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SCIENTIFIC ENTREPRENEURSHIP: A PROCESS OF CHANGE

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ABSTRACT

We work hard to teach the concepts and skills of entrepreneurship and technology transfer. Scientists and engineers bring us their ideas for help in transforming them into reality. But it is not just the ideas that must undergo a process of change, the scientific and technical entrepreneur must pass through a process of self-change in addition to the traditional learning processes; this process bears a striking similarity to the culture-shock encountered by expatriate business professionals. There are valuable lessons learned for improving the educative process. This paper will discuss the issues, processes, and methods to lower resistance, improve the transfer, and raise the acceptance and effectiveness of the entrepreneurial skill set.

INTRODUCTION

Teaching entrepreneurship is a challenge, whether it is to mature professionals, graduate students, or undergraduates. The lessons have to include the concepts and practice of strategic marketing, management, administration, finance, risk management, and all of the other interlocking skills that are essential to creating and building a business.

Working together has become the norm rather than the exception, however the formation and structure of alliances has been made more complex with lowered transaction times, and dramatically increased expectations (Gertsen, Söderberg, & Torp, 1998). Unfortunately, participants in global business transactions cannot be assumed to have the profound depth of experience and understanding once considered essential (Friedman, 1999). Large organizations have learned this lesson but often at great cost (Adams, 1998).

Complicating this challenge is the resistance that is often encountered when dealing with experienced scientists or professionals making this complex transition. The resistance is demonstrated with many different types of behaviors including arrogance, disdain, and even aggression; these are usually masks created by the individual to hide insecurity when moving out of the comfort of a professional competence.

This behavior has what appears to be an interesting parallel to what is normally called “culture shock.”

“Culture shock” is the term often used to describe a reaction to a sudden shift in culture, usually brought about by a sudden change in residence. This can show itself in a wide variety of ways including but not limited to reactions to food, habits, and the behaviors that societies use to express and identify themselves to others (Salacuse, 1991).

For over seven years, I have had the privilege of working with scientist-entrepreneurs from many countries through the Special American Business Internship Training (SABIT) program of the U. S. Department of Commerce. In this on-going program, and as of this writing, I have taught over 980 students consisting of senior scientists, government officials, and experienced business executives of the former Soviet Union in programs covering issues which can have an effect not only on their understanding but also on their being understood (Hale, 1999) (Hale, 2003).

At the same time, presentations to a similar set of students in programs for the U. S. National Science Foundation, the Technology Transfer Society (Washington), and for private clients, began to develop similar themes, explore similar issues, and began to demonstrate a similar set of processes especially when applied to those new to entrepreneurship from other disciplines.

CONTENT

The SABIT Program.

In brief, scientist-participants are brought to the United States for a four week period to learn, and observe something about U. S. business and its ways of doing things. The program concentrates on allowing professionals from similar fields to meet each other in a semi-structured setting which provides a “safe” learning environment.

In 1996, I was first invited to present to these groups, which consisted principally of ex-Soviet scientists who were being introduced to U. S. firms and the capitalist structure, often for the first time after the end of the Cold War. While many programs of the United States and other governments seek the same objectives, the SABIT program is unique in encouraging a process of acculturation to develop at the participants’ pace, and not according to some irrelevant structure. Particular attention was to be paid to the sensitivities of the participants from all sides.

My focus, in terms of objectives, was to first present a framework in abstract pedagogical terms of the issues where there were cognitive differences between Americans and most other cultures, and then through a series of structured examples permit those issues to be explored by the participants. This is generally done over a two-day period, and has been proven to be most effective when used at the very beginning of the program.

The perspective made no attempt whatsoever to criticize past practices or culture, or even business practices, but wholly focused on presenting American business in a clear, and even at times, unflattering light. I adhered to my own Hale’s Cross-Cultural Axiom Number One: “You can only criticize yourself” or as is stated more colloquially, “You can only call your own mama ugly” (Hale, 1999). While never failing to get a smile even through interpretation, this axiom was particularly provoking in allowing the participants the example and opportunity to speak objectively about their own structural and economic changes in a more global sense without the threat of harsh external criticism. It is what I termed “Cross-cultural brainstorming.”

