

CHAPTER 12 From Pioneers in Entrepreneurship Research, by Hans Landstrom

“HOWARD ALDRICH – THEORIST AND LEGITIMIZER OF THE FIELD”

FSF Award winner 2000

1. HOWARD ALDRICH – THEORIST AND LEGITIMIZER OF THE FIELD

1.1. *The contributions of Howard Aldrich*

Howard Aldrich's work is characterized by true scientific curiosity and a theoretical strength that is unique in entrepreneurship research. Aldrich has been true to his theoretical framework ever since he started to develop his thoughts around the evolutionary approach, an approach that, for many years, has underpinned most of his research and demonstrated the potential of a strong conceptual framework in the area of entrepreneurship and small business issues. He has proved that it is possible to achieve a far-reaching understanding of entrepreneurship by means of a consistent theoretical language. Based on the evolutionary approach, Howard Aldrich has not only made significant contributions in the area of formation and development of new firms, but also in other sub-topics of entrepreneurship such as the role of ethnicity, networks, and gender in the formation and growth of organizations.

Howard Aldrich is an internationally recognized organizational sociologist, who has highlighted entrepreneurship. He has demonstrated how a researcher from a core scientific discipline can contribute important insights into the field of entrepreneurship – in that respect he has been an important role model and legitimizer of the field. It should equally be pointed out that Howard Aldrich has been one of the main critics of the methodology used in entrepreneurship research as well as highlighting the importance of methodological rigour in the research. This has had a positive influence on the development and legitimacy of the research field.

1.2. *Career*

Howard Aldrich is an internationally well-recognized sociologist who became interested in entrepreneurship and introduced a strong theoretical framework into the field.

“In fact the entrepreneurship field caught up with me in the mid 1980s. I was invited by Donald Sexton – as a substitute for Albert Shapiro – to Sexton's second state-of-the-art conference, prior to the publication of the book *Art and Science of Entrepreneurship* in 1986. Donald Sexton phoned me one Friday and gave me four days to write the paper “Entrepreneurship Through Social Networks” in collaboration with Catherine Zimmer. I went to the conference and found the community of entrepreneurship scholars quite pleasant. This was a really critical event, I met all these people ... Neil Churchill, Alan Carsrud, Karl Vesper, Arnold Cooper ... scholars who were passionate and enthusiastic about the topic. The following year I attended the Babson Conference for the first time, and afterwards I was invited to a lot of entrepreneurship conferences and seminars.”

However, the interest in new business creation had been there ever since Aldrich's thesis work in the 1960s. His thesis *Organizations in a hostile environment* was presented in 1969 at the University of Michigan and was based on a panel study of 600 businesses in three American cities. In his thesis Aldrich studied the turbulence and change in the business population, and how this population was affected by the civil disorders in the cities in the late 1960s.

“During my graduate work I was very interested in human ecology ... and I was influenced by researchers like Donald Campbell and Walter Buckley, but also social psychologists such as Katz and Kahn. At the graduate course we read their famous book *Social psychology of organizations* in manuscript form. My interest was in change and turnover, and in my thesis I tried to understand populations from an evolutionary point of view.”

After Aldrich’s dissertation in 1969, he moved from the University of Michigan to Cornell University in New York, which gave him an opportunity to work in a more interdisciplinary environment, and he remained at Cornell until 1982. Howard Aldrich was appointed Professor of Sociology at Cornell University in 1979. It was during his time at Cornell that Aldrich developed his evolutionary theory. One example of his evolutionary reasoning can be found in his influential book *Organizations and Environments*, published in 1979, in which he looked at organizations and how they changed over time. To a large extent this book summarises Aldrich’s thoughts during the 1970s.

“The book received positive reviews and has been widely cited – it is a convenient book to cite when researchers want to emphasize the importance of the environment and go beyond the rather narrow interpretation of population ecology reasoning. I didn’t talk about population ecology until after Hannan and Freeman’s article was published in 1977. Before that I called it the natural selection process or the population perspective. In my 1979 book I switched the terms back and forth ... looking back I really regret that I used the word population ecology, because I think it confuses people ... most of the work I did was rather different from Hannan and Freeman’s population ecology reasoning.”

Thus, the 1970s was a decade in which Aldrich developed his evolutionary reasoning. During this decade Aldrich also developed some of the lines of reasoning that appeared in his thesis, such as ethnicity and entrepreneurship. This was an interest that dated back to the 1960s. It was theoretically rooted in his interest in human ecology and empirically rooted in the mass of re-locations in American cities produced as a result of civil unrest, due to the migration of black people from the American south to the northern cities after the Second World War. However, the main part of Aldrich’s research on ethnicity and entrepreneurship was carried out together with a research group in the UK, including John Cater, Trevor Jones and Dave McEvoy. This collaboration was initiated during Aldrich’s sabbatical in the UK in 1975 and 1976. Aldrich wanted to make a comparison between the changes and turnovers in the small business population in British cities and those that occurred in US cities during the 1960s. In England, the New Commonwealth brought with it migration from the Caribbean, India, Pakistan and Bangladesh to larger cities in England.

”My sabbatical in Europe in 1975 and 1976 was extremely important for my work. I used the year to do a lot of reading, especially deepening my knowledge of history. I would say that the year in Europe gave me an understanding of the importance of historical analysis, but also the importance of the political dimension – Europeans had a much more political approach to sociology – both the historical analysis and the political dimension later became very important themes in my work, for example, in my 1979 book.”

In 1982 Aldrich moved to the University of North Carolina at Chapel Hill as Kenan Professor of Sociology, where he had access to a larger pool of graduate students, with whom he has often worked in collaboration. Pat Reese was the first, but others were Ted Baker, Ellen Auster, Cathrine Zimmer, Linda Renzulli, and today Amy Davis, Philip Kim, Monika Drake, Stephen Lippmann, Amanda Elam, and Ana Teixeira.

“In the 1970s I didn’t have a very big pool of graduate students, but when I came to Chapel Hill I found more and more students interested in entrepreneurship, and quite a few of my co-authors in my articles have been my students, or people that I have met and talked to and enjoyed working with. When you have PhD students you can leverage your interests, accomplish more than you could ever manage by yourself ... I would say that that was a major factor in my ability to be more productive in the 1980s.

From the point of view of my thinking during the 1980s, I was reading more evolutionary theory. In my 1979 book I was unclear as to my position toward the ecological approach ... and all through the 1980s I really struggled to differentiate between my evolutionary approach and the ecological approach that people associated me with.”

The real interest in entrepreneurship also emerged in Aldrich’s research during the 1980s. Entrepreneurship related topics in Aldrich’s research dealt with business formation but also with the role of networks in the entrepreneurial process. Some of the more well-cited articles on business formation and networks are:

Aldrich, H.E. & Mueller, S., 1981, The Evolution of Organizational Forms: Technology, Coordination and Control, in Staw, B. & Cummings, L.L. (Eds.), *Research in Organizational Behavior*, Vol IV, JAI Press, 33-87.

Aldrich, H. & Zimmer, C., 1986, Entrepreneurship Through Social Networks, in Sexton, D.L. & Smilor, R.W. (Eds.), *The Art and Science of Entrepreneurship*, Cambridge, MA: Ballinger, 3-23.

Aldrich, H. & Auster, E.R., 1986, Even dwarfs started small: Liabilities of age and size and their strategic implications, *Research in Organizational Behavior*, 8, 165-198.

Dubini, P. & Aldrich, H.E., 1991, Personal and extended networks are central to the entrepreneurial process, *Journal of Business Venturing*, 6, 5, 305-313.

Aldrich, H.E. & Fiol, C.M., 1994, Fools rush in? The institutional context of industry creation, *Academy of Management Review*, 19, 4, 645-670.

“The collaboration with Marlene Fiol was really important for me ... in the paper ‘Fools rush in?’ published in *Academy of Management Review* 1994, I started to describe my ideas in multi-level terms – see more clearly that I could look at entirely new industries at individual, group, organisational and population level.”

