

THINK ENTREPRENEURIALLY ENTREPRENEURS VS NON-ENTREPRENEURS COGNITIVE PROFILES

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ABSTRACT

Many recent contributions try to identify the way of thinking of individuals who pursue entrepreneurial careers (Shepherd & Patzelt, 2018). This study aims at investigating the cognitive styles (i.e., the stable preferred way to thinking by an individual) of a sample of entrepreneurs (vs. non-entrepreneurs.) According to Sternberg's theories (1998) and based on the previous researches it is assumed that some cognitive styles better describe the entrepreneurial way of thinking. Through a discriminant analysis, this assumption has been assessed on an Italian sample of 276 participants (147 entrepreneurs and 129 non-entrepreneurs.) The data show that the anarchical (i.e., a random approach to problems, by sometimes drawing up connections that the others would not be able to establish), legislative (i.e., the free decision of what to do and how to do it), internal (i.e., the inclination towards autonomy for the performance of tasks), and liberal style (i.e., the tendency to deviate from the way in which things are currently made) are distinctive of the Entrepreneurs group, confirming the assumption concerning different cognitive profiles between the two groups interviewed. Directions for future research are discussed.

Keywords: Entrepreneurship, Cognitive Styles, Entrepreneurial Cognition, Mental Self-Government Model of Sternberg.

INTRODUCTION

Based on the analysis of recent theoretical models proposing to describe and explain the onset and development of entrepreneurial initiatives, it seems the combination and integration of various factors (individual, social and contextual) to lead to an entrepreneurial aptitude.

Among the individual factors, researchers have been interested in the entrepreneurial cognition or the entrepreneurial mindset, in other words, in understanding if and when individually think in an entrepreneurial way. "What kind of thought help the entrepreneurs create value and wealth through the identification and implementation of new market opportunities?"

“What do we mean when we refer to the entrepreneurial thinking?” are the most common questions. Referring to the entrepreneurial cognition, two main fields have been studied: the cognitive processes underlying the entrepreneurial initiative (Krueger and Carsrud, 1993; Krueger, Reilly and Carsrud, 2000; Busenitz, West, Shepherd, Nelson, Zacharakis and Chandler, 2003; Krueger, 2003; Mitchell, Busenitz, Lant, McDougall, Morse and Smith, 2004; Baron, Byrne and Branscombe, 2005) and the cognitive skills recognized to be essential to entrepreneurial success (e.g., entrepreneurial alertness; Amato, Baron, Barbieri, Belanger and Pierro, 2017.) Since the entrepreneurial spirit is crucial for the cultural, financial, social and human development (Amato and Chirumbolo, 2011; Ratten, 2014; Benevene, Kong, Barbieri, Lucchesi and Cortini, 2017), it is worth investigating its related variables in order to understand how to improve and enhance it among young people. In this regard, it is particularly important to understand the cognitive structure of the entrepreneurial cognition, because entrepreneurship precisely stems from entrepreneurial thinking (Baron, 2004; Krueger, 2000; Krueger and Brazeal, 1994; Kuratko, 2016; Shepherd and Krueger, 2002).

The entrepreneurial cognition is defined as a structure of knowledge that people use to make assessments, report judgments, make decisions about the analysis of opportunities, the creation and growth of the business (Mitchell, Busenitz, Lant, McDougall, Morse and Smith, 2002). Mitchell et al. (2007) argue that each question contributing to the study of the entrepreneurial cognition suggests basic assumption: “Entrepreneurship concerns itself with distinctive ways of thinking and behaving”.

