

The Entrepreneurship of the Young Population in the Ecuadorian Context, Showing from the Approach of the Science, Technology and Society

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Abstract

The creation of a dynamic company with high values is a very complex process that needs the entrepreneurs overcome barriers that they present daily. The social studies of the science and the technology can offer a valuable contribution for the critical examination of the different problems of the business management and the entrepreneurship phenomenon. A fundamental aspect that contributes is the beginning of which any techno-economic activity that needs to be valued for his/her social context. What was taken as an aim for the present research is to offer the panoramic view of how to involve the STS approach in the entrepreneurship population graduated from the University UNIANDES extension Riobamba. For those, we applied theoretical investigation methods like analysis-synthesis, induction-deduction, historically-logically.

Keywords

STS, Innovation, Entrepreneurship, Entrepreneur

1. Introduction

The breaking down of political, economic and social barriers has made possible for opened, flexible working divisions, which are not attached to specific spaces for long periods of time. It is intended to understand the connection between entrepreneurship and other concepts such as science, technology and society. The idea is also to do research on the factor which may cause individuals to acquire entrepreneur attitudes and whether the entre-

preneur spirit in that community generates positive effects for the development of such community.

To take action is the human's mind well-planned and conceived deed, such deed comes from the functional creative action of human's brilliance, made by doers and producers who are provided by a great motivational capacity to fulfill their ideas and objectives. Nowadays, young college graduates, wonder which path to take in a competitive world which has a great number of professionals who hold their same degree and high expectations. Consequently, young people appreciate the fact of producing their own ideas, nevertheless others may prefer to send out their resumes, and if there is no luck, complain for the lack of opportunities while the more daring could take risks as to run their own business. "Entrepreneurship is a motion of a discontinued radical change, or a strategic renewal regardless of the strategic renewal that may occur inside or outside an existing organization and whether this renewal leads or not to the creation of a new business" (Kundel, 1991), taken from a scientific article of the author [1].

"To take action is to pursue the opportunity far beyond today's controlled resources" (Stevenson, 1983, 1985, 1990, 2000), referenced by [2]. Entrepreneurship is carried out by a person known as entrepreneur. The word entrepreneur is from French origin (pioneer), at first it was used to address people who went to the new world, just like Columbus did, without even knowing what they would find there [3]. An entrepreneur must have a general knowledge and also know about current affairs such as economy, national and international politics, finances, the stock market, technology, the weather, infrastructure, culture of the societies where it is intended to carry out actions. In addition to this, be familiar with managing concepts and keeping the accounts. Attitude is what makes the difference between an entrepreneur and just any individual.

An entrepreneur is someone who has the capacity to create and carry out their ideas, to generate assets and services, takes risks and accepts responsibility for the results. It is someone who does not only look around but also sees and discovers the hidden opportunities within him. An entrepreneur has great initiative and can create the structure needed to start a project, communicates and generates communication nets, has the capacity to summon, can even create a work group and starts working without hesitation or fear.

All kinds of Entrepreneurship need an innovative being who can relate science, technology and society to make all types of changes. Although, many areas use innovation, it is typical of the business sector.

Peter Drucker (1986) in his book *La innovación y el empresario innovador*: (Innovation and the innovating entrepreneur) says "The innovating entrepreneur sees change as a healthy rule. He does not necessarily change things himself but looks for change, answers back and sees it as an opportunity" taken from the author [4].

Science Technology and Society—STS [5] tends to define an academic working environment whose object of study is made of social aspects belonging to science and technology, including social factors which influence on both the sci-technologic change and what has to do with the social environmental consequences.

The movement which has been called Science, Technology and Society (STS) originated in Europe, since sociology of science came together, and which Merton developed with an institutional approach in the 30's. On the other hand, there is the relation between science and power set out by Bernal at the same time, and developments by Solla Price claiming an interdisciplinary approach nominating "Science of science" [6]. The Latin American thoughts appeared at the end of the 60's as a differentiated criticism of the situation regarding science and technology and some other aspects of the state's politics concerning the subject matter. Since the mid 50's and 60's, international organisms as UNESCO and OAS became institutional bridges, crucial for the insertion of science politics and technology in Latin America. The Latin American movement has its origins in considering science and technology as a competence of public politics. Thus, without even being part of a conscious community known as STS, it was shaped as a Latin American thought with scientific and technological politics.

This type of thinking considers some key names: Jorge Sábato, Amílcar Herrera, César Varsavsky, Miguel Wionseck, Máximo Halty, Francisco Sagasti, Osvaldo Sunkel, Marcel Roche, José Leite Lopes, just to mention a few. Among them, there were exact and natural science scientists who turned into social and ideological thinkers based on their own experience as researchers, as well as economists who directed the ECLAC thoughts towards science and technology.

