

Arnold C. Cooper's Prize Lecture: Reflections on Entrepreneurship

1997 Award Winner*

ABSTRACT

This paper first examines entrepreneurship as a field of study. It then reviews three research projects, each from a different decade of my career. It concludes by considering the condition of the field in 1997 and the prospects for further development of the academic field of entrepreneurship.

Introduction

I am pleased and honored to be here. I thank the Swedish National Board for Industrial and Technical Development (Nutek), the Swedish Foundation for Small Business Research, and Telia AB for sponsoring this award. I believe this award is serving to attract the attention of scholars all over the world to the exciting possibilities of working in the field of entrepreneurship.

Today, I would like to talk about some of the ways in which entrepreneurship contributes to our societies and note why young people in many parts of the world are excited about entrepreneurship courses and opportunities. Then, I would like to review three studies I have been involved with, each from a different decade of my career. Finally, I would like to make some comments about entrepreneurship as a field of study and the state of the field in 1997.

The Role of Entrepreneurship

In economies all over the world the central role of the entrepreneur is being recognized. (My examples are mostly from the United States because that is the economy I know best.)

In job creation, it is now known that, in many phases of the business cycle, it is new and small firms which create most of the new jobs. In the United States, the *Fortune* 1000, the 1000 largest industrial corporations, lost 3.5 million jobs during the decade of the 1980s. During that same period, firms with less than 500 employees

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added 10 million jobs. In 1995, the U.S. economy generated about 1.66 million new jobs. Seventy-five percent were in industries dominated by smaller firms (less than 500 employees). In many countries where unemployment is high there is increasing interest in how entrepreneurship can be encouraged.

It is increasingly recognized that new and small firms often function as centers of innovation. Although small firms spend only a fraction of what large firms spend on R & D, small firms, in the aggregate, account for more than half of all major product innovations in the U.S. Many industries characterized by high rates of innovation also have high rates of new venture creation.

There are additional benefits from entrepreneurship. It makes an economy more flexible. As old industries decline (or lose employment to developing countries) entrepreneurship creates new industries.

New and small firms also offer career opportunities to those people who are most effective in small firm settings. Many students in the United States are well aware of these developments and that is why entrepreneurship courses are growing enormously. *Fortune* magazine estimated that the average young person, entering the U.S. job market, would have ten different jobs in five different organizations before retirement. Students recognize that they will not spend 40 years with the same organization and that they must take responsibility for their own careers. They also perceive that many of the most exciting and rewarding careers are in entrepreneurial firms.

Increasingly, in many countries entrepreneurs are becoming "folk heroes." Admired by young people and even encouraged by government, they are helping to transform our societies.

At this point, I would like to review briefly three of my past studies, each from a different decade of my career. I hope these constitute contributions and that they illustrate the kinds of research questions which have been considered by me and others as this

developing field.

Influence of Established Organizations on Entrepreneurship

The first study dates from the late 1960s, when I was a visiting professor at Stanford. It examined 250 technically-oriented firms which had started in Silicon Valley during the decade of the 1960s (Cooper 1971; Cooper 1971). Later I considered some of the same questions using a broad sample of firms from across the United States (Cooper 1985).

How do established organizations, where potential entrepreneurs are employed, influence the entrepreneurial process? We might call these established organizations "incubator organizations." It appears they influence the processes of formation and the nature of the new firms established.

This research started in Silicon Valley, where I observed that some organizations almost never spun off entrepreneurs and others almost needed revolving doors – not so much for the customers as for the entrepreneurs who left.

Established organizations influence the location of new firms. This is because entrepreneurs usually start their firms where they are already living and working. Even though they may have been geographically mobile earlier, they usually do not move when starting a firm. In Silicon Valley, I found that of the 250 firms studied, 97.5 percent had at least one founder already living in the area when the firm was started. Even though this was a very desirable geographical area in which to start a high technology company, very few entrepreneurs moved to the area when starting.

There are several reasons for this. If entrepreneurs start where they are already living and working, they can make use of their existing networks and utilize these established connections to persuade others to help them or possibly to join up with them. They can draw upon their knowledge of local markets and suppliers. They can start part-time. Their spouses can keep jobs and keep some income coming in to the families. They can concentrate their full energies on the process of starting a new firm. An important implication is that entrepreneurship in a region is largely dependent on the pool of people already living there.

Incubator organizations also influence the nature of the new business started. To some degree for all new businesses, but particularly for high technology ones, entrepreneurs tend to start firms related to what they did before. In Silicon Valley, I found that 84 percent of the new firms utilized the same technology or served the same markets as the organizations the entrepreneurs had left.

The entrepreneur or the entrepreneurial team is the primary asset of a new venture. Their perceptions of market opportunities shape the strategy of their new firms. Their networks, often based upon their prior jobs, are utilized in getting others to provide assistance. Their knowledge and skills, usually learned in the previous organization, are the core competence of their new companies.