The multi-level approach is a key characteristic of Aldrich’s book *Organizations Evolving* (1999), but many of the ideas in the book date back to a piece that Aldrich wrote in the early 1980s together with Bill McKelvey. In this article “Populations, Natural Selection and

Applied Organizational Science” published in *Administrative Science Quarterly* in 1983, they argued that the use of taxonomies and typologies is a blind alley in terms of understanding change. In populations of organizations in which there is a great heterogeneity, there will be no organization representing the central tendency in the population – the organizations will differ from each other, and this variation will pave the way for evolution due to selective elimination, and those organizations that will survive will be copied. The idea about populations being composed of heterogeneous organizations was a breakthrough, and this line of reasoning also formed the basis of the 1999 book. However, it took a while for Howard Aldrich to finish the book. He signed the contract with the publisher in 1992 but was not eager to write the book, and by 1995 only four chapters had been written.

“I wasn’t in a great hurry to write the book. Gradually over time I tried to figure out how to minimize the work necessary to write it ... I realized that I had some raw material, previously written pieces, but I was so occupied with other activities and projects that I didn’t concentrate on the work for the book. It wasn’t until I had a conversation with a couple of colleagues about what would be an appropriate last chapter in the book that I decided to finish it. But in August 1998 it was still not finished ... I was still trying to figure out how to bring everything together, and it was not until the final twelve months of the work that I really realised that I could make something significant out of it.”

The book *Organizations Evolving* was published by Sage Publications in 1999 and was very well received by both graduate students and academia in general. Howard Aldrich has received several awards for the book, not least the prestigious Weber Award from the American Sociological Association, and the George R. Terry Award from the Academy of Management.

Howard Aldrich is today chair at the Department of Sociology at Chapel Hill, which limits his research productivity but he is still one of the most productive researchers within the field. He has taken a special interest in the Panel Study of Entrepreneurial Dynamics (PSED) database in the US, and in recent years he has presented a wide range of different studies based on the PSED data set.

“I will try to get maximum intellectual value out of the PSED, I think it is a good dataset and it is a good project. So with my students I want to develop some good empirical papers out of the PSED, and then advance evolutionary thinking. I believe that evolutionary thinking is starting to establish itself more strongly, so I feel that within 20 years I could write a book that would use a great deal more evolutionary studies, in contrast to what I did in the 1999 book, which was a reinterpretation of stuff that people wrote from a different point of view.”

2. STREAM OF INTEREST IN HOWARD ALDRICH’S RESEARCH

The creation of evolutionary models exploded during the 1970s, mainly as a result of the open-system revolution in organization theory. Within a short period of time, scholars in different disciplines presented evolutionary theories, inspired by the seminal work of Donald Campbell (1969), to explain phenomena ranging from the micro to the macro levels of organization (see history of evolutionary thoughts in Murmann, et al., 2003). For example, on the individual level, Karl Weick (1979) developed a social psychology theory of how

individuals coordinate their actions, which drew on the variation, selection, and retention reasoning developed by Campbell. What Weick did on an individual level, Howard Aldrich (1979) did on an organisational level, when looking at the entire organization and how organizations change over time. Aldrich argued that organizations flourish or fail because they are more or less suited to the particular environment in which they operate.

In the area of industry development, Michael Hannan and John Freeman (1977; 1984) also used a selection-based explanation in their work on the population ecology of organizations, in which they emphasised the founding and closure of organizations in populations relative to the distribution of available environmental resources. On the macro level, Richard Nelson and Sidney Winter (1982) were pioneers in the application of evolutionary models of economic change. However, Nelson and Winter were less inspired by Donald Campbell. Their explanations were more influenced by the Carnegie School of routine-based models of organizational action (Herbert Simon, James March, and Richard Cyert) as well as by Joseph Schumpeter who, in the middle of the century, was a prominent exponent of the idea that economic change could be conceptualized as an evolutionary process, although rejecting Darwinian evolutionary reasoning.

It is within this tradition that Howard Aldrich builds his reasoning, and it is interesting to note the consistency of his research – even if the topics have changed, the evolutionary approach has always constituted the basis. On the other hand, Howard Aldrich has struggled to describe his approach for a long period of time, and he has been rather inconsistent in his use of concepts to describe his reasoning. For example, in the early 1970s he argued that an “organization-environment perspective” was suitable for describing organizations and their suitability in diverse organizational environments. In his work during the 1970s he talked about the “natural selection model”, while in his 1979 book he referred to the approach alternately as “population ecology” and the “natural selection model”. During the 1980s he increasingly used the concept “population perspective”, but in the book *Organizations Evolving* he adopted the concept “evolutionary perspective” or “evolutionary approach”.

2.1. *Organizations Evolving (1999) – toward an evolutionary approach*

The book *Organizations Evolving* published in 1999 can in many ways be regarded as a framework in which Howard Aldrich chose to position the evolutionary approach in relation to the population ecology approach, whose proponents include Glenn Carroll and Michael Hannan. Briefly, the population ecology approach concerns, “the skeleton” in a population of companies – the structure – it deals with the “births” and “deaths” of firms, which makes it possible to calculate a survival curve within a population of companies. It is assumed that population growth is rapid at first and proceeds exponentially, but will then decrease, thus forming an S-shaped curve. Population ecology research has produced several sets of strong empirical results, which have been successfully replicated within a number of lines of business and in different countries. The strength is that it is possible to calculate, by means of relatively simple parameters, how many companies there are in a line of business and the composition in terms of size and age as well as being able to explain the trends in a particular line. However, theory has become more and more mathematically complex, and the trend within research is to use different simulation models.

Howard Aldrich’s evolutionary approach is developing in a different direction – it is more a question of the “flesh and blood” of the system. Aldrich attempts to explain why the structure

emerges in the first place and why the development takes place. The point of departure in Aldrich's reasoning is the evolutionary process (developed by Donald Campbell in 1969). Thus, the four generic processes mentioned below, which are necessary for and which allow evolution, form the point of departure in Aldrich's framework:

- Variation, i.e. a change in current routines, competencies or organizational forms must occur, which can result from deliberate attempts to generate alternatives, or from blind variations generated by chance, mistakes or curiosity.
- Selection – some variations are then selected, while others are rejected, a selection that arises based on market forces, competitive pressure or within-organization selection forces (e.g. pressure to achieve stability and homogeneity in the organization, and the persistence of previous selection criteria that are no longer relevant in a new environment).
- Retention – the positively selected variation must be retained, preserved, duplicated or reproduced through, for example, a specialization and standardization of roles within the organization or through an institutionalisation of practices, cultural beliefs and values – otherwise there will be no organizational continuity or memory.
- The struggle of competing to obtain scarce resources. Organizations are not passive entities and they may have to struggle for time, legitimacy, capital, etc.

The book includes five sections. In the first three chapters Aldrich introduces his evolutionary approach and also summarizes the contributions that a multi-disciplinary framework can make in increasing the understanding of the evolutionary approach, including institutional theory, population ecology, the interpretive approach, research in organizational learning, resource dependence, and transaction cost economies. In the remainder of the book, Aldrich examines the evolutionary processes at different levels of analysis – a multi-level analysis – from organizational level to community level, whereby, in an elegant way, he creates a linkage between micro- and macro processes, i.e. the interplay between the large and the small.

- Chapters 4 to 6 use an organization level of analysis and concern the process by which organizations are created and achieve coherence as entities. These chapters provide a rich description of the role of individuals and groups in the organizational founding process. Aldrich argues that the vast majority of entrepreneurs could be regarded as reproducers rather than starting innovative organizations. Truly innovative start-ups are often the result of creative experimentation with new ideas by outsiders, whereas previous work experience and network ties seem to hinder entrepreneurs within the population from creating radical breakthroughs – indifference and ignorance of population routines and competencies may give outsiders the freedom to break free of the cognitive and cultural constraints of the insiders.
- Chapters 7 and 8 take the existence of organizations as given and examine the transformation of organizations over time, as well as discussing how change occurs in three dimensions: goals, boundaries, and activities.
- Chapters 9 and 10 focus on the population level of analysis and explore how new populations emerge. They include an interesting discussion about the problems of legitimacy that new entrepreneurs face when starting new populations of firms (a discussion based on the article co-authored with Marlene Fiol in 1994 – see subsection

2.2.3.). Chapter 10 includes, among other things, a discussion about how entrepreneurial intentions and access to resources affect organizational founding and failure (see article co-authored with Gabriele Wiedenmayer in subsection 2.2.1.).