A key principle for the Science Technology and Society field is that Science, Technology and Innovation can not be considered autonomous, external, or independent of their social context. The approach of this study is a current matter, since it allows us to understand that the scientific technological development does not follow an inherit (inseparable), a linear or a one way logic; but it is rather uncertain and multidirectional concerning the social surroundings in which those characteristics make them be considered social processes. Thus, there is a need to create new institutions and organizations that allow countries to develop in a sustainable way, hoping to assure the wellbeing of today's communities', without forgetting the needs of future generations.

2. Results

For the development of the research a set of theoretical methods were employed such as Analysis and Synthesis to study the different concepts that involve the problem, its relations, components and general characteristics of the studied setting. Inducement-deduction to make conclusions and generalizations. Historical-logical to study the ordinary and theoretical guides related with the STS approach, Entrepreneurship, Entrepreneur, with the UNIANDES graduates who belong to Branch Riobamba. The systemic approach gave a general orientation for the knowledge of the STS approach.

2.1. The Study and Value of the STS as an Instrument to Analyze the Current Techno-Scientific Development

Science and Technology Studies, related to social sciences (Sociology, Economy and Political Science), receive at present the nomination of the CTS or STS generic studies. The dominating disciplinary components of the STS studies were at their peak in the beginning of the 60's, and developed separately without considering the rest until the 80's time in which a multi-interdisciplinary character is developed based on the integration of disciplines like: Philosophy of Science and Technology, Sociology of Science and Technology, History of Science and Technology Theory of Innovation, Administration of Innovation among others. A very important process in this growth was the introduction of programs on Sociology, Ethics of Science and Technology that were developed in American universities (U.S.A). In the 70's for example "*Cornell University*" [7], developed a new program that joined science studies and experts on political orientation with historians and science and technology philosophers, in order to develop research in this field. In the first two decades there were two predominant sides concerning the STS studies. A brief characterization indicates the fundamental traits of each (Table 1).

2.2. Innovation, Management Innovation, and Entrepreneurship to Create New Enterprises

The technological progress implies an economic development for enterprises through the increase of production/competitively; there is consequently economic development for the whole population. Innovation is the sequence of activities that a new or existing product, good or service is modified by means of a detailed research. It goes along with a continuous improvement. The difference is that a continuous improvement are processes with gradual changes with short term results; while innovation shows great changes in the medium term and it is final result oriented. Innovation should imply a perceptible change which benefits society or at least part of it. It may be based on new technological possibilities (given by suppliers) or based on social or market needs. An important point of view is that the acknowledgement of the high demand is a frequent factor in innovation rather than acknowledgement on technical potential" [8].

Reasons for innovation

- Improve the traditional Enterprise image to a more modern one.
- Update and expand the range of products and services.
- Improve customer service relationship when introducing new benefits.
- Through new business cases set up entrance barriers for the competence from the start.
- Changes in organization and management.

Table 1. Sides on the STS study. Source: Self making.

European tradition	American tradition
Academic institutionalization in Europe (origins).	Administrative and academic institutionalization in the United States (origins).
Primary attention to science and secondly to technology	Primary attention to technology and secondly to science
Of theoretical descriptive nature	Of practical and valuable nature
Emphasison social factors	Emphasison social consequences
Explanatory framework: social sciences.	Evaluative framework: ethics and theory of education.

Innovation is a key element for competition. Concepts stated by some authors:

- Porter (1990), affirmed: “A nations rivalry depends on the capacity of its industries to innovate and improve. An enterprise gets competitive advantage through innovations”.
- Francois Chenais emphasized: “The innovative activity is without any doubt, along with the human capital, one of the most significant factors which determine the competitive advantage of the more advanced industrial economies”. Referred by [9].

These definitions make it clear that innovation has an important connection with competition and human capital. There is a need for people who are willing to change and face the competition with a competitive advantage.

Innovations in the technical and technological field

A new, original or even technologically advanced product or service is easy to market. In this case, it is important to plan the development of the enterprise and move faster; also make sure the innovation is legally safe by means of the patent system and industrial utilities.

Innovations in the commercial field

In this sense, there are countless possibilities: A product’s new design, promotion and publicity, its use and services, price and payment method. Traditional activities with new proposals concerning the customers’ needs.

Innovations in the organizational field

John Naisbitt in his research [10] presents a term that defines the new organizational attitude, to reinvent the Enterprise and suggests a set of rules for change:

- 1) The future lies in commercial management and in constantly awarding the best employees.
- 2) Have a competitive and enterprising spirit inside the Enterprise
- 3) End second rate managers and bring employees closer to executives.
- 4) Vision towards the future and intuition will be appreciated rather than in theory and statistics.
- 5) A new working power and management must emerge: younger, more prepared and women being part of it.
- 6) The working women’s revolution should accomplish executive positions.
- 7) Health is considered very important.
- 8) It is required to end instability between education and the needs of the new information society.
- 9) The new generation’s values should be part of the highest Enterprise management.

