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Teaching and Detecting The Creative Potential — Experience and Perspectives

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1. Introduction

1.1. Objectives and Preoccupations

"Creativity is like a muscle, must be trained, everyday, observing the others and thinking continuously how to make something different" said Benjamin Franklin [1]. Today, more than ever, it is necessary to discuss experience and consequences for human life pertaining to the use of creativity in individual and collective practice. This article analyses the educational environment of a Portuguese Polytechnic Institute, including its programming, aims, and powers (both on the part of the teacher and on the part of the students) as well as the techniques and instruments used. It is necessary to examine the creative potential of different persons in educational environments in Portugal and in Italy, exploring the influence of values on professional choices, focusing on the associations between social and professional backgrounds, and the introduction of a course on entrepreneurial education in fashion agencies that offer young models new opportunities.

In addition, in classrooms in Tomar, Portugal and in Salamanca, Spain, we set creative teams tasks representing their intra-entrepreneurial being inside the work context. Following that, we tried to define and explore the concept of creative potential through references about creativity increasing originality in a group vision, and to measure creative potential with tasks and tests. The above studies have the dual purpose of investigating the issues and extending them to different types of populations.

1.2. Research methods

There are several means to measure and detect the creative potential [2]. We used test failures and re-tests, Hermann's Screening Questionnaire [3], Schwartz's Portrait Values Question-

naire (PVQ) [4], Blake & Mouton's Managerial Grid [5], Alcántara's attitude modification strategies [6], and Conflicts Management Diagnosis Test [7].

1.3. Preliminary results

Based on the application of the screening Hermann questionnaire as creative, we propose three strategies to link the entrepreneurial competencies of our subjects. Several studies demonstrate that Schwartz's theory of human values [8] is valid in cultures previously beyond its range. We measured the 10 value constructs in the theory with the Portrait Values Questionnaire (PVQ), a new and less abstract method than others. This study explores the influence of values on professional choices, focusing on associations between social and professional backgrounds. The findings support the construct validity of the test. The results suggest that there is a relationship between values and occupational choices, and that there are evident differences between genders and age groups. These results confirm the international literature about different gender and value systems impacting on such behaviour.

The theme of Entrepreneurial Education has acquired more and more importance in recent years because in the present economic situation there is a growth of the need for people (above all, among young people) to reinvent themselves and to create their own personal businesses. This happens in every field of the labour market, even in the fashion world. The present research has the goal of introducing a real course of entrepreneurial education inside fashion agencies, to offer young models the basic knowledge to become entrepreneurs and make the most of their skills and attitudes, helping them to make their way in a world which, contrary to what it seems, is not only made of beauty. So, being creative means using independent thinking in order to produce new forms. "Creativity is the process that leads to a new product that is accepted as useful and / or satisfactory for a significant number of people at some point in time."

Creativity means having the capacity to look in different way and with an original perspective; for example, new ways to sell a product, a different mode of packing, an unexplored issue, and so on. Creativity, however, has nothing to do with intuition because that is an "unconscious thought" and unsupported thinking in formal or factual analysis. Creativity is a tool with which we find different ways to:

• Do more with less.

• Reduce costs.

• Streamline processes and systems.

• Increase profitability.

• Find new uses for products.

• Find new market segments.

• Differentiate the curriculum.

• Develop new products.

A product or response will be judged creative to the extent that:

a. They are new and appropriate, useful, or add value to a task.

b. The task is heuristic rather than algorithmic.

A creative person has both a tremendous verbal fluency and a high capacity to express their thoughts. A person is creative in the effort to bring originality to bear on problems in devising new solutions, and is flexible and adaptive in their thinking. This kind of person is aware that their mind has maintained an inexhaustible source of ideas, thoughts, and wisdom in order to deal with new ideas and categories whenever they arise.

Creativity has three components [9]: Fluidity (the ability to express oneself), Originality (to present new solutions), and Flexibility (to change thinking and adapt to new situations).

Wertheimer (1945) [10] argues that creative thinking rebuilds an element of structurally deficient Gestalts. In humanistic theory, creativity, in agreement with Carl Rogers' definition, [11] has three features:

1. Openness to experience, which implies the absence of rigidity, a tolerance for ambiguity, and greater permeability for ideas, opinions, perceptions, and assumptions.

2. The ability to live in the present moment, with maximum adaptability allowing the continuous organization of self *and* personality.