- Chapter 11 involves the community level, and in this chapter Aldrich discusses how entrepreneurship and relations between populations affect the dynamics of communities – activities that cut across populations – for example, discontinuities of existing populations and communities caused by technical and regulatory innovations that are exploited by entrepreneurs, resulting in the extinction of some populations or the emergence of new ones.

In the final chapter (Chapter 12) Aldrich highlights some theoretical issues for further research – a research agenda within the evolutionary approach. Aldrich emphasizes the need for paying greater attention to issues of emergence at different levels of analysis, and especially within three areas of research: the role of nascent entrepreneurs, resource management practices of emerging organizations, and the importance of collective actions by individuals and organizations in emerging industries.

In the book, Aldrich emphasizes the need to read the chapters in chronological order, which shows the applicability of the evolutionary approach to multiple levels of analysis – where communities are built on populations, which are built on organizations, which emerge from the actions of entrepreneurs. It is also interesting to note that throughout the book Aldrich highlights the importance of new organizations as a source of variation in society. Therefore, the book has a true entrepreneurship focus, and Aldrich devotes special attention to entrepreneurial issues.

2.2. An evolutionary approach to business formation

In a number of articles, Howard Aldrich uses the evolutionary approach to understand the set of problems associated with business formation – all of which articles are frequently cited within entrepreneurship research. Below is a summary of some of these articles.

2.2.1. From a trait approach to an ecological perspective on organizational foundings

For many years entrepreneurship research was occupied with the question: “Why do some people become entrepreneurs, while most people do not?”, and researchers argued that there must be something distinctive about an individual’s background or personality that made them entrepreneurs. In Aldrich and Wiedenmayer (1993; see also Aldrich, 1990) the authors present a complementary approach – what they term the “rate” approach – based on evolutionary reasoning. In contrast to the “trait” approach, which implies a micro-level analysis, the “rate” approach involves a macro-evolutionary focus, and Aldrich and Wiedenmayer concentrate their reasoning on the founding rates at population level, i.e. examining conditions that affect the rate at which organizations are added to an existing population. The founding of new organizations and the closure of existing ones are, according to the authors, dependent on:

- Intrapopulation processes (i.e. prior foundings, closures, density of firms, and factors associated with density), and it is the environmental resources, or what is known as an

environment's carrying capacity, that sets the limit on population density. At the beginning, when density is low, and there are adequate environmental resources for exploitation, the founding rate is high, whereas closure rates are low. When a high density has been achieved, the situation will be reversed, which leads to fewer net additions.

- Inter-population processes, including the nature of the relations between populations. For example, competitive relations between populations may depress founding rates, whereas other interpopulation relations may actually facilitate foundings in other populations (e.g. car manufacturers create a supply industry).
- Societal-level factors, such as cultural norms, government policies and political events. It seems that institutional forces probably have the greatest impact when a new population is emerging, as established foundings within an organisational population respond more to inter- and intrapopulation processes than to institutional forces.

Aldrich and Wiedenmayer argue that previous deaths within the population may affect founding rates in two ways: (i) resources are often tied up by existing organizations, indicating that new firms will only obtain access to them when deaths occur and (ii) potential founders may be frightened by high death rates. However, the importance of previous deaths may differ depending on the population's position in the life cycle. For example, in the early growth stage, deaths will have a lesser impact on the availability of resources, whereas in later stages, when carrying capacity is reached, deaths may be important for freeing resources for new ventures – in this situation previous deaths may have contradictory effects; on the one hand, freeing resources for new ventures, while on the other, sending negative signals to entrepreneurs of the likelihood of failure for new ventures.

In a similar way, previous foundings may have two possible effects on the subsequent founding of new ventures: (i) high levels of foundings may signal to potential entrepreneurs that opportunities are growing within a population, and (ii) that resources and the pool of potential entrepreneurs will soon be exhausted, leading to a diminishing return.

In addition, we can assume that when organizational density increases, there will be a rise in legitimacy and institutionalisation – spreading the knowledge and skills required to achieve a viable organization – which may lead to an increase in foundings. At a later stage, with high levels of density, factors inhibiting foundings become dominant, such as increased concentration, smaller potential gains and diminishing returns. These processes have led to the conclusion that there will be an inverse U-shaped pattern between organizational density and the rate of foundings (Hannan, 1986).

2.2.2. Liability of aging, newness and smallness

Within a population there are processes of metamorphosis that transform the composition of whole populations of organizations so that they become better suited to their environments. This metamorphosis is affected by the age and size of the firms. In their article “Even dwarfs started small: Liabilities of age and size and their strategic implications” (1986), Howard Aldrich and Ellen Auster argue that large, aging organizations face a number of constraints which limit their ability to adapt to changing conditions but, on the other hand, new organizations and especially small ones also face problems, but of a different kind.

The *liability of aging* facing old and large organizations can be summarized by a couple of internal conditions that inhibit adaptability to change, such as: (i) retention of control by the original founders or members of their families, (ii) pressure for internal consistency as a basis for coordination and control, (iii) and a hardening of vested interests where suggestions pertaining to change may be viewed primarily as mechanisms to gain power, and finally, (iv) increased forces to induce a homogeneity of perception within the organization, for example, through recruitment and socialization of new members. But there are also external conditions facing larger and older organizations that create resistance to change, such as interorganizational arrangements, which may become a stabilizing force. However, different entry barriers (scale-economy and product differentiation barriers) will also exert less pressure for change on the aging organization. Thus, large and aging organizations face a number of constraints that limit their prospects for adaptation – liabilities of aging.

However, small and new organizations often experience a *liability of newness*. Even if the organizational population is growing at an aggregated level, there is underlying population volatility – organizations die and are replaced by other organisations. What causes liability of newness? What are the obstacles that hinder the survival of new organizations? Aldrich and Auster identified external as well as internal liabilities of newness. Externally, new organizations face many barriers that make movement into a new domain difficult. For example, lack of legitimacy and fierce competition from established organizations, brand recognition and market acceptance of established products, etc. endanger the survival of new organisations. But new organizations also face internal liabilities of newness, which mainly concern the creation and classification of roles and structures consistent with external constraints and the ability to attract qualified employees.

In addition, many young organizations face the *liability of smallness*, which is an effect of size. Empirical results (see e.g. Birch, 1979) indicate that small size does affect survival. Usually smallness is related to newness, but not all organizations are born small, for example new affiliates of larger companies. Factors that make survival problematic for small organizations – regardless of age – may be related to the problem of raising capital and the administrative burden of handling government regulations, in addition to which, small organizations face major disadvantages in competing for labor compared to larger organizations.

The conclusion is that older and larger organizations as well as younger and smaller ones face a number of constraints that make metamorphosis difficult. For older organizations it is a problem of strategic transformation whereas young and small organizations experience a problem of survival. And there seems to be some form of symmetry in these constraints in that the obstacles faced by new and small firms can be easily overcome by larger, more established organizations and vice versa. In order to survive, newer and smaller organizations need to become closely linked to large organizations, for example through franchising, long-term contracts, and mergers or acquisitions. It is through such strong ties that smaller and newer organizations can gain access to resources that are not otherwise available. Paradoxically, older and larger organizations will reduce their liability of aging by forming loosely coupled arrangements with young and small organizations. This may take the form of emulating younger organizations, i.e. by imitating them through internal restructuring in order to create conditions that generate and facilitate innovation and risk-taking, or by exploiting the smaller organization through boundary-crossing strategies – contracting arrangements

which will exploit the flexibility and dynamism of younger organizations, while keeping them at arms length.