Cognitive Style of Entrepreneurs

Within the researches on the entrepreneurial cognition (Krueger and Kickul, 2006; Dutta and Thornhill, 2014; Knockaert, Der Foo, Erikson and Cools, 2015; Adomako, Danso, Uddin and Damoah, 2016; Gemmell, 2017; Kakouris and Liargovas, 2017), there are many systematic studies on the role played by the entrepreneurial cognitive styles. So far these studies have mainly focused on the comparison between two antithetic cognitive styles: the analytical cognitive style and the intuitive cognitive style (Akinci and Sadler-Smith, 2013; Kickul, Gundry, Barbosa and Whitcanack, 2009) or more simply, on the intuition (Sadler-Smith, 2016). However, the “intuitive” adjective raises some problems. For example, it is often mistaken for “innate” (Mitchell, Friga and Mitchell, 2005). This interest does not result from the willingness to trace a peculiar characteristic of the cognitive entrepreneurial thinking—at least not in relation to the cognitive styles—but rather from the association of intuition and creativity (Fillis and Rentschler, 2010), with:

a) Innovation (Marcati, Guido, & Peluso, 2008), b) ability to quickly identify opportunities (Chandler and Jansen, 1992; Allinson, Chell and Hayes, 2000), c) speed and efficiency of the entrepreneurial decision-making process (Bennett, 1998; Burke and Miller, 1999; Allinson et al., 2000). The application of the Cognitive Style Index (CSI) (Allinson and Hayes, 1996), instead of more multi-faceted instruments, to the entrepreneurship field of research (Barbosa, Gerhardt and Kickul, 2007; Kickul, Gundry, Barbosa and Whitcanack, 2009; Armstrong and Hird, 2009) is indicative of a two-dimensional view of the entrepreneurial cognition, where “intuition” (vs. analytical) is synonymous of “entrepreneurial”. Unlike the common view, the intuitive and analytical styles are both necessary to implement and successfully develop a business idea (Kickul, Gundry, Barbosa and Whitcanack 2009). From our perspective, the conflict between the intuitive and the analytical cognitive style is a narrow view

of the entrepreneurial cognition. The present study aims at investigating the way of thinking of entrepreneurs (vs. non-entrepreneurs) by applying the Sternberg Mental Self-government model (Sternberg, 1988.) According to this model, there are many cognitive profiles conceptualized as governments in the way that each individual's cognitive profile is characterized by a series of cognitive styles organized in: (a) function (legislative, executive, judicial), (b) form (monarchic, hierarchic, oligarchic, anarchic), (c) level (global, local), (d) scope (internal, external) and (e) leaning (conservative, liberal). Each person has not only a simple inclination towards a single style, but rather a series of well-organised preferences towards a set of styles. It should be noted that the cognitive styles are not just individual preferences, but they are subjected to situational changes (Sternberg, 1988; Sternberg and Grigorenko, 1997; Zhang, 1999; Nielsen, Kreiner and Styles, 2007). For instance, they seem to vary according to the employment and the task of the individual (Tullett, 1997). Hence our assumption that entrepreneurs may have a peculiar cognitive profile.

The Present Research

This study proposes to identify an entrepreneurial cognitive profile which best help distinguish entrepreneurs from the other professional categories. More specifically, some cognitive styles seem to be more in line with the entrepreneurial characteristics described in the relevant literature. As matter of the fact, there are attributed to entrepreneurs: the need for independence (Gray, 1990; Hisrich, 1990); the willingness to live experiences (Brandstätter, 1997), the search for new ideas and experiences (Zhao and Seibert, 2006) and an innovative way to solve problems (Goldsmith and Kerr, 1991); creativity (Baron and Tang, 2011); proactivity (Kickul and Gundry, 2002); unconventionality (Ashton, Lee, Perugini, et al., 2004). At the same time, entrepreneurs are untiring, goal-oriented and very meticulous (Ciavarella et al., 2004.)

According with Sternberg's theoretical model and in line with this profile, we have assumed an entrepreneurial (vs. non-entrepreneurial) cognitive profile characterised by:

1. Regarding to the Function. High legislative style, typical of those who tend to autonomously make their decisions about what to do and how to do it.
2. Regarding to the Form. High anarchical style associated with creativity and observed in those who are able to find original solutions to problems.
3. Regarding to the Level. High global style, in line with the classic view of the entrepreneurial intuition.
4. Regarding to the Scope. High internal style, typical of those who prefer activities allowing them to perform their tasks in full autonomy and with a strong focus on the activity.
5. Regarding to the Leaning. High liberal style, observed in the persons willing to change.