3. Confidence in the body as a means to achieve more satisfactory results in every existential moment.

Rogers, therefore, emphasizes the relationship of the subject and their own individuality with the environment, believing in the oneness and uniqueness of this encounter. Thus, momentum is not enough for self-realization in "present conditions in society, which should enable the individual freedom of choice and action, are also part of creativity."

By example, for Freud creativity is related to the imagination, which is present in the games and the playground of distance. On these occasions, upbringing in the world produces an imaginary river, which interacts with the reorganization of the components of this world in new ways. Creative people in adulthood behave similarly, fantasizing about an imaginary world, which distances itself from reality. The motivating forces of fantasy apply to every fantasy, to the correction of an unsatisfactory reality and desire not fulfilled. This feature of sublimation would be linked, therefore, to the need for sexual gratification or other repressed impulses, carrying the typical person to channel their fantasies into other realities. Freud attributes creativity to conflicts in the unconscious (the id). Later or earlier, produces a solution to the conflict, which can be "ego syntonic" and result in creative behaviour, or in the absence of the ego, which leads to a neurosis. In any case, Freud reveals that creation is always driven by the unconscious.

Thus to create is a habit, and the more we create the more developed is our capacity for creativity. It is necessary to reserve a time, every day, to carry out creative activity. We can write, paint, draw, think creatively; we suggest starting with half an hour a day. Over time,

you can dedicate longer periods to creative work, trying to keep a specific time in order to facilitate other activities (work, studies, etc.), and to consider this time "sacred". Curiously, after do this, compare the products of our creativity. We believe that "Creativity is the appearance of something unique and original", which constitutes the process of being sensitive to problems, deficiencies, and gaps in knowledge; the lack of harmony; and which allows us to identify problems, find solutions, etc. This article analyses the experiences of students developing their creative potential throughout the course of their school career, dividing them into groups based on their vocation, gender, and the course they have chosen. It explains the formulation of working hypotheses, how those hypotheses were tested and retested, and communicates the results, evidencing any scientific practice in detection of creative potential through experience in research of students during the course of their school career, according to the vocation, gender, and the course they have chosen.

2. Body

2.1. How to detect and measure the creative potential and creativity for entrepreneurship

The world is constantly changing because change is part of life; how dreary would the world be if people's lives were based on a constant and repetitive routine. Life is a chaos dramatized by humans in order to restore his balance. In a complex teaching system, we can see an open door for studying behavioural forms: when we have information and resources fluid slowly with few links, people's behaviour is stable, their actions are predictable and controlled. Meanwhile, when the system when the system performs a hard control, people's behaviour is bumpy, random, and fragmentary, which leads to stagnation and disintegration of the system. Therefore, a system on the verge of disintegration produces an endless array of variety and innovation, where behaviour should not be stuck with an established pattern or be assumed to be unstable, but is recognized as transformative. Here arises the need to create things, to transform the world so that it is more attractive, less monotonous, giving us access to a huge diversity of goods and services that enable wellbeing and employability. One of the consequences of a chaotic environment is creative entrepreneurial behaviour, which requires the alteration of previous behaviour, making necessary changes in learning.

The European Commission's Entrepreneurship 2020 Action Plan [12] shows us how important investment in entrepreneurship education is: it expects entrepreneurial education and training to support growth and business creation, creating new foundations that increase the prevalence and quality of entrepreneurial learning,. This means that we are involved in one of the highest return investments that Europe can make. Several surveys suggest that between 15% and 20% of students who participate in a mini-company programme in secondary school will later start their own company, a figure that is about three to five times greater than that for the general population [13] Whether or not they go on to found businesses or social enterprises, young people who benefit from entrepreneurial learning develop business knowledge and essential skills and attitudes — including creativity, initiative, tenacity, teamwork, under-standing of risk, and a sense of responsibility. This is the entrepreneurial mindset that helps

entrepreneurs transform ideas into action and also significantly increases employability. Thus, it is of the highest importance that the creative potential of people is detected and measured, since entrepreneurship is a core competency within the Community Framework [14].