2.2.3. *Early ventures in new industries*

Small and new organizations always seem to experience a liability of newness. However, such pressures are especially severe when an industry is in its formative years – when entrepreneurs have few precedents for the kind of activities they want to engage in. In another well cited article “Fools rush in? The Institutional context of Industry Creation” (1994), Howard Aldrich and Marlene Fiol discuss the challenges faced by early ventures in the formative years of a new industry compared to those that carry on a tradition of many predecessors within the same industry. Of course, many factors are involved in achieving success in a new industry, but one of the most critical problems facing innovative entrepreneurs is their relative lack of legitimacy, and a reasonable conclusion seems to be: founders of new activities, by definition, lack the familiarity and credibility that constitute the basis for interaction.

As an industry develops, the organizations within the industry increase their *cognitive legitimation*, i.e. the spread of knowledge about the new activity and what is needed to succeed in the industry, as well as their *socio-political legitimation*. The latter concerns the value placed on an activity by cultural norms and political authorities. Different strategies may be used by emerging organisations to promote the development of a new industry, as summarized in Figure 1. Aldrich and Fiol propose four levels of social context – organizational, intra-industry, inter-industry and institutional – in which entrepreneurs can gradually develop trust, reliability, reputation, and finally institutional legitimacy.

Type of Legitimacy		
Level of analysis	Cognitive	Socio-political
Organizational	Develop knowledge base via symbolic language and behaviors	Develop trust in the new activity by maintaining internally consistent stories
Intra-industry	Develop knowledge base by encouraging convergence around a dominant design	Develop perceptions of reliability by mobilizing for collective action
Inter-industry	Develop knowledge base by promoting activity through third-party actors	Develop the reputation of a new activity by negotiating and collaborating with other industries
Institutional	Develop knowledge base by	Develop legitimacy by organizing

	creating linkages with established educational curricula	collective marketing and lobbying activities
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Figure 1. Entrepreneurial strategies to promote new industry development (source: Aldrich & Fiol, 1994, p 649)

Entrepreneurs in emerging industries have to interact with extremely skeptical external resource holders (suppliers, creditors, customers, etc.), and the entrepreneurs need strategies for building trust, but this initial trust-building cannot be based on objective evidence. Instead, innovative entrepreneurs must concentrate on framing the unknown in a credible way, and one strategy for achieving this is to simplify, symbolize or give ritual expression, i.e. conventional coding, to the issues in question or, alternatively, the entrepreneur can “act as if” (Gartner, et al., 1992) – as if the activity were already a reality. In addition, due to attacks from “conventional” industries, innovative entrepreneurs in emerging industries may need institutional support (sociopolitical approval), and entrepreneurs must build a knowledge base that outsiders will accept as valid. The lack of arguments that are externally valid make alternative forms of communication necessary, for example through narratives – to make a case showing that the new ventures are comparable with more established activities. In this respect, the validity of the stories is not dependent on a set of external criteria, but on internal consistency and lack of contradiction.

Once innovative entrepreneurs have developed a basis for understanding and trust at organizational level, they must find strategies for interacting with other organizations in their emerging industry – intra-industry processes. The lack of convergence on dominant standards (designs) within the new industry limits the perceived reliability and increases confusion about what standards should be followed. Such convergence is facilitated if new ventures choose to imitate and borrow from pioneers rather than introducing new innovations of their own. In this way knowledge of new activities will be spread, thus adding to the convergence on a dominant standard. Furthermore, even if collective actions are difficult to organize in the early stages of industry development, it is important to find avenues for collaborative actions within an industry to achieve socio-political approval.

The relation between industries – inter-industry processes – affects the distribution of resources in the environment. Established industries that feel threatened by a newcomer are sometimes able to change the terms on which resources are available to emerging industries, for example, by questioning their efficacy or their conformity with the established order. Therefore entrepreneurs in emerging industries must build the reputation of the new industry that conveys the idea that it is a reality – something that is taken for granted by others. This process can be facilitated by interfirm linkages such as trade associations, i.e. through third-party actors, and on the socio-political level by reliable relationships with other, more established industries.

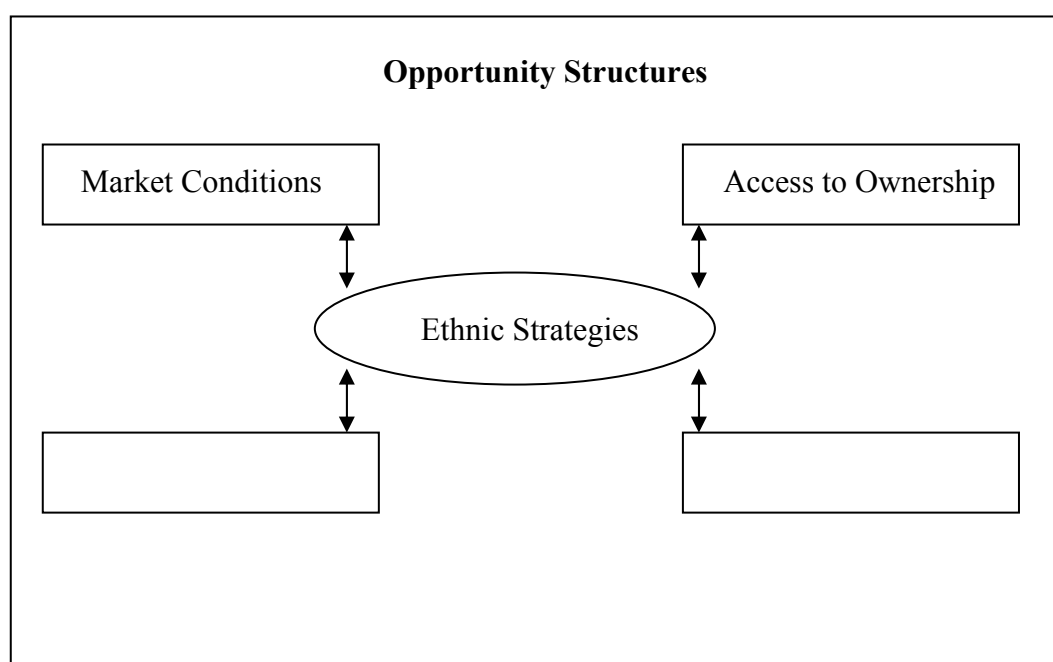
Finally, there may be institutional conditions that will constrain the growth rate of the industry by affecting the diffusion of knowledge about the new activities and the extent to which the activities will be publicly tolerated. At this level, entrepreneurs are no longer working as isolated individuals, but using industry councils, cooperative alliances, trade associations etc as vehicles for collective action in order to achieve institutional legitimacy. In emerging industries there is a need to raise the level of cognitive legitimacy – mass media may be unfamiliar with the industry, and their reporting may be inaccurate, while the lack of a general understanding about the emerging industry also makes it difficult to recruit and retain

employees. This understanding may be facilitated by institutionalized diffusion of knowledge, for example through established educational institutions, but also through collective marketing and lobbying efforts that will gain sociopolitical approval.

To summarize, in the article Howard Aldrich and Marlene Fiol pursue strategies on different levels of analysis – organizational, intra-industry, inter-industry, and institutional – that will generate and sustain trust, reliability, reputation, and finally, culminate in legitimating the industry at institutional level. Thus, as indicated, there is a hierarchical process involved: gaining trust within and around the organization provides a basis from which it is possible to build cooperative exchanges with other similar organizations (intra-industry reliability). Such interactions make it easier to organize collectively and build a broader reputation for the industry as an enduring reality, and finally, an established reputation facilitates the co-optation of institutional actors, leading to institutional legitimation.