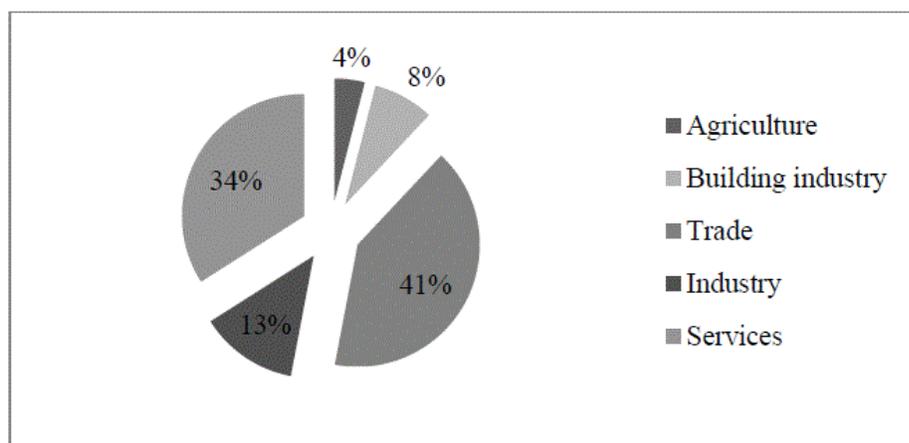
No other differences are expected for the other styles.

Method and Participants

This study involved 276 subjects, including 147 entrepreneurs and 129 non-entrepreneurs. The first group was made up of 78 men (53.1%) and 69 women (46.9%) aged between 23 and 75 years ($M=45.62$, $SD=11.15$.) As for the qualification of the participants, 1.4% has an elementary school leaving certificate, 12.9% has a lower secondary school leaving certificate, 55.1% has a secondary school leaving certificate and 30.6% has a university degree. As far as the civil status is concerned, most of the subjects (47.6%) are married. Similar characteristics are reported in the second group ("non-entrepreneurs"), which consists at 62.8%

of men and at 37.2% of women. Their age ranges between 23 and 68 years ($M=40.39$, $SD=9.54$) and the qualification level is made up as follows: 3.9% of the subjects has a lower secondary school leaving certificate, 55.8% has a secondary school leaving certificate and 40.3% has a university degree. 28.7% of the members of the second group are unmarried, while 44.3% is married, 15.7% lives with the partners and 11.3% is separated.

With reference to their business, 46.6% of the entrepreneurs have inherited the company from the relating families, while 53.4% has founded its own business. Almost all the entrepreneurs (98.6%) lead a microenterprise with less than 10 employees (while few of them manage a small business-with 10 to 50 employees), thus representing the Italian entrepreneurship (Beccatini, 2007; Colli, 2006), with an average turnover of € 2 to 10 million per year (90.2%.) The most common employment field (73.5%) is the third sector (services, commercial activities) (Figure 1). The second group includes public and private employees (63.8%) (Table 1). The average income of non-entrepreneurs is € 26,400 ($SD=12441.624$), against € 74,322 of entrepreneurs ($SD=88208.560$) (Table 2).



**FIGURE 1
PLACING ENTERPRISES IN THE VARIOUS SECTORS OF ECONOMIC
PRODUCTION**

Work activity	Percentage
Private sector employees	36.20%
Civil Servants	27.60%
Workers	11.10%
Teachers	9.40%
Managers and executives	7.90%
Freelancers	7.90%

Statistics	Income Entrepreneurs	Income Non Entrepreneurs
Min-Max	12.000 - 645.000 €	9.000 - 96.000 €
Mean	74.322,03 €	26.400,88 €
Median	50.000,00 €	23.000,00 €
Mode	40.00 €	20.00 €

Instruments and Procedures

The instrument used to collect the data was a questionnaire, both printed and in digital format. The recruitment process was as follows: the General commerce and industry confederation of Rome, Parma and Syracuse were contacted based on a research model applied to the whole Country. In spite of the cooperation with various organizations, only few entrepreneurs were willing to fill in the online questionnaire. Then, based on a sampling principle, the printed questionnaire was submitted vis-à-vis.

