.

- [3] Yet another source for observing knowledge in action is captured via participation in market events, product launches, product demonstrations, prototype constructions, virgin site visits, major network building encounters, acquisition negotiation, government-business interchange, tender submission, award-winning ceremonies, listing ceremonies and anniversary celebrations etc.
- [4] Perhaps the ultimate site for locating entrepreneurial knowledge is through making observations of various kind on how entrepreneurs perceive, interpret and intervene. When observations are made longitudinally, the patterns become obvious.

The net result of these visits has convinced the researcher that entrepreneurial knowledge exists in different states and forms, and could be accordingly conceived. It could exist intangibly in the mind, and it could exist tangibly in action and concrete artifacts and symbolic systems. Its forms could also be distinguishable, by mapping it against the success types.

RE-CONCEIVING WHAT CONSTITUTES ENTREPRENEURIAL KNOWLEDGE

From the empirical findings collected so far, what can we say about the nature of entrepreneurial knowledge?

There are a few clues, which might help us in coming to grip with the above question:

- 1 IT IS TRANSFORMATIONAL. From our research, we have identified eight archetypal pathways through which entrepreneurs achieve success. Upon detailed analysis, each of these pathways is found to have a core structure. This core activity structure is termed creative-destruction cycle. A success trajectory could be seen in terms of a series of replicating creative-destruction cycles. In other words, there is one core creative destruction process for each type of successful entrepreneur. There are in total eight types of creative-destruction activities. These eight types seem to have exhausted the possibility in our sample, with due allowance for possible combination and permutation. So we begin to hypothesize that there are systemic forces at work, and entrepreneurs are as much self-directing as well as being guided. Since they are all engaged in creative-destruction activity of one form or the other, they could therefore be regarded as agents of transformation. If this becomes the defining character of the entrepreneurial role, entrepreneurial knowledge therefore is in the service of creative destruction and must be built around it.
- 2 IT IS SUBJECTED TO THE TRANSACTIONAL ORDER. Our second major discovery is that, unlike other types of change agents, for example, politicians,

social worker, psychologists, the platform with which and through which entrepreneur as change agent contributes his transformation effort, it must be realized via the transactional order. This is the basic denominator which underlines all our observations. That realization provides a vital key to make visible the source of those systemic forces at work, and which shape the entrepreneurial universe and give it regularity. Entrepreneurial knowledge must at certain stage be embodied in some form so that it could be transacted. By visiting all the above events we have at least captured one form of existence of this elusive thing called entrepreneurial knowledge.

3 IS SUBJECTED TO THE CREATION ORDER. If human societies increasingly place trust on the transactional order to be the primary mechanism for meeting the challenge of adaptation and transformation, it will fall on the shoulder of the entrepreneur to be the prime generator of variation. To correspond to the need for variation within the biological evolution path, reward structure seems to have somehow been put in place to encourage variation generation and selection. Thus there is a need to know how entrepreneurs could become a continuous source of original knowledge and creative force in relation to what is being offered in the transaction order. This way of conceiving entrepreneurial knowledge could be bridged to that of Polanyi, who first suggested the idea of connoisseurship and personal knowledge. The increasing expansion of the transactional order into all sphere of life is making personal, original knowledge a valued commodity. This conception of entrepreneurial knowledge creation could also be linked to Nonaka and Takeuchi's contrast between tacit and explicit dimension, and the advance of the transactional order is making the competence for undertaking the conversion process from intangible to tangible central to the entrepreneurial challenge. From this we get the hint that there is another core component in the entrepreneurial knowledge equation: the tacit dimension. There is in existence some form of original knowledge, and this could be analytically dis-embodied from the concrete form which we see in transaction. We will assign this knowledge as belonging to the creative order.

4 IT COULD BE TYPOLOGICALLY CONCEIVED. Core entrepreneurial knowledge is to be found in and around this transactional universe. And since all forms of entrepreneurial wealth are realized through or around the transaction nexus, wealth-creating knowledge could be found concentrated in where transactional rewards is dense. Empirically we have discovered eight such clusters. These eight clusters are found to be distributed over different nodes of the state-market systems, and collectively make for a whole of dynamic, functionally inter-dependent system. There seems to be distinctive clusters of problems associated with each trajectory, which requires the deployment of knowledge to dissolve. Corresponding to the eight sets of challenges on the road to success, we find a typological method of classifying entrepreneurial knowledge useful.