Creative potential on a task, for example, can be defined as a set of containing personality traits, skills and creativity skills, and specialized domain-specific knowledge. This, in terms of creative self-efficacy, means that the creative person understands how to be creative but also incorporates broader aspects of creative potential, such as having the capability and the knowledge to perform the job well, and the perception of their ability to take risks in proving the viability of new creative ideas. Accordingly, the extent of the subject's creative self-efficacy determines the likelihood that they apply effectively their creative potential and practiced form of creativity. Indeed, the relationship between creative potential and practiced creativity can be attenuated or enhanced by motivational factors of the subject, as equally as by contextual factors such as organizational support, supervision style, freedom, resources, teamwork support, workload, and organizational challenges or obstacles. So creativity can be stimulated through certain management practices such as autonomy encouragement; delegation; feedback; proposing goals and intellectually challenging tasks; the setting up of work teams with innovative environments, in accordance with the skills and employees personality; and through the use of flexible thinking and persistence behaviour. Moreover, many investigations about creative environments, from which creativity arises, depends on the leadership style practiced by managers. Administrators and managers should consider creativity as an important goal to be encouraged and to be achieved. Even some current research [15] indicates that creative work is stimulated when the proposed tasks involve complex and ill-defined problems: hence the need to obtain results from the generation of innovative and useful solutions.

Each of us represents a creative potential, that is to say we use our brain's hemispheres to develop innovative and productive tasks in the monitoring of learning for personal procurement, interpersonal, instrumental, and technical skills. To go to the meeting of what we can do we intend to evaluate the creative potential of each one, It is believed that creative potential arises in childhood, when children have their own potential and initiatives recognized and incentivized by their parents, which helps them to become resolute in adult life and daring people who will speak and act in an innovative way. It seems true; when people feel that their actions will be recognized and valued, they will work better with more creative force. On the other hand, when people do not feel under the threat of losing their jobs, trapped by fears of change, or led by preconceptions into maintenance of the status quo, people lose the fear of innovation and reveal their creative capacities.

Hermann [16] indicates that creative potential originates in the brain, more properly in the left and right cerebral hemispheres which represent both sides of the human brain, analytical and creative functions representing the past and future, control the hands, and act according to the four mediators: rational, cautious, experimental, and sensitive. According to this, he introduced us to the second strategy we will examine, with the application of a questionnaire, the detection of the creative potential of each subject arising from the biological basis of brain function [17]. The left hemisphere controls the right hand and analytic brain function: motor

control, concern for detail, analysis of facts, objectivity, and immediate results. By using this hemisphere, the rational subject analyses, measures and criticize the results, it is realistic, uses the numbers and know how things work, is more cautious, establishes preventive measures, reliable, organized, is punctual and establishes plans.

The right hemisphere is divided into experimentation and sensitivity; the left hand controls and thus institutes the creative function. The right hemisphere is characterized by intuition, subjectivity, lateral thinking, fuzzy logic, and creativity. So what is revealed by the subject is the ability to experiment, to predict the future, to use imagination, speculate, calculate risks, display impetuosity, brake rules, like surprises, and jumping obstacles. On the other hand, it also makes the subject sensitive, and as such empathetic, sensitive, supportive of other people, verbally expressive, and responsive to emotional stimulation.

Then, we give an example of tests — questionnaires — used to detect the creative potential.

In the first questionnaire, items are arranged in pairs (a/b) and each member of the pair represents a preference. The subject must indicate a preference for each item, using a score from 0 to 5: a score of 0 means that the subject disagrees strongly with the premise, and 5 means that the subject agrees strongly. The scores for each item must add up to 5 (0 and 5, 4 and 1, 2 and 3, etc.). The subject cannot use fractions like 2.1 but only whole numbers.

As an example: 'I prefer':

1a. 'Thinking alone and in silence' (the subject assigns a score of 4).

1b. 'Interacting and passing the time with people' (the subject assigns a score of 1).

Then the subjects complete the questionnaire mentioned above, assigning respective scores:

I prefer...