Three hundred subjects among entrepreneurs and non-entrepreneurs accepted to fill in the questionnaire. 20 of the 300 questionnaires received were excluded from the analysis, because they were not deemed valid (due to incomplete answers, presence of response sets, high number of missing answers inability to assign the questionnaire to a reference group.)

The final questionnaire consists of 2 parts:

1. TSI-Thinking Styles Inventory
2. Socio-demographic information

Thinking Styles Inventory

The Thinking Styles Inventory version selected for this study is presented in the Italian edition of Sternberg's volume (1988) ["The cognitive styles. Individual differences in learning and problem-solution processes."] "Gli stili di pensiero. Differenze individuali nell'apprendimento e nella soluzione di problemi". The questionnaire is made up of 104 multiple-choice items, which the respondents must answer by indicating a self-description score based on a 7-step likert scale: from 1=not at all concerned to 7=extremely concerned. The questionnaires are evaluated anonymously and the instructions (applicable to the whole questionnaire) highlighting the importance of answering all the questions in an accurate and spontaneous way are provided to the participants.

The TSI measures 13 cognitive styles:

Legislative Style

Those who reach a high score in this category tend to autonomously decide what to do and how to do it. Individuals who prefer a legislative style want to create rules and solve problems without any pre-existing structure. For example: "*When faced with a problem, I tend to use my personal ideas and strategies to solve it*". In the present sample (M=5.37, SD=0.83), Cronbach's α for this sub-category is 0.79.

Executive Style

High scores in this category indicate the tendency to solve the problems assigned by following the instructions and rules provided. For example: "*I like those situations where my role or my participation is clearly defined*". In this sample (M=5.15, SD=0.73) Cronbach's α for this sub-category is 0.64.

Judicial Style

Those who reach high scores in this category like to assess rules, procedures and people, and prefer those problems which require the analysis of existing ideas. For example: "*I like those projects where I can study and consider different points of view and ideas*". In this sample (M=4.77, SD=0.72) Cronbach's α for this sub-category is 0.62.

Monarchical Style

The subjects with a monarchical style tend to carry out their tasks focusing on one target at a time, meticulously pursuing an idea. For example: "*I like to focus on one task at a time*". In this sample (M=4.45, SD=0.87) Cronbach's α for this sub-category is 0.59.

Hierarchical Style

High scores in this category refer to the ability to plan one's goals based on their importance and to face problems with a systematic approach. For example: "*I like to define the priorities of the things that I have to do before starting to work*". In this sample (M=5.49, SD=0.85) Cronbach's α for this sub-category is 0.50.

Oligarchic Style

This style refers to the ability to do many things at the same time, pursuing targets even in conflict with one another and with similar importance. For example: "*In case of important issues in conflict with one another, I somehow try to face them at the same time*". In this sample (M=4.41, SD=0.87) Cronbach's α for this sub- category is 0.62.

Anarchical Style

Those who achieve high scores in this category tend to be motivated by a wide range of needs and targets which are often difficult to be arranged. For example: "*If I have a lot of things*".

to do, I start with what arrives first". In this sample (M=4.48, SD=1.06) Cronbach's α for this sub-category is 0.80.

Global Style

High scores in this cognitive category prove the tendency to prefer various and abstract issues and the ability to have a global view of the issues to be faced. For example: "*I like those situations where I can focus on general rather than on specific issues*". In this sample (M=4.17, SD=0.97) Cronbach's α for this sub-category is 0.78.

Analytical Style

Those who reach high scores in this style prefer to solve concrete issues and focus on the details which build the global picture. For example: "*I prefer to face specific problems rather than general issues*". In this sample (M=4.30, SD=0.85) Cronbach's α for this sub-category is 0.66.