2.3. Ethnicity and entrepreneurship

Ethnicity and entrepreneurship was an early interest of Howard Aldrich, which goes back to Aldrich's thesis in the 1960s. But it was during the late 1970s and early 1980s when Aldrich started to work with David McEvoy, Trevor Jones and John Carter in the UK that this research issue became clearer and more visible. Some of the results of this research collaboration were presented in the book *Ethnic Entrepreneurs* (1990) edited together with Roger Waldinger and Robin Ward. The book is based on two conferences in 1985 and 1986 and summarizes much of the knowledge within the area at that point in time. But Howard Aldrich has also published several articles on the issue of ethnic differences in entrepreneurship. In the article "Ethnicity and Entrepreneurship" (1990; see also Waldinger & Aldrich & Ward, 1990b), Howard Aldrich and Roger Waldinger summarized their research on ethnicity and entrepreneurship using a framework based on three dimensions: an ethnic group's access to opportunities, the characteristics of a group, and emergent strategies in ethnic firms (see Figure 2).



Group Characteristics

Figure 2. *An interactive model of ethnic business development (source: modified from Waldinger & Aldrich & Ward, 1990a, p 22)*

2.3.1. Opportunity structures

According to the authors, ethnic firms have become more and more heterogenous and are faced with many different *market conditions*. However, there is one dominant assumption – formulated by Light (1972) as the “protected market hypothesis” – that the initial market for ethnic entrepreneurs typically arises within the ethnic community itself. Thus, if ethnic communities have special needs and preferences, they will best be identified and served by those who know them intimately – namely by the members of the immigrant community itself. Producers who quickly find a niche in the immigrant community are therefore purveyors of culinary products – tropical fruits or oriental specialities – but also “cultural products” like newspapers, books, and clothes, i.e. products with a direct connection with the immigrant’s homeland and based on the knowledge of tastes and buying preferences (Aldrich, et al., 1985). However, if ethnic firms confine themselves to the ethnic market, their potential growth is severely restricted due to limitations in market size and buying power. This may not always be the case – many ethnic firms find access to customers beyond the ethnic community – and there seem to be certain circumstances under which small ethnic firms can grow in the open market, for example: (i) markets that are underserved or abandoned by large mass-marketing organizations, such as the core areas of urban centers that are abandoned by the large food retailers, (ii) markets where economies of scale are low, (iii) markets affected by instability or uncertainty, in which industries may be segmented into one branch dominated by larger firms, handling staple products, and another composed of small-scale firms catering to fluctuating patterns of demand, and (iv) market for exotic goods.

Given the existence of a market, the potential ethnic entrepreneur still needs *access to ownership* opportunities, which is to a large extent dependent on the number of vacant business-ownership positions and government policies toward immigrants. The likelihood of ethnic entrepreneurs starting a new venture is greatly affected by the level and nature of interethnic competition for jobs and business opportunities. For example, it has been shown that when competition is high, ethnic groups tend to be concentrated in a limited range of industries and, at very high levels of competition, ethnic groups may be forced out of more lucrative businesses and even pushed out of business altogether. However, residential segregation appears to reduce interethnic competition for business vacancies. In addition, access to ownership is also affected by government policies affecting the ease and terms on which immigrants can start their own business. In most societies, immigrants are free to settle wherever they want – where job opportunities are best – although government often attempts to influence where immigrants settle. Moreover, western societies also maintain policies that impede ethnic business development, for example through “trade licenses” and “residence permits”.

2.3.2. *Group characteristics*

Why do some ethnic groups start more new ventures than other groups? Historically, considerable disparities in self-employment among various immigrant populations have occurred. For example, US Jews have been far more successful in business than the Irish, and Italians have achieved higher rates of self-employment than the Poles. These differences between ethnic groups can probably be explained based on the complex interaction between conditions such as pre-migration characteristics, the circumstances under which integration took place, the group's subsequent evolution, and post-migration characteristics (Waldinger & Aldrich & Ward, 1990b). Pre-migration characteristics are an individual's skills and experience that can be useful to business success. This predisposition could be based on the selective nature of migration, which means that only individuals with substantial education, business experience and capital migrate. For example, at the beginning of the 20th century, Russian Jews emigrating to the US had prior experience of tailoring, a high level of literacy and a historical orientation toward trading, and they moved rapidly into entrepreneurial positions in the garment industry. The circumstances of migration also influence the conditions under which the immigrants move. For example, individuals arriving as temporary immigrants – with the intention of returning to the home country – are mainly concerned with the accumulation of capital and not with the attainment of social mobility in the societies to which they have migrated. Finally, resource mobilization, which concerns the ethnic social structures such as the network of kinship and friendship around which ethnic communities are built, constitutes a central source of resources, out of which ethnic entrepreneurship may arise. For example, the family is important both for the provision of capital and as the core workforce for small businesses. However, a strong family structure may not be sufficient or necessary for ethnic entrepreneurs' success. For example, Zimmer and Aldrich (1987) found few differences between South Asian and white shopkeepers in their use of family labor. Finally, the post-migration characteristics reflect the immigrant group's position in the economy – certain environments are more supportive of self-employment than others. For example, immigrant groups concentrated in industries where small firms are the prevailing form will have access to better information about business opportunities and opportunities to acquire relevant skills than immigrant groups concentrated in large scale industries.

2.3.3. *Ethnic strategies*

The concept of strategy reflects the positioning of oneself in relation to others in order to accomplish one's goals and involves both the opportunity structure within which ethnic business operates, and the characteristics of the ethnic group. Ethnic entrepreneurs need distinctive strategies in order to exploit distinctive socio-cultural resources and to compensate for the typical background deficits of their group in respect of wealth, political power, etc. In their study of seven groups of minority entrepreneurs in Britain, France, the US, West Germany and the Netherlands, Aldrich and Waldinger (1990) concluded that what was most remarkable was not the differences among ethnic groups in their formation of new firms but how very similar their strategies were. For example, information is typically obtained through the owners' personal networks and via various ties specifically linked to their ethnic communities. Training and skills are acquired on the job, often while the individual is an employee in a co-ethnic or family member's business. In addition, family and co-ethnic labor is critical to most small ethnic businesses (Waldinger & Aldrich & Ward, 1990b).

2.4. Networks and the entrepreneurial process

Entrepreneurs are embedded in a social context and must establish connections to resources within their social networks. The importance of the social network for the entrepreneurial process is a central theme within entrepreneurship research. Howard Aldrich took an early interest in this issue, not least in the book chapter co-authored with Cathrine Zimmer in 1986, which is one of the most well-cited pieces regarding the role of networks in business formation.

2.4.1. The characteristics of entrepreneurial social networks

In the evolutionary process (variation, selection, retention and struggle) there will be a struggle for resources and opportunities. Sometimes resources will be abundant, and a high proportion of entrepreneurs will be successful in attracting resources, whereas in other situations, especially in evolving industries, resources become scarcer and competition increases, leading to a higher mortality rate and a decline in the population. In order to attract the resources needed, entrepreneurs may use their social networks. The network approach could be applied to the study of entrepreneurship in several different ways, and Aldrich and Zimmer (1986) discuss four different applications:

1. Social forces that increase the density of networks. The likelihood of entrepreneurial success will increase in situations where conditions increase the salience of group boundaries and identity, leading to a greater density in the network, i.e. extensiveness of ties between individuals within the group.
2. “Brokers” who promote access in social networks. In order to reduce transaction costs, “brokers” such as trade associations, technical experts, management consultants, etc. who facilitate the interests of individuals not directly connected to one another will have central positions in networks.
3. The diversity of the network that increases the production of entrepreneurs. Based on Granovetter’s (1973) reasoning, which links the type of ties (weak and strong ties) to the scope of opportunities available to the individual, it follows that entrepreneurs are more likely to be found in positions whose centrality is high and which are connected to many diverse sources of information. In addition, entrepreneurs activate their weak ties in order to gain access to business information (e.g. new business locations, potential markets, potential investors, etc.) and also to attract customers.
4. Social resources embedded in the entrepreneurs’ network. In combination with the reasoning of strong and weak ties it can be argued that all weak ties are not equally useful for acquiring social resources. In this respect, weak ties to contacts with a leading position in the social hierarchy will provide the greatest access to social resources. Accordingly, we will find successful entrepreneurs with weak ties to individuals who are well placed to provide timely and accurate information as well as to people with different kinds of resources.