Individualism and Collectivism.

By way of illustration, comparisons of individualism and collectivism are used as metaphors for change; these have also been important issues in the comparative literature (Kâğıtçıbası, 1994). They shed new light on understanding the rule of law, social issues, and a host of other comparative elements well known since Hofstede (1984) developed his landmark work. Shame and guilt are both related structural concepts and cultural paradigms (Allmon, Chen, Pritchett, & Forrest, 1997) which afford societies different ways with which to deal with rewarding and restraining behaviors.

While individualism and collectivism have great importance particularly to the study of cultural anthropology in the United States (that is, within the boundaries of this paper’s examples), to former Soviet scientists, the terms drew upon a staggering array of emotional, intellectual, post-modern, post-capitalist (Drucker, 1993), post-socialist, ideological assumptions (Kharkhordin, 1999) which made their use in discussion quite delicate on the best of days.

What arose from this complexity, was a process which consciously allowed the program participants to temporarily set aside implicit assumptions in favor of explicit ideas not for the purpose of rejection the former, but to permit examining the latter. Even early Marxist thinkers provided interesting, albeit challenging pathways (Andreenkova, 1994) for the discussion and demonstration of implicit and explicit learning models (Nonaka & Takeuchi, 1995).

What happens next?

Western thinking and the entrepreneurial model are implicitly based upon the tenets of individualism that assume personal dignity, individual autonomy, and a right to privacy (Eskola & Weckroth, 1996). Other social models may to a greater or lesser extent reject these as being absolutes, however it is at the intersection of truly global trade that the shattering cultural impact occurs. Nowhere more so than with the intangible issues most evident in intellectual property.

It is complex to attempt to replace the need for social acceptance and how one differentiates between personal profit and greed for a student not only without genuine experience but also from a society where even the word “individual” had a strongly perjorative meaning (Reykowski, 1994). As Banai (1996, p. 220) observed, just because an organization has been privatized does not mean that its management will behave like a western firm.

What do we do?

We cannot just present the model in a vacuum. There is too much cognitive dissonance at work, blocking the understanding of what is going on.

The pedagogy used appears simple and is extremely intense at the outset, intentionally so. A pattern of dilemmas are used throughout the program which are specifically intended to bring the participants to an intellectual halt and encourage a re-examination of assumptions. Business, market research, commercial intelligence, venture capital, etc., are all explored with both enthusiasm and examples to communicate their validity as fields of scholarly study, too. It is at this point that the eyes of the participants begin to open and their preconception-blinders start to break down. Interaction is noticeably increased.

The addition of a follow-on session at the conclusion of the four-week program permits a structured review within a context of program experience. Participants, even those with prior experience, have in their debriefing continued to rate the process and program among the most important aspects of their SABIT program in the United States.

Substantial anecdotal information supports this observation, as does the wider application of the approach in parallel programs.

CONCLUSION

It is my privilege to be the new Director of the University City Science Center Institute (Science Center Institute), in Philadelphia. This year we celebrate our fortieth year as the oldest urban research park in the United States. We are applying the lessons learned from our experiences in the development of a new generation of teaching programs to support our entrepreneurial community.

These steps include the strong use of a structured program of mentorship for each entrepreneur, and a new curriculum program formed as a practicum to offer the skills needed by all.

The Science Center and the Science Center Institute continue to provide innovative programs for teaching and fostering entrepreneurship. While they are based upon the lessons learned over our forty years, they must be updated constantly with new teaching techniques and needs, and assessed in the harsh, unforgiving, but nonetheless rewarding light of the marketplace.

The global marketplace demands a much higher level of awareness than ever before. The demands of virtuality seem to parallel misunderstanding. We need a sensitivity to each other and who we are, and to the factors that can not only affect success, but can completely impede it if ignored, or assure it if embraced.

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