1a □Thinking alone

1b □Interacting and passing my time with other people

2a □That people see me as an imaginary and intuitive person

2b □That people consider me as objective, accurate, and facing the facts

3a □Coming to conclusions through logic and careful analysis of the problem

3b □Examining the situation from what I feel and believe about people

4a □Planning, as needed, just before acting

4b □Planning in detail and in advance, based on predictions

5a □Getting the data records of people and being made to think and decide immediately5b □Talking freely and at length with people, stopping, reflecting and resolving the problem later

6a □Carrying out detailed plans drawn accurately

6b □Imagining and developing plans to execute them without necessarily following every detail

7a □Applying my ability to analyse situations and problems

7b □Experiencing situations and participating in movements with others, engaging in group discussions

8a □Avoiding hard deadlines or appointments

8b □Establishing a schedule and sticking with it

9a □Inquiry into the facts, situations, and problems privately before sharing my findings with others

9b □Discussing a new question or problem extensively, especially with the group of people involved or interested in the subject

10a □Abstract and theoretical issues

10b □Real and objective, specific issues

11a □Logical, articulate, and sensible people

11b □Sensitive, emotional, unusual, and even unique people

12a □Starting meetings when everyone has arrived and is comfortably settled

12b □Starting meetings on time

13a □Using methods already tested and effective in performing tasks

13b □Considering creating a new method to perform the tasks

14a □Helping others to use their feelings

14b □Helping people to make logical decisions and be sensible

15a □Imagining possibilities and alternative fantasies, even if they do not work

15b □Dealing with realities, based on the facts

16a □Being free to do things on the spur of the moment

16b □Knowing in advance what is expected of myself

According to the obtained score, people discover which is the predominant hemisphere of their brains and the respective degree to which they utilize their creativity. Thus, if a person uses the score predominantly the left hemisphere, which logically and rationally addresses the problems it faces, the creative vision is rarely applied sensibly (Right hemisphere from zero to 19; Left hemisphere from 80 to 61). If a person uses the score left hemisphere slightly, this suggests a predominance of the rational approach. Their creativity is present, but locked (Right hemisphere from 20 to 34; Left hemisphere from 45 to 36). If a person's brain balances its two hemispheres, the score means then it looks for both logical and creative alternatives to a unique problem (Right hemisphere from 35 to 45; Left hemisphere from 80 to 61). If the score means it makes slight use of the right hemisphere, then the brain presents a creative approach presenting intuition and sensitivity characteristics. Logic, concepts, and rationality is in the

background (Right hemisphere from 46 to 60; Left hemisphere from 34 to 20). If a person mainly uses the right hemisphere of their brain as a score, then, it shows that the predominant form creates original ideas. The rationality of creative decisions (Right hemisphere from 61 to 80; Left hemisphere from 19 to zero).

The second questionnaire is in two parts, inserted in a test battery, and pretending measure six conditions. The first's call as α-test, measure and detect creativity on people, organizations, and performance [18]: creative potential, creativity practice, and organizational perception support. The second's call as β-test, measure and detect creativity in the subject performance, only [19]: creativity support, characteristics of work, and blocks to creativity. Both tests constitute a set of statements falling on an agreement scale with five levels: one = completely disagree; two = disagree; three = neither agree nor disagree; four = agree; five = completely agree. In each proposed statement, the subject assigns only one grade in the scale. For detecting the creativity of a subject and their organization, the following statements are used:

1. I feel that I am good at generating novel ideas.

2. I have confidence in my ability to solve problems creatively.

3. I am good at finding creative ways to solve problems.

4. I have the talent and skills to do well in my work.

5. I feel comfortable trying out new ideas.

6. I have opportunities to use my creative skills and abilities at work.

7. I have the opportunity to participate on team(s).

8. I have the freedom to decide how my job tasks get done.

9. My creative abilities are used to my full potential at work.

10. People are recognized for creative work in this organization.

11. Ideas are judged fairly in this organization.

12. People are encouraged to solve problems creatively in this organization.

13. This organization has a good mechanism for encouraging and developing creative ideas.

14. People are encouraged to take risks in this organization.

15. Rewards are given for innovative and creative ideas.

For detecting creativity in the subject's performance, the following statements are used:

1. My supervisor encourages me to be creative.

2. My work group is supportive of new ways of doing things.

3. My organization encourages me to work creatively.

4. I have the resources I need to do my job.

5. My work is challenging.

6. I have control over how I do my work.

7. My organization's politics makes it difficult to be creative.

8. My organization's policies prevent spontaneity in the workplace.

9. It is difficult to be creative with the work deadlines that I have.

According to results of the highest number of responses in columns four and five (agree and completely agree) the score's percentage will indicate the creative capacity present in various guises. Thus, if the test indicates a high proportion of creative potential we have more creative potential in reality. The same applies to practiced creativity, perceived organizational support, creativity support, and good work characteristics. If the test indicates a high proportion of blocks to creativity, then we have more blocks to creativity in reality.