Thus entrepreneurs usually do not move when starting and, for growth-oriented firms, often start ventures related to what they did before. This means that the nature of new firms started in an area is likely to be related to the nature of organizations already there. If biotech startups are desired, then there need to be organizations employing biotech managers and scientists already there. However, if, within a particular geographical area, the existing organizations

are primarily in mature industries with few entrepreneurial opportunities, then it is unlikely that many growth-oriented firms will be founded.

There are also implications for young people starting their careers. Industries vary widely in the extent to which they offer opportunities to start new firms. Those Purdue engineers who, in the past, were deciding whether to join the electric utility industry or the software industry were, without realizing it, determining whether they would ever be in a position to become entrepreneurs.

I have a theory. It is hard to get out of a warm bed on a cold morning and it is hard to quit your job if you have family responsibilities. It is easier to quit that job if you have grown to hate your boss. In Silicon Valley, I found that 83 percent of the founders had left their previous positions because of strong negative pushes. Of these, 13 percent had been forced to leave or were fired. Another 30 percent quit their previous jobs with no specific plans for the future; frequently it was because they had become very frustrated, often over the cancellation of a project. Another 40 percent reported that they would have quit, even if they had not become entrepreneurs. Only 17 percent reported that they were happy in their previous positions and would have stayed on if they had not started their businesses.

Previous studies about motivations, based upon survey data, vary widely. For instance, a study of 2,994 entrepreneurs, primarily not in technical fields, reported that only 26.5 percent left their previous positions because of negative pushes (Cooper *et al.* 1990). It is not clear whether the differences are due to contrasts across industries or to research methods; it may be that entrepreneurs will talk more about negative pushes in interviews than through questionnaires.

We can note that many organizations which have spun off many entrepreneurs did so in times of internal troubles. An implication of these findings is that if you join a firm and they keep you happy, you are less likely to become an entrepreneur.

Spin-off rates vary widely, even among firms in the same industry. One factor which appears to influence spin-off rates is the size of the organization. Four different studies have shown that small firms have higher spin-off rates. For instance, in my study in Silicon Valley, firms with fewer than 500 employees had an average spin-off rate ten times as high as larger firms. A study of British manufacturing firms found that organizations with fewer than 250 employees had spin-off rates six times as high as larger firms.

There are several reasons for this. In small companies employees are learning about technology or markets which can be exploited by small firms. In such organizations, employees typically develop broad experience and see what is involved in managing a small firm. There is also probably some self-selection, in that those choosing to work in small companies may be more motivated to become entrepreneurs. The implication is that the kinds of large manufacturing plants which are often the focus of government efforts to develop local economies are unlikely to have many spin-offs. However, small firms participating in developing industries are likely to generate jobs and also help to develop the next generation of entrepreneurs.

Established organizations also provide the settings within which founding teams can be formed. High growth firms are usually started by teams. I found that in Silicon Valley during the decade of the 1960s, about 70 percent of the firms were formed by teams of two or more founders. Teams permit the assembly of a broader range of skills. They also permit the pooling of financial resources and personal contacts, both of which increase the initial resources of the new

firm. There are also psychological benefits. They can reassure each other. I recall one entrepreneur saying that "When you wake up in the middle of the night and wonder if you are crazy, it helps to know that you have someone else involved with you."

If the incubator organization includes, at a given site, all of the key functional activities, such as engineering, marketing and manufacturing, then it is more likely that a balanced team can be formed. Some settings are difficult for the forming of teams. Large manufacturing plants and universities in small towns often do not have a range of skills present within local organizations. This makes it difficult for would-be entrepreneurs to form relationships with fellow founders with complementary skills; it is then hard to form balanced teams. The implication is that the nature of established organizations in a geographical area influences whether team formation is likely to occur.

What would be the characteristics of the ideal incubator, an organization likely to spin off entrepreneurs? I think it would be located in a growing industry, where there are opportunities to segment the market. It would be in an industry in which capital investment requirements and economy of scale effects would be low. It would be a small business or a large organization organized as a series of small businesses. It would recruit capable, ambitious people. And it would periodically be afflicted by internal crises, leading its best people to believe "Even I could manage a business better than this."

Entrepreneurs' Perceived Chances for Success

The second study I would like to report on dates from the 1980s (Cooper *et al.* 1988). It considers how entrepreneurs assess the prospects for success of their new ventures. If the entrepreneur perceives low odds for success, then it is less likely that he or she will push forward in overcoming the many obstacles encountered in developing a new venture.

In this research, we utilized a sample of 2,994 entrepreneurs. All were members of a trade association, the National Federation of Independent Business, and all had recently become owners. The typical firm had been in business for 11 months at the time of the original survey.