Elaborating on the social networks of entrepreneurs, Dubini and Aldrich (1991) distinguish between “personal networks” (centered on a focal individual) and “extended networks” (focusing on collectives). A *personal network* consists of all those individuals with whom an entrepreneur has direct relations, including for example partners, suppliers, customers, bankers and family members. “Networking” as a verb is often seen as something apart from ordinary business behavior – based on pure market-mediated transactions, one-of-a-kind and non-sustaining transactions between people who never expect to see each other again – a transaction form which includes opportunism potential, especially under conditions of uncertainty and when problems occur, as the other party may simply exit the situation. In contrast, networking refers to situations where both parties expect to see each other frequently and where they invest in long-term relations. The benefits may be an increase in trust and predictability as a result of the establishment of long-term relations – and while the uncertainty of a situation is not reduced the other party’s reactions to a situation are more predictable. Equally, the individuals concerned are more likely to use “voice”, i.e. making their complaints known and negotiating over them, rather than exiting in response to problems. Thus, networking with one’s direct ties is a way of overcoming some of the liabilities inherent in purely market-like transactions with other parties.

Extended networks are the collective result when interconnected personal networks are examined. The shift from personal networks, with a focus on direct ties, to extended networks, including indirect ties to individuals and organizations with whom there is no form of direct contact, may enable entrepreneurs and firms to substantially increase their access to information and resources compared to what may be available through their direct ties. Networking is a process – initially in a business process the firm does not exist, and the entrepreneur as an individual will gather the necessary resources, but when the first exchange takes place, the focus may shift from the entrepreneur to the company itself. The use of extended network concepts applied to firms as opposed to individuals enables us to study organizations that otherwise would not have been taken into consideration. Thus, extended networks are associated with organizations, whereas informal personal networks are associated with individuals. Using the “personal network” and “extended network” concepts, two general principles linking network behavior and entrepreneurial success were formulated:

- Effective entrepreneurs are more likely to systematically plan and monitor network activities. For example, they are able to chart their network and discriminate between productive and symbolic ties, they regard networks as crucial for the success of their firm, and they are able to stabilize and maintain networks in order to increase their effectiveness.
- Effective entrepreneurs are more likely to undertake actions to increase the density and diversity of their network. For example, effective entrepreneurs set aside time for purely “random” activities (i.e. with no specific problem in mind) and are able to check their network density in order to avoid too many overlaps that may affect network efficiency.

2.4.2. *The impact of social networks on business start-ups and performance*

It can thus be expected that an extensive social network rich in resources is important for the entrepreneur’s start-up possibilities but also for the success of an already established company. However, our knowledge of this relationship is very poor. In a longitudinal panel study of 165 prospective and active entrepreneurs in the Research Triangle Area of North

Carolina, Howard Aldrich and his colleagues collected data on two occasions. The first study was conducted in February 1986 and the follow-up study was performed in December 1986, which means that the entrepreneurs were followed during a nine-month period. A similar panel study was conducted in 1990 with a follow-up two years later based on the firms that participated in 1990. In all, 281 responses were included in this second study.

Based on the first data collection in 1986, Aldrich et al. (1987) found some general characteristics. As expected, the results showed that network variables had a significant impact on business foundings and profitability in newly formed companies. Three variables seemed to be of particular importance for the founding of businesses: business founders reported a higher than average number of contacts per week with core network members, they spent more time developing contacts, and had networks that were more closely linked, than those individuals who did not start businesses. For newly founded businesses (three years old or less), the results of the study indicated that entrepreneurs who maintain high levels of contact with networks, whose members are inter-connected, are more likely to make a profit. However, some unexpected findings emerged. It was found that successful entrepreneurs had networks with diverse resources and that diversity was greater when network members were not tightly linked. The opposite was found – only 48% of the entrepreneurs who had networks with higher proportions of weak ties made a profit compared to 80% of those entrepreneurs with strong tie networks.

The conclusion seems to be that social networks allow founding entrepreneurs to expand their range of action and gain access to resources and opportunities that would not otherwise be available. In Aldrich and Reese (1993; see also Reese & Aldrich, 1995), a question based on the second panel study from 1990 to 1992 was to see if networks are equally important in ongoing businesses. Interestingly, and to some extent surprisingly, the study showed no evidence that networking activities (measured as the size of an entrepreneur's personal network and time spent on developing and maintaining business contacts) affect business survival and performance – business survival and performance were not related to an entrepreneur's network size or direct effort.

The data from the Research Triangle Area of North Carolina was also used for an international comparison, reported in Aldrich and Sakano (1998), of the make up of personal networks in five countries: Italy, Japan, Northern Ireland, Sweden and the US. The comparisons were based on two different models of how the entrepreneurs' networks are formed:

- Embeddedness model – networks are products of strong ties and long-lasting relationships. The assumption is that the social relationships of entrepreneurs resemble those of other people, with a core of close personal contacts built on ties of reciprocal interdependence and a periphery of weaker ties assembled on a more haphazard basis. For entrepreneurs, strong ties and close friendships can provide the social support needed to weather crises and hardships, i.e. entrepreneurs will turn for business advice to people with whom they have relatively long-standing relations and whom they trust.
- Instrumental model – networks are pragmatic, instrumental tools consisting of weak ties of a short duration. The assumption is that entrepreneurs have different kinds of social relationships than other people, with a core of weak ties assembled on a pragmatic basis – they pick members of their inner circle on an instrumental basis. In the case entrepreneurs may well segregate their relationships into business and non-business, with a special group

of people selected as business advisors – on the basis of their expertise rather than social similarities to the entrepreneur.

Entrepreneurs' personal networks seem to be rather similar in all five countries. The networks are composed of four major groupings: a small group of family members of which very few have a business relationship with the entrepreneur, a large group of business associates who are defined in strictly business terms, a smaller group of business associates who are also regarded as "friends", and finally a group who are strictly defined as "friends" without an apparent business tie to the entrepreneur. Little support was found for the instrumental model of personal networking. Entrepreneurship is associated with uncertainty, and strong ties of intimate friendship with people they have known for many years provide the social support needed for the development of the company. In accordance with the embeddedness model, entrepreneurs seek people they can trust, although trustworthiness is not always easy to recognise.

2.5. Women entrepreneurs

Over the past thirty years the number of businesses owned by women has grown rapidly, and the number of female owned firms has also increased in Europe, although the proportion of firms is not as high as in the US. Howard Aldrich has treated the role of gender in the business formation process in several studies. Networks are also a central feature in his reasoning in these studies.

Baker, Aldrich and Liou (1997) contains a review of earlier findings regarding differences between women and men's business practices. It was concluded that very few systematic differences were identified in earlier research – the strongest differences involve demographics rather than style. For example, women's businesses tend to be smaller and are more likely to be in retail or service industries. As owners, women tend to have less experience in their firm's industry and as managers and are more likely to start businesses to gain flexibility. However, in psychological and demographic aspects, women entrepreneurs are more similar than different from men. The results are not surprising. In a market based perspective all entrepreneurs, men and women alike, operate in a business environment structured by laws, standard practices, a set of institutional contingencies to which owners have to adapt if their businesses are to survive. Accordingly, we could predict that women entrepreneurs behave much like men – differences among women and men are secondary to economic and institutional requirements.