The third questionnaire, which detects entrepreneurial values and mindsets, is a survey composed by several authors and is divided into two parts: the first concerns skills and entrepreneurial values, the second section is designed to collect socio-demographic variables as follows:

Locus of Control: This construct was developed by Rotter [20] and concerns the ways in which people interpret events according to the polarity inside/outside. When the locus is internal, the person is deemed responsible for events, through their commitment and personal skills. Conversely, if the locus is external events are attributed to external causes, such as luck and favourable or unfavourable circumstances. Begley and Boyd [21] have noted that the ultimate combination of this construct is especially typical in individuals with entrepreneurial inclinations, which have a general tendency to attribute the events to internal factors. For this reason, it was chosen to use in research (mentioned later in this chapter) the scale used by these authors, which requires subjects to indicate their level of agreement on ten statements, according to a Likert scale from zero to five. An example is "what I get in my life will be related to the commitment that I put in".

Risk Taking: This construct is believed to be related to personality traits that drive people who possess it to a fairly high degree to seek risky situations and to reject low risk situations [22]. In contrast to the conventional wisdom, however, entrepreneurs are not "reckless gamblers", because they are able to calibrate the level of risk that combines potential rewards with personal ability to manage uncertainty [23]. This scale is divided into two parts: the first requires subjects to indicate whether they feel able to take the actions described, while the second prompts them to specify the degree of confidence which they would feel in undertaking that action, on a scale ranging from one to 10.

Engagement: This is understood as a pervasive and positive work-related state of mind characterized by vigour, dedication, and absorption [24]. The scale consists of nine items that measure the degree of agreement and disagreement of the participants by means of a series of statements related to the activities carried out by people who have a personality characterized by high engagement, through a Likert scale ranging from zero to six. One example is: "In my work, I feel full of energy."

Employability: Studies on self-employability arise mainly in relation to changes in the labour market and in the light of the gradual modification of contracts and the fragmentation of careers. Kluytmans & Ott [25] identify the skills that characterize a worker as employable: ability of know-how (problem solving in situations of sudden change); availability to travel; and knowledge of the labour market (how to find work and to improve the work already secured). The reference scale [26] consists of five items which measure the degree of agreement, or disagreement of the participants, with a series of statements indicating the subject's employability, through a Likert scale that ranges from one to five. One example is: "what is the probability of finding an acceptable job outside of your company?".

Pro-activity: This is the "ability to anticipate future problems, needs, changes." A pro-active person is one who can operate without waiting for something to happen, and who takes the initiative to realize what is right and necessary. The pro-active approach improves the person's performance, and promotes their ability to reach career goals [27], while also reducing the levels of uncertainty and anxiety [28]. The survey scale consists of 13 items, which measure the degree of the subject's agreement and disagreement with a series of statements, through a Likert scale, ranging from zero to six. One example is: "I think I am ready to put into play a bit of my current professional security to get something better."

Self-efficacy: It is believed that individuals are prompted to develop an entrepreneurial career to the extent to which they believe they possess the necessary skills to operate in this environment [29] [30]. The scale used deals specifically with the transition between more usual working patterns and the situations likely to be experienced by entrepreneurs [31]. It consists of 10 items that measure the degree of the subject's agreement and disagreement with a series of statements that usually refer to actions carried out by people with high self-efficacy traits, through a Likert scale ranging from zero to six. An example is: "I feel able to effectively manage this career transition."

Values: The second referenced value is: "a concept that an individual has as a transitional purpose (instrumental vs. terminal), expressing interests (individualist vs. collectivist) connected to motivational domains, and evaluated on a continuum of importance as a guiding principle in their lives". [32] On the basis of considerations about the existence of three universal needs of people (biological, social interaction, and the survival and well-being of the group), the author identifies ten motivational types of values that assume a common meaning in all groups and their cultures. They are organized on the following two bipolar dimensions:

- Openness to change:

- Self-direction and stimulation vs. conservatism (conformity, tradition and security)

- Self-transcendence (universalism and benevolence) vs. self-affirmation (success and power).

- **Hedonism**: correlated with openness to change and with the self-assertion, since it is associated with variably of stimulation and success.