2.3. Entrepreneurship to Create New Enterprises

Entrepreneurship comes from French Entrepreneur (pioneer), it refers to the capacity a person has to make an extra effort to reach an objective or goal. It also refers to a person who starts a business or a project, this word was later used with entrepreneurs who innovated or assigned a greater value to an existing product or process. As the income per capita increases, the entrepreneur activity tends to decrease and later stabilize. Many countries based on innovation like: Germany, France, Belgium, Italy, and Finland have relatively low levels of entrepreneur activity whereas the richest ones like U.S.A, Norway and Iceland tend to have higher levels. Success on undertaking is an intelligent move of financial management and careful strategic planning. Successful entrepreneurs know how to manage every dollar they get.

2.4. How to Be an Entrepreneur

Being an entrepreneur has to do with learning, by studying Business Administration focused on leadership and learning through projects can build the entrepreneur’s talent and someone with the required abilities.

This research has identified the following competences

- Self-efficiency and self-fulfillment. The wish to be whatever one is capable of being. It refers to the conviction that one is able to organize and effectively execute actions to produce the expected results. The link between self-efficiency and entrepreneurship holds different reasons. 1) People start vocations for which they feel they are able to. 2) Business initiative involves risks and difficulties. 3) Given that the incentive to perform is greater when the entrepreneurs think their actions will have achievable results [11] [12].
- Entrepreneur-success behavior. It may be linked to a positive value, linked to the organization, profitability and growth; a value linked to the worst results, when the Enterprise works in hostile settings. They get greater results [13]. These factors are related because of the assumption to risks. The entrepreneur’s behavior has to do with direct interaction with his surroundings, and a constant effort to satisfy basic needs that evolve with individuals [14].

- “Developer” behavior. It is client oriented, to opportunities, to action and to the creation of value. It is oriented to exploring and exploiting internal and external opportunities, focused on keeping the Enterprise as the members’ main goal [15].
 - Creativity. It is the capacity to dream about something impossible and make them real. Do not be defeated. Start over and over again. Eliminate prejudice. Strengthen your idea [16]. Entrepreneurs should focus on the question: What to do to make innovation, flexibility and creativity be operational? [17] [18].
 - Taking actions, a continuous challenge. It is necessary to promote entrepreneurship in both periods prosperous and in recession; in phases of growth or readjustment, to generate a competitive advantage [19].
 - Leadership and an entrepreneur spirit. It is a man’s need to run to the horizon from where he finds it and take pleasure of it. Nobody needs to leave the Enterprise to turn into an entrepreneur; rather he should self-manage his work, guide and support other people’s actions to fulfill the institution’s objectives, mission and vision [20]. The entrepreneur spirit in a range of confidence, issues with the family or the environment are not excuses for anyone to take actions. Leadership, autonomy which are casual have nothing to do with humans’ basic training. However they are acquired through training, the academy, experience on knowing a second language and about technology, since they are the means to keeping and having relationships worldwide [21].
 - Experience creating enterprises. During the creation process the entrepreneur acquires and strengthens his management abilities and builds relationships that may be of great help to get resources to take advantage of new business opportunities. This type of experience increases an entrepreneur’s self-confidence and credibility, they are decisive aspects for the new enterprise in order to get the support of potential partners, clients and workers [22].
 - Interpersonal and entrepreneurship aptitude. Capacity to hire human resources known as benefits. Communication, charisma, optimism, delegating and respect. The profile for an administrator’s behavior is centered in managing and coordinating resources. This is made through negotiation, solving problems, conflicts or differences making both sides feel satisfied and mutually agree.
 - Locus control. People with internal locus control, believe they can control the results, and thus will put more effort and persistence to get the results they want, this helps start a business adventure and keep it successful. People with external locus control, can be more passive, and think they are not capable of changing their surroundings or of running a business.
 - Achievement. Will and capacity to set goals and be satisfied when you reach them.
 - Strategic thinking. By answering 4 questions you can get what you want: Where was I yesterday? Where am I now? Where do I want to be tomorrow? And what will I do to get it?.
 - Proactive Personality. It makes an emphasis in anticipating and preventing problems before they occur and guidance to take action which includes a creative interpretation of norms and a great level of persistence and patience for the change to happen.
 - Personal. Creativity (expertise, skill), determination, integrity, tenacity, balance and self-criticism, opened to new experiences, less neurotic, social ability. Entrepreneurs experiment with knowledge in order to change it, they don’t follow established routines, they are sensitive to the differences that the present sets out and look for other ways to solve constant disputes. They not only list creative and personal abilities but also get things done.
 - Risks tendency. It has to do with the individual’s willingness to compromise with opportunities that may fail. People that have created their own Enterprise struggle to keep going. Tolerance and positive attitudes towards risks may develop managing intentions.
 - Social Planning. Looking for a social benefit such as: equality, justice, environment and respect for diversity [23].
 - Team work. It has to do with working with a genuine intention to cooperate and give out competitive results. Vision to do business, social networking and negotiation. Consider competence as a process of learning, development and growth.
- Abilities needed to be an entrepreneur are divided in two:
- Administrative abilities refer to knowing how to run a business, solve problems, programming activities, and take risks, among other competences.
 - Psychological abilities, there are 2 which are basic for an entrepreneur: perseverance and optimism. Perseverance means to keep going in spite of the obstacles. Optimism means to be able to see situations as opportunities to learn (optimists see failure as life lessons, and problems as battles to success).