On the other hand, there is extensive research on sex and gender roles providing arguments that even though men and women operate under the same institutional and economic rules, the business world is largely constructed and dominated by men. This makes it reasonable to believe that women and men belong to different types of networks that influence their entrepreneurship – women inhabit a "female world" that only partially overlaps the "male world" (Aldrich, 1989; Aldrich, et al., 1989; Baker, et al., 1997). First, there is overwhelming evidence that gender has a major impact on the choice of career, in terms of for example college, occupation and the level of authority in a firm. It is during these formative years as an employee that the future entrepreneur accumulates experience and becomes embedded in networks that can subsequently be drawn upon when starting their own business. Women may be at a disadvantage when it comes to building a personal and social network (Aldrich, 1989; Aldrich, et al., 1989). Second, most women entrepreneurs have to balance family and work

responsibilities in a way that men do not. The critical period for entrepreneurs is around the age of 30, when they accumulate resources and networks that might be important for the establishment of their business. However, in these years women are disadvantaged – their networks are mainly constructed around their husbands' business associates instead of their own (ibid.). Finally, women entrepreneurs often lack full access to informal networks, such as work-related after-hours socializing and voluntary association activities. Thus, key life events connected to work, marriage, family and organized social life could be expected to have substantial effects on the social networks of women entrepreneurs and make an important difference in terms of the possibility of running their own business compared to the situation of men.

Based on these arguments: Are women and men embedded in networks different enough to affect the rates and types of entrepreneurship? Do women differ from men in how they use networks to obtain resources and assistance for their businesses? Based on the two longitudinal panel studies in the Research Triangle Area of North Carolina carried out in 1986 and 1990 - 1992, Howard Aldrich and his colleagues presented some interesting findings. First, in Aldrich and Sakano (1995) it was shown that men do not include women in their network of business advisors (strong-tie network) – women made up only 10% of the advisor networks of male business owners – a fact that may indicate women's position in the existing distribution of economic resources and power in society. In contrast, there were a higher proportion of cross-sex ties among female networks. Thus, men were mainly involved in same-sex networks, whereas women were involved in mainly cross-sex networks. Second, Aldrich, et al. (1997) examined entrepreneurs' networking activities in their search for legal and financial assistance, business loans, and expert assistance for their businesses. It was found that

- women were as active as men in networking activities (except for legal assistance),
- men and women used similar channels (i.e. friends and business associates) to locate people who could help them,
- pre-existing ties were the main channel of resource acquisition for both men and women, and
- the quality of the assistance obtained via the network favored women – women seem to pay slightly less than market rates for legal and loan assistance, although they receive the same quality of advice as men.

Thus, the results indicate that women's networking – in pattern and outcome – did not differ from men's networking in any major respect – which is in contrast to what could be expected based on research on sex and gender roles. In conclusion, as reported in Aldrich and Sakano (1995) there is evidence of a sex bias in the composition of women's networks, but obviously not in how they use them.

3. PERSPECTIVES ON THE EVOLUTION OF NEW FIRMS

In this final section I will present an interview with Howard Aldrich in which he gives his views on the evolution of new firms but also the future development of entrepreneurship research.

Your evolutionary theory seems to have a great potential when applied to entrepreneurship research. Based on your evolutionary theory, what have been the most interesting insights in your research on entrepreneurship?

I think one of the most interesting aspects is the legitimacy issue ... and in this respect it is really important to distinguish between being a founder in an established industry and being a founder in a new industry. I think the book by Clayton Christensen *The Innovator's Dilemma* is really superb in illustrating my view. He is not an evolutionary theorist but he uses evolutionary arguments. He makes a distinction between what he calls "sustaining innovations", "normal innovations", and "radical innovations" and argues that in some industries you have certain firms developing radical disruptive innovations, for example, General Electric and Hewlett Packard, but in most industries there are a lot of sustaining kinds of firms that don't understand what is happening when radical disruptive innovations occur, and many of these firms will disappear because they have underestimated the power of the innovations. In this respect he raises the question: "Why aren't established firms that are able to create radical innovations the ones to pioneer entirely new industries?" and "Why are new industries almost always started by firms that no one has ever heard of?" Christensen argues that this is not a technological problem – it is essentially a social problem ... it has to do with the relationship between the established firm and the customers that it currently serves and the way that investors and suppliers think of the firm – it is a matter of legitimacy and identity – "we could do it, but we shouldn't do it". It is the embedded nature of the firm, the relationship to other actors, its identity and legitimacy that can explain why radical disruptive innovations typically come from outsiders. Christensen's arguments are good examples of the underlying sociological or social process orientation that I would like to bring to entrepreneurship research.

What direction do you think future entrepreneurship research based on evolutionary theory will take?

I will give you a few of what I call "analytical dilemmas", which I think can illustrate the possibilities offered to entrepreneurship research by a strong analytical perspective like the evolutionary approach.

I am working on a study of entrepreneurial teams – most entrepreneurship takes place in organized groups, not by solo entrepreneurs. The question we are asking is "what principles govern the creation and composition of teams?" We are using the dataset of the Panel Study of Entrepreneurial Dynamics in the US. From the study we know that about half of the people trying to start a business are doing it solo, while the other half are doing it in a team. We know that of those starters consisting of more than one person, about half of them are husband and wife teams and half of them are other combinations. The question is: "How much 'homophily' is there in the teams?" The results indicate that if we exclude husband and wife teams, there is an overwhelming tendency toward single sex teams, teams with a similar ethnic background, occupational homophily, etc. So, there seems to be a strong principle of homophily operating in entrepreneurship. If you present these results to sociologists, they will say: "Oh yes, that makes sense ... homophily is a very strong principle that seems to operate in society generally". But if we look at the way we teach entrepreneurship, we teach the rational planning model ... when you pick a team you select people based on competence, functional contribution, complementary skills ... which implies that homophily is not a major consideration. On the other hand, it appears that teams that are formed in reality emerge from

already existing social structures that generate homophilic teams. This shows that a more general social theory or principle could be used to explain team building in entrepreneurship.

A second “analytical dilemma” is that if we look at the literature on women entrepreneurs and management, you will find that there is no empirical evidence that suggests a difference between the way women manage in comparison to men. If a difference is found, it appears to be quite small. On the other hand, there seems to be a huge discrepancy in start-up rates between men and women ... women just don’t try to start businesses at the same rate as men. Why? They apparently have the same skills as men. If the skills were lacking, it would certainly be revealed in the way they managed. So, there must be some institutional reasons, the way in which the labor market is organized, or the family is organized ... it is not the individuals themselves, it is something about the institutional structures, and we have to look at relationships between the individual and the institutional context.

Third, it is interesting to note that the human being seems to be a creative, problem solving creature ... especially when young, and if you look at some institutional sectors of society, for example art and culture, you can find incredibly creative products, but then if you look at typical start-up entrepreneurs, it seems quite vain ... very imitative behavior. So, the question is: “Why aren’t there more radical discontinuous organizations?” Again the dilemma is that the literature presents the human as a creative creature, and on the other hand the data that we have on start-ups show that they are not terribly innovative. In the evolutionary approach, it is not surprising that what we see is mostly incremental changes. The nature of evolution is such that it is very difficult for any new activity to succeed if it is not closely tied to what has already worked. When evolutionary theorists, working with animals other than humans ... it is obvious that when we look over time and generations we can see that there will be a stabilizing selection ... you have behaviors that are pretty well adapted to the environment. The difference with humans is that they are pretty good at reconstructing their environment ... but the principle still exists ... we are in a situation in which we can’t predict the future, we can’t see around the corner, we are aware of our immediate environment, and we know what has worked in the past. So, there is a strong continuity, things that worked yesterday are working today and will work tomorrow, and the most sensible change is to do things just a little bit differently but not very differently from what was done in the past. My point is that humans are creative, but in a rather local sense ... creativity is local ... humans can’t easily start new industries, or start businesses in existing industries that radically differ from other firms ... the environment has already eliminated things that don’t work ... and if you try to break away from the model you have to recognize that it is highly risky.