Internal Style

The subjects with high scores in this category tend to be introverted, task-oriented and particularly discreet. They generally have poor interpersonal awareness and social sensitivity. For example: "*I prefer those situations where I can apply my ideas without relying on the others*". In this sample (M=4.42, SD=1.14) Cronbach's α for this sub-category is 0.83.

External Style

High scores in this category refer to the tendency to be extroverted, people-oriented and friendly. These subjects tend to have a strong social sensitivity accompanied by a great interpersonal awareness. For example: "*When I start a task, I like to have a brainstorm with my friends or colleagues*". In this sample (M=5.10, SD=1.03) Cronbach's α for this sub-category is 0.85.

Liberal Style

Those who reach high scores in this category like to go beyond the existing rules and procedures, trying to make important changes. For example: "*I like to work on projects enabling me to try new approaches*". In this sample (M=5.21, SD=0.99) Cronbach's α for this sub-category is 0.86.

Conservative Style

High scores in this category indicate the tendency to follow pre-existing rules and procedures, trying to minimise the changes and avoiding ambiguous or poorly defined situations. For example: "*When faced with a problem, I like to adopt a traditional approach*". In this sample (M=4.12, SD=1.18) Cronbach's α for this sub- category is 0.87.

As we already said, cognitive profiles are organized in functions, forms, levels, scope and leaning. This means that the inclination towards a certain style does not exclude the presence of

another style within the same area and is arranged in line with the styles of different areas. Therefore, the subjects will have a profile of styles instead of a single predisposition towards every single style.

Socio-Demographic Information

Among the socio-demographic information required there were: gender, age, civil status, qualification and employment, together with some data on the respondent's work (for example, how long have you been carrying out your actual job? What is your annual income?) Eventually, the entrepreneurs were asked information about their company (for example, "Is your company a "non-profit" enterprise? Was your mother or father entrepreneurs? How old is your company?) And their size (Please, indicate the size of your company with reference to the "number of the employees"), turnover (What is the annual turnover of your company?) and field of activity (What is your business field?).

DATA ANALYSIS

Within this study, a simultaneous discriminant analysis was conducted, which is particularly useful for the research on entrepreneurship, because it is able to statistically distinguish between entrepreneurs and non-entrepreneurs. To this end, it is necessary to select some discriminant variables to measure the traits for which the two groups should differ from each other. For example, in the present study, the following cognitive styles have been used as independent variables: *legislative, executive, judicial, monarchical, hierarchical, oligarchical, anarchical, global, analytical, internal, external, liberal* and *conservative*, while the categorical belonging to groups (group) was regarded as the dependent variable.

RESULTS AND DISCUSSION

Wilks's lambda index corresponded to 0.87 [$\chi^2(13.276)=37.12, p=0.000$] thus highlighting a significant difference between the groups; at least one discriminant function helps distinguish the groups based on the independent variables analysed (cognitive styles.) In our specific case, only one discriminant function has been identified (100% of the difference observed between the groups can be attributed to the discriminant function identified) which is associated with 15% of the deviation between the groups considered (Table 3).

Function	Wilks' Lambda	Chi-square	df	Sig.	eigenvalue
1	0.87	37.12	13	0	0.15

Table 4 reports the coefficients of the discriminant function in the structure matrix; in this regard, the main independent variables associated with the discriminant function are the internal ($r=0.58$), legislative ($r=0.57$), anarchical ($r=0.50$) and monarchical ($r=0.30$) cognitive styles. The

choice to use the correlations in the structure matrix instead of the standardised coefficients pertains to the method and takes into account the higher stability of these correlations in small-/medium-sized samples over the standardized coefficients (Barbaranelli, 2009). The discriminant function is a linear combination of the fields, functions and forms of the ways of thinking. The main discriminant elements between the groups refer to the internal aspects, the legislative function as well as to the anarchical and monarchical thinking. In fact, the two groups differ from each other for the tendency to work alone or in groups, the strong or poor willingness to work in an autonomous way, as well to create, formulate and plan the work following one's own rules instead of performing the tasks assigned. Again, the strong or poor willingness to meet and reach a wide range of needs and targets. Eventually, the groups are distinguished for their ability or inability to systematically plan their work and to solve the problems by establishing the relating priorities.