- In this sense, it is necessary to do the management work ourselves: find suppliers, products, costs, the competence prices, selling strategies, marketing, investment Project, among other factors. The objective of all this is not the plan itself but rather learn from business.

2.5. Entrepreneurship Culture

It is the combination of values, beliefs, ideologies, habits, customs and norms that a group of people towards entrepreneurship share. They appear with the social interrelation and generate their own group behavior patterns, they establish their own identity among their members which will identify and differentiate them from another group.

2.6. Restrictions on Entrepreneurship

Early entrepreneur activity (EEA) [24], measures the entrepreneur dynamics of countries, identifying characteristics of the individuals who are involved in creating enterprises and their determining factors. This indicator considered adults between 18 and 64 who are in the process of starting a brand new business and those whose enterprises have been around for up to three and a half years. Some Ecuadorian experts previously mentioned in the research state that:

- The educational system is repressive, restricts creativity and limits itself to imitation.
- Education has declined especially in rural and urban marginal areas.
- There aren't enough scientific majors or literature/publications.
- Legal uncertainty stops foreign and national investment.
- Corruption.
- Lack of established norms and sectoral incentives.
- Centralization prevents the country to develop at its most.
- Creation of a working force.

Entrepreneurship is considered an important mechanism for economic development which has effects on employment, innovation and thus causes impacts on welfare with a high potential for growth and development.

Strengths are demonstrated: Positive attitudes toward entrepreneurship, a positive effect over the training on perceptions of entrepreneur capacity and optimism concerning the opportunities found in the surroundings.

Table 2 shows the results of the research done on Law and Tourism school graduates from “UNIANDES” University branch Riobamba 2013.

According to what has been presented the majority of the graduates from “UNIANDES” University, branch Riobamba do not own enterprises. This may be due to the fact that a lawyer's activities have to do with having a stable job meaning belonging to a company; whereas, since tourism is an activity that offers a kind of service, entrepreneurship may be developed.

Table 2. Characterization of “UNIANDES” University graduates branch Riobamba 2013. Source: Self made.

Year 2013	Major: law			Major: tourism		
	Men	Women		Men	Women	
Gender	58%	42%		33%	67%	
Own enterprise	Yes 12%	No 88%		Yes 7%	No 93%	
Competence-demand for labor inclusion	Professional training 38%	Working experience 31%	Other 31%	Professional training 25%	Working experience 67%	Other 8%
Competences generics-labor inclusion	Theoretical, systemic, complex thinking 25%	Leadership, decision making and ethics 40%	Team work and project design 35%	Theoretical, systemic, complex thinking 17%	Leadership, decision making and ethics 50%	Team work and project design 33%

The truth about the working market is that it demands competences that have to do with team work and project design to be strengthened. An entrepreneur must have a positive attitude to adapt his competences with those of his work team. It is evident, that another important competence is leadership since these kind of jobs offer service, quick thinking is needed because of the clients demands.

Comparing the competences that enterprises require for labor integration, we can say they coincide with the requirements that are needed in order to undertake. Professional training and working experience are some of the main competences that an individual must have to undertake. Entrepreneurship requires of people who have had quality education or training, and may start working only if they have reached a minimum of experience that will awaken their abilities and aptitude to be more competent.

3. Conclusions

Genuine research and STS education would have two main purposes: a) the analysis and demythologizing of the role of science and technology to make them accessible and interesting to citizens and, b) social learning of public participation in decisions that have to do with techno-scientific matters. STS studies are more significant to direct the analysis of techno-economic development in any establishment making enterprises progress.

Education on entrepreneurship is almost generalized in universities; this contributes to the training of future professionals in opening businesses.

The choice of being self employed by means of creating an enterprise, appears as an alternative to the serious issue of unemployment that countries are going through.

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