Another questionnaire, which consists of a Creativity Observation Scale, [33] can be used to assess creativity attitudes according to which the observer chooses the level that corresponds

to a frequency range which is organized as follows: before, few times, much, and almost always. The questions are:

• Does the subject renounce his ideas and submit easily?

• Is the subject ashamed?

• Is the subject discouraged in face of difficulties?

The observer takes notes and observes the subject's responses to a questionnaire with the following questions:

• Do you feel able to achieve certain goals in life?

• What instils fear in you?

• Do you prefer to obey or do you prefer to be free?

The observer provides a comparison between the responses of the scale and questionnaire, and gives results establishing the activities that can be developed, such as:

• Collaborating in the production of a bulletin of the company, magazine, or school.

• Promoting the work, of creative employee, or creative pupils.

• Encourage exhibitions organizations, and conferences about work and experiences of the company or school, the innovation and improvement of working methods, products and services provided to managers, employees, students, teachers, and the public in general.

2.2. Research samples to detect creative potential and entrepreneurial skills

A research project conducted in Italy aimed to investigate the relationships between variables relating to entrepreneurial skills and values within a specific population composed of individuals who were professional models, The project had a dual purpose: investigating the issue in question by extending it to a type of population on which there was a vast literature, and using the information gleaned in view of a larger project on entrepreneurship education, through stimulation on the emergence of trends and entrepreneurial skills in different and specific types of people and jobs. The sample consisted by 84 models: 49% men and 51% women. The majority of people (48) were between 21 to 26 years,15% were single, and 85% were bachelor. Regionally, 74% lived in the capital of a province or region, and 26% lived outside the capital. In terms of education, 74 people had a degree or frequency of a college, where 46 were employees, 29 were students, and nine were entrepreneurs.

Considering the inferential part of this research, the following hypotheses were formulated:

Based on several studies [34] [35] [36]it was assumed that in the research sample the value of self-direction turns out to have a significant positive correlation to variables related to the Internal Locus of Control, Employability, and Engagement, while negative ones related to the External Locus of Control;

It was assumed that the variable of risk taking had a significant positive correlation on the Internal Locus of Control and Pro-activity during employment transitions, and correlated negatively on the External Locus of Control [37].

Based on values theories [38], it was assumed that the pro-activeness and job transitions in both were positively correlated to employability and self-efficacy in regards to work transitions and success values.

These hypotheses were then applied to the third questionnaire, mentioned in the preceding paragraphs, through the use of an online platform for investigations and scientific research — "Survey Monkey" — where the findings were influenced by disturbance variables such as territorial and cultural difference, typical of a single place residence. In general, the attempt was made to recruit as heterogeneous a sample as possible that was best able to reflect the population in question. It was confirmed that the research had been able to make more information available regarding the broader scope of entrepreneurial skills and values. What has been obtained from the analysis could also provide some interesting insights for further in-depth studies aimed at identifying training models for different types of personalities and professions which are effective in promoting and developing the skills in an entrepreneurial culture.

With regard to the first hypothesis, it was seen that there was a significant association between entrepreneurial skills and specific values. Specifically, those with higher values of Internal Locus of Control also tended to have a sense of personal value as well as self-direction, and it seems that when both were present the subjects felt more likely to find a job (employability) and were even more involved in the work they performed (engagement). However, what could not be confirmed was a negative relationship between those values and the External Locus of Control. So, even though it was a negative trend, the tendency to attribute the causes of events to the External Locus of Control was not sufficient to establish the emergence of an internal value in connection with self-direction. For these data it was possible, however, only to establish a correlation but one which did not give guidance on which variable was independent and which was dependent. Therefore, in this study, it cannot be determined which of these variables was due to the other.

The External Locus of Control, on the other hand, was found to be related to the variable of Risk Taking, so it seems that people who tended to attribute causes to outside events would also avoid entering into risky situations, probably because they did not indicate the possibility of personal control. Even so, conversely, the more people tended to attach themselves to situations, the more inclined they were to take risks. This behavioural tendency, corresponding to the second hypothesis, also tended to increase when people demonstrated pro-action in periods of career transition, which precisely corresponded to a state of uncertainty.