We hypothesized that entrepreneurs would be only cautiously optimistic as they started and that their degree of optimism would be related to how well prepared they were. We measured degree of optimism both by asking the entrepreneurs what they perceived as the odds for success for others in businesses like their own. We used a scale ranging from 0 out of 10 to 10 out of 10. We then asked what do you see as your own odds for success?

Entrepreneurs perceived others' odds for success in businesses like their own to be quite good, with a mean score of 5.9 out of 10 and with 39 percent perceiving odds of 7 out of 10 or better. When asked about their own odds for success, they perceived them to be outstanding! The mean value was 8.1 out of 10. Furthermore, 95 percent perceived their personal odds as 5 out of 10 or better and a remarkable 33 percent perceived their chances as "absolutely certain," 10 out of 10. Thus, the average entrepreneur calculated his or her own chances for success as substantially better than others.

We then examined whether the "objective predictors" influenced optimism. Were those who were better prepared (in the sense of having more education, management experience, industry experience, and more capital) more optimistic? We found that these ob-

jective predictors did not influence optimism, whether optimism was measured in terms of their own odds or the differences between their own odds and those of others.

Initially, we were puzzled, but then we talked to psychologists who referred us to the literature on cognitive dissonance. Our findings appear to be a classic case of what psychologists would term "post-decisional bolstering." The theory of cognitive dissonance suggests that decision makers will bolster or exaggerate the attractiveness of an option after it has been chosen. Thus, whether decision makers have started a business, taken a new job, or gotten married, they convince themselves that the right decision has been made.

This tendency may be reinforced by entrepreneurs' high observed internal-locus-of-control, in which they believe they can control their own destinies. The findings also seem consistent with research on risk-taking propensity, in which entrepreneurs have been found to be only moderate risk takers. Thus, although the outside world perceives high risks and low odds for success, the entrepreneur does not see it that way.

These findings suggest that entrepreneurs may find it difficult to assess objectively the prospects for their own ventures. This may have some positive effects, such as making it easier to commit the long hours which are necessary. This may also help the entrepreneur to avoid discouragement and to find ways to overcome problems. Research by psychologists suggests that, in many human activities, an optimistic outlook is likely to lead to greater success (Seligman 1990).

The findings suggest that entrepreneurs would be well-advised to utilize outsiders, who are less closely involved, as they monitor the prospects and progress of their ventures. These outsiders might note that the "entrepreneurial euphoria" observed here is to be expected and is part of the normal process by which new ventures are created and developed.

Predictors of New Venture Success

One of the major streams of research in entrepreneurship has considered predictors of success for new ventures. The third study, which dates from the 1990s, examined human and financial capital as predictors of new venture performance (Cooper *et al.* 1994). We hypothesized that firms which were better endowed in regard to initial resources would be more likely to do well. They would be in a better position to survive environmental shocks and deal with bad decisions. They should be more likely to survive. They should also be more likely to grow.

We hypothesized that a number of variables might serve as measures of the resources brought to the new venture. The general attributes were education and gender and race. (The latter two were not direct measures of resources, but proxies for life experiences.) We expected males and non-minorities to do better. There were five management know-how variables. They included whether the entrepreneurs' parents had owned a business, whether the entrepreneurs had worked in a business before spinning off to start a firm, the level of management experience achieved, whether professional advisors were used, and the presence of full-time partners. We expected each of these to contribute to success. We also considered how similar the new business was to the entrepreneurs' prior organizations in regard to products or services offered, in regard to customers served, and in regard to suppliers utilized. We thought that

greater similarity would lead to greater success.

We also measured the financial capital at startup, expecting that more initial capital would make it more likely that the new business would survive and more likely that it would grow. Finally, industry sector was a control variable; we expected that retail firms would do more poorly.

In regard to measures of performance, we considered three possible outcomes. They were failure (discontinuance), marginal survival, and high growth.

We followed 2,994 firms, all members of the National Federation of Independent Business, through time through three annual surveys. The data on predictor variables was gathered when the average firm was 11 months old. Subsequently, over the next two years we tracked the status of the firms through four methods. We first sent questionnaires, asking about the problems encountered, the changes made, and data on various measures of performance. If they did not respond, we sent a postcard, asking them simply to indicate that the business had discontinued, been sold, or had survived. If we still had not heard from them we considered whether the U.S. Post Office reported that the mail could not be delivered or forwarded. We also relied upon the membership data of the NFIB, the trade association which worked with us on this research. Using these methods, we were able to track the status of all but one of the 2,994 firms.

We determined that in the period of the study 385 firms discontinued. We also found that 668 firms survived and completed the third year questionnaire, so that their growth rates could be determined. These 1,053 firms are the focus of our subsequent analysis.