Cognitive Style	Correlation with the discriminant function
Internal	0.583
Legislative	0.57
Anarchic	0.495
Monarchic	0.304
Global	0.299
Esternal	-0.292
Conservative	0.183
Esecutive	-0.126
Judicial	-0.117
Hierarchic	-0.055
Oligarchic	0.04

In particular, through the analysis of the group averages (Table 5) the scores show the prevalence of the legislative style among the entrepreneurs [$t=0.95$, $F(1.274)=13.24$, $p=0.000$], anarchical [$t=0.96$, $F(1.274)=9.97$, $p=0.002$], monarchical [$t=0.99$, $F(1.274)=3.77$, $p=0.05$] and internal [$t=0.95$, $F(1.274)=13.88$, $p=0.000$] compared to non-entrepreneurs (Figure 2).

Cognitive Style	Entrepreneurs	non-Entrepreneurs
Legislative	M =5.53, DS=0.85	M=5.18, DS=0.77
Anarchic	M=4.66, DS=1.20	M=4.27, DS=0.84
Monarchic	M=4.54, DS=0.87	M=4.34, DS=0.85
Internal	M=4.66, DS=1.11	M=4.16, DS=1.11

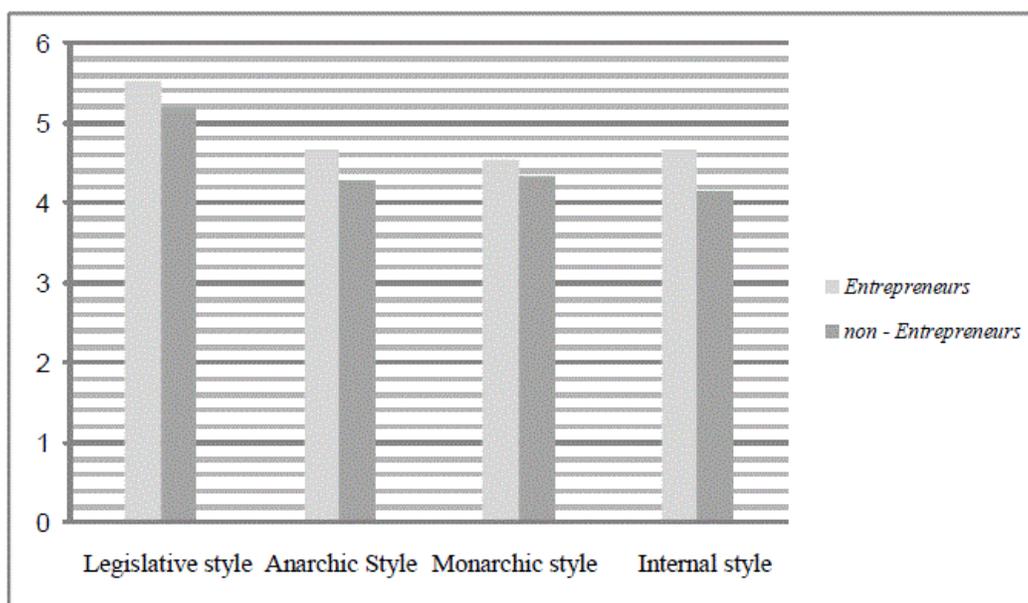


Figure 2
DIFFERENCES BETWEEN THE TWO GROUPS "ENTREPRENEURS-NON
ENTREPRENEURS" IN DISCRIMINATIVE COGNITIVE STYLES

CONCLUSION

The study highlights an entrepreneurial cognitive profile interpreted according to the *legislative, anarchical, monarchical and internal styles*, partially in line with our expectations: while the monarchical style was not included in our principal assumptions; global and liberal cognitive styles seem to be not distinctive of our two groups of the sample. The legislative cognitive style, distinctive of entrepreneurial cognition, underlies the inclination towards the performance of a job in an autonomous manner is the freedom from the rules and regulations generally associated with work within a formal context, free decision-making process, responsibility towards oneself, higher income-generating opportunities, the awareness of carrying out a complex work, the sense of accomplishment and pride (Kets de Vries, 1980; Begley and Boyd, 1987; Chay, 1993;) The need for independence - often linked to entrepreneurship - may reveal the entrepreneurs' tendency to prefer autonomous tasks as well as to freely define procedures, deadlines and rules (*legislative style*).

Moreover, the consideration of the employees as persons able to adapt to a pre-established work environment, reveals, as the other side of the coin, workers poorly willing to implement their own initiatives, "restrained" to a functional reduction of their own creativity. On the other hand, those entrepreneurs able to grasp information from the economic scenario from the surrounding economic context as well as to create new profitable and growth opportunities for himself/herself and the society, fall within the creative style, with a strong inclination towards the anarchical cognitive style. Higher scores reached by entrepreneurs both in the