Finally, the evidence was interesting regarding the third hypothesis because we saw that while people were pro-active in situations of work transition, this was not the same as having good or high levels of self-efficacy in the same situations. This was probably because new people, even if proven to be pro-active, were in quite uncertain situations and may not have developed

a sense of self-efficacy, which was formed after these experiences had been experienced. It was said that those who feel effective in situations like that tended to act pro-actively, probably because they did not know well enough what to do in those situations. Even in that case, it would be useful to conduct further studies in order to identify the causative reasons behind these results.

This hypothesis, however, confirmed expectations concerning employability and the value of success. The first showed how to be pro-active in situations of transition regarding work and also involved the perception of greater ease in finding a new job, while the second relationship may be interpreted on the basis of a motivational value of success, which was a result produced by pro-active behaviours in those situation. The value of pro-activity during employment transitions was also founded or linked to another which was not provided on the initial assumption: the value of stimulation. This could be due to the fact that people who have the need for, and value the search for, new stimulation would be more likely to act pro-actively in situations, but those conclusions are to be examined by future studies.

This research, therefore, provided certain evidence as to the psychological variables affecting entrepreneurship. According with this study, the cognitive open cases evidenced self-efficacy to undertake, and strong involvement in entrepreneurial initiatives through different effects from self-intentions. Since the study took this point of view, this involved taking into account psychological variables of this type in order to remedy the deficiencies of initiatives aimed at enterprising people in the part of Italy considered here. Taking consideration of the entrepreneurship level of the youngest students and employees, and their potential for entrepreneurship, has the effect of changing the region's business landscape and economy. The propensity of people to engage with the variables of Locus of Control and Risk was significant and explains their enterprising intentions. Therefore, despite the fact of existing lack of support, it was prudent to conclude that this fact does not explain at all the quality of entrepreneurship, but that other variables of personal behaviour came into play. In conclusion, these findings showed, among other things, the need to continue delving into this subject, both in regard to the design and greater reliability of scales, and to research on other components (both personal and contextual) in order that future research takes into greater account the variables involved in the emergence of entrepreneurial initiatives.

Research conducted in Portugal in a public community college (Polytechnic Institute of Tomar) aimed to characterize the use of subject's cerebral hemispheres in order to determine their creative potential. In a sample, I see where 103 subjects comes from (21 men and 82 women), but the total of 210 is not then explained in a manner that the reader can understand. As such, I cannot rephrase the rest of the sentence without fear of misrepresenting the study. The following hypotheses were then formulated:

1.   The subjects are creative in general.

2.   Subjects increase their creative potential by attending a course.

3. Finalist subjects, attending a seminar on creativity, represent greater creative potential.

4. The women are more creative than the men.

The Hermann creative potential test and the SPSS (Social Packet Statistical Software) were then applied to these hypotheses. The Hermann test confirmed that the group in question was not creative: originality or creativity did not account for their behavioural decisions. However, a balance between the two hemispheres was prevalent in most of the population, which ensured some stability and also possibility to learn about creativity and become creative.

In the same domain, but in another research project in Portugal were studied two courses in the same public community college: one of which was eminently creative for its scientific and pedagogical content with a focus on the "plastic arts", the other being photography. A sample, was taken, consisting in a set of 71 subjects, 30 men and 41 women from a total of 171, representing 42 % of the universe in question shared by two courses of three years respectively, with 25 on the first year, 28 on the second year, and 18 from the last year. The photography course had 48 subjects and the visual arts 23. The following hypotheses were then formulated:

1. The subjects in the two courses are creative in general.

2. Differences exist regarding creativity between the two courses.

3. There are gender differences in creativity.

4. Creativity depends on age.

5. Progression in the course increases creative potential.

6. Creative potential is the main function in the use of the cerebral hemispheres.

7. The subjects had chosen the right course for them.

The Hermann creative potential test and the SPSS statistical software were then applied to these hypotheses and the following variables: the year of course attendance, gender, hemisphere predominance, rational approach, predominance, balancing hemispheres use, slight creative predominance, sensory and intuitive approach, creativity, and rationality of decision. These tests confirmed the hypotheses that the sample in question constituted a creative group. Originality and creativity were found to be superior to the rationality of decisions in their behaviour. However, a balance between the two hemispheres was prevalent in most of the studied population, which presupposed a general stability and possibility of creativity in order to learn and become creative or potentially more creative.