RE-CONCEIVING THE RELATION BETWEEN WEALTH CREATION AND WEALTH-CREATING KNOWLEDGE

We are now in a position to propose a new view to wealth creating knowledge. This new view is a result of the fusion between understanding what is required to become successful, and understanding what knowledge is found to be required to ensure success to take place.

We propose to undertake the task analytically and archetypally. The analytical procedure would be to firstly see how the pure types construct their core knowledge

structure in an accentuated and imaginary form, and then secondly to relax the boundaries of these analytical facets so as to reveal how various combinations and permutation of knowledge structure are realized in reality.

Once this approach is taken, it could be seen that different types of successful entrepreneurs actually create, build, and craft their knowledge architectures differently across different entrepreneurial types, and similarly within the same successful type.

RE-CONCEIVING THE RELATIONSHIP BETWEEN ENTREPRENEURIAL SUCCESS TYPES AND ENTREPRENEURIAL KNOWLEDGE TYPES

In the following, we will firstly list out the empirically uncovered successful types, and secondly list out the various foundations on which the knowledge architectures could be build, all of that before we match the two together. The empirical successful types are based on:

- product innovation route
- process innovation route
- sourcing innovation route
- distribution innovation route
- market force leveraging route
- establishment symbiosis route
- resource re-deployment and re-configuration route
- leveraging state-market difference route (See Tam, 1998a).

The empirically discovered foundations around which wealth creation knowledge architectures are built:

- know how
- know what
- know who
- know why
- know when
- know which
- know between
- know where.

If we placed the above two categorizations together, we could find that each of the success types could be matched with the knowledge types, as follows:

- product innovation route (know what could be offered instead),
- process innovation route (know how to do it better),
- sourcing innovation route (know where are the sources),
- distribution innovation route (know which lines of products for which areas),
- leveraging market forces route (know when to buy and when to sell),
- establishment symbiosis route (know who could affect the decision outcome and

who to influence),

- leveraging state-market difference route (know between state and market),
- resource re-deployment and reconfiguration route (know why the company gets into trouble and why it cannot be done otherwise).

For the entrepreneur achieving success via the leveraging market force route, his or her overall knowledge architecture could be seen as built on one core foundation: determining when to buy and when to sell. Market timing affects price level, and missing a time for exit could be fatal for assets on hold, missing a time for entry could mean huge difference in earning. As a result of realizing this core causality, if one were to have extensive observation of this entrepreneur, one could easily detect integrity and consistency in his/her attention selectivity, interpretation regularity, intervention methodologies and the zones of creativity. What constitutes relevant knowledge elements, knowledge of contingencies, knowledge of opportunities, knowledge of risk, knowledge of intervention, criteria of effectiveness are all structured around time, maturity, and therefore the permeating importance of know-when in all segments of the knowledge configuration.

For the entrepreneur achieving success via the establishment symbiosis route, his or her overall knowledge architecture could be seen as built on one core foundation: determining who is who and who could influence outcomes in issues critical to business success. Decision-makers make things happen, launch important projects, allocate rewards and benefits and are in general in control of critical resources on which this types of entrepreneurs depends for success. The core causality for success here is therefore related to those whom the entrepreneur could influence. The kind of knowledge and strategies which has evolved to enable the entrepreneurs to cope with diverse personalities, policies, programs, politics in endless combination and permutation have been found to be filling up most of the space of his/her knowledge architecture.

These various ways of capturing the relation between success types and knowledge types are being mapped out in further details in Hong Kong.

IMPLICATION AND CONCLUSION

This way of re-conceiving the relationship between wealth creation and wealth creation knowledge provides a new avenue to capture the knowledge critical to entrepreneurial success in a conceptual as well as empirical way. It provides a systematic framework for understanding how entrepreneurs perceive, interpret, intervene in environment, and suggests a new way to see theory-practice link. This link has been empirically discovered to be quite remote from the dominant belief in the academic world about theory and application. The implication of this finding is that there is a new way of locating where intellectual capital could be.

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