Finally, if you look at the ethnic business literature, a main point is that it highlights the fact that some ethnic groups noted for their level of entrepreneurial activity today were no different from the normal population in terms of entrepreneurial activities at other times or in other societies. So, people with the same cultural background seem to behave very differently depending on what country they emigrated to and when. For example, the Chinese and Japanese who came to America in the late 19th or early 20th century first came as railroad workers, as laborers, and it was later on that Chinese immigrants started their own businesses in certain lines of work, like laundries and restaurants. This again indicates that the reasons couldn’t come from those people as a unique cultural group – there is nothing special in the Chinese culture that makes them entrepreneurs ... it has to do with the institutional context ... and put into an evolutionary perspective, it is a very contingent-related problem, and we wouldn’t be aware of it except through historical analysis.

If we look at the research topic of firm formation in general terms, what have we learned over the last decades?

Of course, we know a lot more today about the demographics of entrepreneurship, we have a better idea of the volatility of firms in a business population, and we have a better understanding of the huge moving into and out of the firm creation process. Thus, in entrepreneurship research we have come to the point where we recognize volatility at population level and we see that there is tremendous variability within the population of entrepreneurs – entrepreneurs are not one and the same.

But we don't have an underlying understanding of this volatility ... more knowledge is needed about the topics raised by Scott Shane in the area of opportunity recognition: "Why do some people recognize opportunities that other people fail to notice?" There is a tremendous variability across individuals, how they perceive their environment and what they are willing to do next. The problem I think with the way opportunity recognition has been approached is that it is often related to a situation of what we can call "arbitrage" – the case where a person recognizes an opportunity by making inferences from an already familiar situation, for example, from one market, to another situation that is known ... another market ... and recognizes that there is a niche that is not filled. That makes sense.

But in entrepreneurship we are not saying that we are looking at "arbitrage" entrepreneurship, and we don't see entrepreneurship as an analytical and rational process ... it is more a question of new solutions and being at the leading edge ... to me that seems like magic. In some respects I will revert to evolutionary theory and Donald Campbell saying that it is mostly a matter of being at the right place at the right time ... and if you can show me a priori how to identify the right place and the right time that would be fantastic but unlikely. I think that will also explain what we talked about before, that it is more likely that most people who start businesses are engaged in fairly mundane behavior because they are transferring an idea from one situation to another. It is a question of understanding the limits of human cognition, and such understanding will I think make us a little humbler about what we are doing in terms of opportunity recognition claims.

Has there been any path-breaking research on new firm formation that has changed the research within the field?

I would say that in order to understand entrepreneurship we have to tie entrepreneurship research more closely to other social sciences ... psychology, sociology, social anthropology ... and to the extent that these fields can give us ideas about the understanding of entrepreneurship as a normal human activity. And therefore, talking about path-breaking research, I would look at the disciplines and ask: "What have we learnt from the disciplines?" and "What innovative ideas have psychologists and sociologists come up with?" For example, there has been some really good original thinking going on in evolutionary social psychology, and I thoroughly recommend the book by Jeffery Simpson and Douglas Kenrick with the title *Evolutionary Social Psychology* (1997). For example, there is an interesting chapter on groups and human sociability that I have used in my research on teams, and it gives a theoretical basis for saying that there is a distinct basis for human group behavior ... humans are predisposed to follow others, to fight for status within the group, etc. ... which helps us explain their behavior on entrepreneurial teams.

Based on your experience in entrepreneurship research, what would your advice be to a young doctoral student interested in entrepreneurship?

First, I would say that the basis for understanding entrepreneurship is the disciplines, and therefore you have to set your roots in a discipline ... psychology, sociology, anthropology, or whatever ... and then you can focus on a topic like entrepreneurship. A doctoral student will need in-depth theoretical and methodological training, and the rewards will probably come from discipline-based theorizing, not cross-discipline theorizing.

Second, and as a consequence, you would probably be able to find pretty much all of the concepts that you need within the different disciplines. I am pretty certain that a PhD student who came up with a topical question and spent time in the library looking over the literature published in the last decade would probably find some really good applications of powerful research that he or she could adapt to his/her own research question.

Based on your research on the formation of new ventures, what policy recommendations would you suggest?

I don't believe that this is a simple human capital problem ... we do not create more firms by setting up more training programs ... our network studies show that there is a lot of social capital issues involved. So, to community leaders I would say: "Create voluntary associations in which people have a chance to 'mingle' with people they would otherwise never meet." We know that in personal relationships people have a tendency to find people very much like themselves, and we need associations that offer incentives and thus bring people together, creating heterogeneous role sets, etc.

At national level, one thing that the Global Entrepreneurship Monitoring project has shown is the large differences across societies and angel investments. It is really extraordinary ... in some societies up to 8% of the population are making angel investments, whereas in other societies the figure is less than 1%. The implication in the GEM report is that this is a function of tax policies. We know that informal investors are much more important than formal investors, at least in the start-up phase. So, one suggestion would be to look closely at incentives for people to act as informal investors.

What will the future look like for entrepreneurship research in general?

I wrote a paper for the *Organization and Management Theory* (OMT) at the Academy of Management called "Who Wants to Be an Evolutionary Theorist" (2001) in which I discussed what is missing in OMT research, and in many respects the same discussion can be applied to entrepreneurship research.

What we do in entrepreneurship research and what we have done in the past is to pick those people who succeeded, often the few notable radical successes, and attribute their success to something about their special characteristics or their behavior. But most entrepreneurship is gradual and incremental, not terribly radical. Therefore, let us look at entrepreneurship in the same way as other human behaviors, more normal activities, and most of what we see is incremental development, not the great successes. So, I think we need to get away from the over-emphasis on high-tech, high-growth and highly visible successes ... that is really unusual behavior ... we get skewed samples in our research, and we miss the true variation, diversity and heterogeneity in the business landscape – in turn, there is a bias in the models that we

develop, and you can't build a science if you only focus on the abnormal behavior ... you can't build a science on forest ecology if you only look at redwoods, that is the last stage in the forest, you have to understand all the other flora involved in creating a forest.

I also think that we focus too much on what I will call “outcome-driven research” based on cross-sectional and static studies. Outcome-driven research is built backwards from the observed outcomes to prior significant events. In this kind of research we have problems, for example, researchers make their selection on the dependent variables, there might be problems in accessing people who experienced the event or relevant records from the past, and it is also difficult for people to recall past events in a detailed manner. On the other hand, evolutionary thinking focuses on processes, and the research is “event-driven” where the explanations are built forward, from observed events to outcomes. The research design in such a study could vary, but would require a very dynamic research design. One good example of such an event-driven study is the PSED project (the Panel Study of Entrepreneurial Dynamics in the US) that Paul Reynolds initiated to study the behavior of nascent entrepreneurs.

In entrepreneurship research we also tend to leave the time and changes rather imprecise and ambiguous ... and we ought to specify the intervals of time during which events occur ... which will influence the frequency of observations needed and the time intervals between them. For example, researchers who rely on archival data often only have data available in one-year chunks, even if we know that events occur more often. We need to specify “pace” – the number of events in a given space of time, and “duration” – the amount of time that elapses for a given event. It is difficult to rely on archival and publicly available data for the study of the pace and duration – such data can tell us when an event was completed, but not when people began to work on it – we know the outcome, but not the sequence and pace of events leading up to it. Instead, what we need is fieldwork and real ethnographic studies.

Finally, in entrepreneurship research we need to ask ourselves more often: “What happens next?” Most of our empirical generalization is about the past, not least evolutionary thinking. It is difficult to explain, on the basis of an evolutionary approach, why some companies survive while others do not ... it's not possible to “pick the winners” ... an explanation can only be provided afterwards, as each company has its own specific history and is situated in a specific social context. Many have criticized evolutionary thinking, saying that “evolutionary thinking is backward looking – it only helps us understand what has already happened”. My answer to that would be: “When did you collect your data?” and “When did you analyze it?” None of them claim to have written their results before the data were collected. Most research is historically situated although perhaps evolutionary thinking makes it more salient. But we need to build models from our research that help us understand what is likely to happen in the future – our research results are historical artefacts, and until we have tested our models in other periods, we don't know if our results are dependent on unique historical circumstances or not. In this respect I am very confident that the use of simulation and computational modelling can give us the tools we need to test the dynamic implications of our research.

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