anarchical and in the *monarchical style*-although if it may look like a contradiction at first sight-actually indicates two characteristics observed in entrepreneurs: creativity and tenacity. In fact, anarchical people "Often have a peculiar creative potential with respect to the others [...] because they take inspiration from different sources. They are not constrained by the boundaries that people normally establish between different fields of thought and action. Unlike the other people, they are not restrained by boundaries among thoughts and actions. They tend to combine things in manners never considered by the others" (Sternberg, 1997) at the same time, they are able to pursue their targets in spite of the obstacles possibly present "along the way, "[...] monarchical people often solve problems at full throttle in spite of the difficulties. They are resolute and sometimes even too resolute".

Assuming a procedural perspective of entrepreneurship, high scores in both the cognitive forms-i.e. the anarchical and the monarchical one-result from the "company years" variable, in fact in literature the "business phase" variable has acted as an important discriminant variable for the entrepreneurial cognitive styles. In the study of Kickul, Gundry, Barbosa and Whitcanack (2009), for example, the "global" and "analytical" style varied depending on the business phase of the entrepreneurs considered: start-up or well-established. During the start-up phase, the anarchical style is assumed to be necessary, while the following steps require a monarchical style fostering the development and management of the enterprise. Basically, findings suggest that cognitive style could be useful for the understanding of the styles and behaviours suitable for the various stages of the business establishment and growth (young vs mature). Eventually, the prevalence of the *internal style* is related to the entrepreneurs' tendency to work in an autonomous way and be task-oriented. This is not in conflict with social skills and the ability to manage interpersonal relations, which have been often observed among successful entrepreneurs (Baron and Markman, 1999.) Therefore, do not make the mistake of identifying a conflict between the "internal cognitive style" and an "extroverted" personality trait. This paper has a strong theoretical value as it describes entrepreneurial cognition not just as a dichotomy between intuition and analysis, but as a more complex structure resulting in different cognitive profiles. Moreover, the study of cognitive styles applied to a specific professional category is not so frequent as well as the study of cognitive styles among students. In facts, many times cognitive styles have been used as synonymous of "learning styles". In this sense, the present study proposes to expand the theoretical field of Sternberg Self-Government Model by demonstrating the value of cognitive styles within the entrepreneurial context. This study has some limitations. The cross-sectional design of the study prevents any causal inference regarding the variables examined. Therefore, future studies may integrate a longitudinal design to examine the causal links of the variables.

Furthermore, even if it wasn't the intent of the present study, it could be interested to investigate the distinctive cognitive profile of successful entrepreneurs (vs. entrepreneurs who lead company with no or low success). Other further studies could also investigate entrepreneurial cognitive profiles across different cultures.

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