We used a multinomial logit model to consider determinants of marginal survival and determinants of high growth (had at least a 50 percent growth and added two or more employees). We found that certain variables increased the likelihood of both survival and growth. These were education (college bachelor's degree or above), race (minorities did more poorly), similarity to prior organization, and more initial capital. We found that certain variables contributed to survival, but not to growth. These included having parents who owned a business, which may have given them the knowhow to survive and may have made them more patient with marginal survival. A surprising finding was that use of professional advisors contributed to survival, but not to growth. Certain variables made it more likely that the venture would grow, but did not contribute to survival. These included gender; firms started by males were more likely to grow, but not more likely to survive. It may have been that males were less likely to keep marginal businesses alive. Having partners made it more likely that the venture would grow, but not more likely that it would survive. The pooling of resources by partners probably contributed to growth. However, the breakup of partnership teams, a not uncommon occurrence, may have led some businesses not to survive.

Overall, we found that many variables contributing to survival also contributed to growth. However, there were some differences. It does appear that the initial human and financial capital of a venture influences its subsequent performance.

Entrepreneurship as a Field of Study

Entrepreneurship, as an activity of organized societies, is as old as human history. However, as a field of academic study, it is quite

young. In the United States, the first course in entrepreneurship was at the Harvard Business School in 1947. The first meeting of the professional group which later became the International Council of Small Business was held in 1956. The present name was adopted in 1977. The first academic conference in the United States focusing upon academic research was held at Purdue University in 1970. It was called "Technical Entrepreneurship: A Symposium" and it involved 12 researchers. It was the first time that entrepreneurship researchers could gather together to present their work. In regard to annual conferences, the Babson Research Conference did not start until 1981. (The organizers were unsure whether anyone would have enough new work to present to justify a follow-up conference the next year). The Division of Entrepreneurship of the Academy of Management, started as an Interest Group in 1974, but did not become an independent division until 1987.

I am less knowledgeable about the many developments outside the United States. As of 1997, there were at least ten journals on entrepreneurship or small business being published outside North America. A multi-university European Doctoral Program in Entrepreneurship and Small Business has been established. InEnt, an annual conference on entrepreneurship education and training, was started in 1991. I know that there are a growing number of conferences and research centers relating to entrepreneurship all over the world. I know that a number of exciting things are happening here in Sweden and that you have many distinguished researchers.

All of this is occurring against the backdrop of the extraordinary transformations in Eastern Europe. It is indeed remarkable when an activity which was illegal in some countries a few years ago – entrepreneurship – is now positively encouraged.

Most of the journals we read and conferences we attend have been started in the last 20 years, only about half of a professional's working life. Now entrepreneurship as a field of study is flourishing. In 1997 there are more than 400 universities offering courses in the United State, with many having sets of courses or majors. Many courses are very popular. Success magazine, which compiled annual ratings of entrepreneurship programs, required a minimum of three courses at the graduate level even to be considered. In 1997 there are more than 60 funded chaired professorships and 100 Centers in Entrepreneurship. The number of journals on entrepreneurship or small business keeps increasing. Possibly the most important development is that the conceptual underpinnings of the field have grown enormously. To date the field has evolved as a multi-paradigm field, borrowing conceptual frameworks and research methods from many related areas. Researchers all over the world and in many fields are contributing as we build the intellectual capital of the field.

Public interest in entrepreneurship is remarkably high. Magazines directed at the general public, such as *INC*, *Entrepreneur*, and *Success* attract both readers and advertisers. The newspaper, *USA Today*, surveyed young people, asking "If you could devote one year to any occupation, what would you choose?" Of the women surveyed, 47 percent chose entrepreneur (over tour guide and novelist). For young men 38 percent chose entrepreneur, even more than professional athlete!

Our young field is sometimes criticized by colleagues in older, more mature fields. They criticize us for a lack of rigor. (We might note that their fields are often characterized, not only by increasing rigor, but also by increasing mortality.) They say "you don't even agree on definitions and you lack well-established research paradigms."

There are grounds for criticizing our young field, but I think it has made enormous strides in recent years. Entrepreneurship has the attributes of a young developing field. When everything is agreed upon and well-established, then a field might be regarded as intellectually mature. However, it is then often less dynamic, and, for those of an entrepreneurial bent, possibly less fun. Comparing the older, more established fields to entrepreneurship is somewhat like comparing a train station and an airport. The train station was built long ago; the schedules are well established, things are clearly laid out; there is little confusion. However, there may be some dust here and there. The airport, by contrast, is under continuous reconstruction, with temporary signs, and changes from week to week. There is confusion and it may seem a lack of clear organization. But, there is also energy, dynamism and change.

I would suggest that entrepreneurship is like that airport. It is still under construction. The best is yet to come.

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