Another similar research project, which took place in a higher institute of psychology in Portugal with a sample of 28 subjects (six males and 22 females) who were graduates in psychology, undertaking a Master's degree in this scientific area, from a total of 199, representing 14% of the universe in question, aimed to address the following hypotheses and research questions:

1. Psychologists are creative in general.

2. New graduates, by undertaking a Master's degree in psychology, increase their creative potential.

3. There are gender differences in creativity.

4. There are age differences in creativity

5. What is the most prevalent brain function in the total group, divided by gender and age?

6. What is the main function in the use of both brain hemispheres?

The Hermann creative potential test and the SPSS statistical software were then applied to these hypotheses. taking the following variables into account: the year of course attendance, gender, slight predominance of the rational approach, balance of the two hemispheres use, slight predominance of a creative, sensory, and intuitive approach, creativity and rationality of decision making. The research concluded that the study group was not creative, because as was found on the application of the Hermann test, neither originality nor creativity of rational decisions influenced the subjects' behaviour. The balance between the two hemispheres, however, was predominant in the population studied, which assumed some stability and also a possibility that subjects might learn more about creativity and become creative.

2.3. Contributions in the field of entrepreneurship education

Pressures from globalization require organizations to enable their employees to carry out necessary work, and they need to ensure that they empower their teams. So in order to be more competitive, organizations must structure working patterns around teamwork. This requires a more effective engagement with creativity in the formation of teams. This trend should begin in schools, starting at the basic level and developing in each type of school. For some years, and resulting from the exchange of mobility programs between two institutions in Portugal and Spain — the Polytechnic Institute of Tomar, and Salamanca University with its Chair of Entrepreneurship — those institutions have sought to develop the teaching of creativity and entrepreneurship through practical methodologies that, little by little, took shape during classes. These institutions had the aim that pupils could later contribute to the creative development of the organization they worked for, thus representing the role of intra-entrepreneurs, or to create their own business or organization, which would combat unemployment and the problem of the skilled unemployed.

Those methodologies are based on fully interactive subject-centred environments, which integrated each topic of the programme into teams performing work in indoor and outdoor environments. The aims were: seeking to develop creative attitudes, investigating and doing creative exercises, and allowing students to request guidance in their research until they materialize their idea addressed in a prototype of a good or service that is presented as an essential condition to work. The programmes, for example, facilitated each pupil to learn about, use, and practice creativity, thus promoting an analytical ability to conduct creative approaches to problem solving, encouraging innovation in the everyday life of organizations. To achieve this goal, students must acquire creativity and critical skills in developing an innovative mindset, such as:

1. Being creative and owning creative attitudes.

2. Applying creativity to potential tests in application and discussion.

3. Being able to engage in creativity exercises: construction, application, and implementation.

These goals required addressing the following questions or problems:

1. How can we build entrepreneurship teams?

2. How do we generate ideas, do we use brainstorming techniques?

3. Building a model of a commodity or a service.

4. Testing the model: presentation in a real context.

Given the above, we present the following method, alerting the reader's attention to that fact that this field continues to evolve and that progress depends on the contribution that each pedagogical action makes.

2.4. The first strategy — Developing the creative mind

This strategy develops and modifies attitudes that relate to creativity:

• Originality.

• Problem solving.

• Curiosity.

• Open-mindedness.

Developing originality means developing the imaginative processes that are integral factors of original creativity. Originality is key as the factor bringing about interesting, unusual, and surprising ideas. The object is not to repress fantasy but to stimulate it. We can think about innovative ideas, thereby imagining the world as if we had to create it anew as a project. Developing problem solving means developing the imaginative processes as integral factors of original creativity. Originality is the key here, too, bringing about interesting, unusual, and surprising ideas. Again, the object is not to repress fantasy but to stimulate it, exploring many possibilities over time that provide innovative responses to an identified problem. Developing curiosity requires us to awaken it in writing, developing original questions that provoke interesting discussions. Developing open-mindedness means encouraging flexibility of thought, which is an important aspect of creativity. If one method does not result in immediate gains, then another method may be attempted. People must give opinions about real and imaginary cases of life, and try to choose some adopted behaviours in order to provoke change and improve experiences.

We may, at this point, have acquired the ability to look the same things, the same needs, or problems as others but in a different manner: for example, searching for new ways to sell, or

to change a product or service with respect to its location, and content, for example. This quality gives people the tools to find ways to make more with less, to reduce costs, streamline processes and systems, increase profitability, find new uses for products, search for new market segments, differentiate between potential workers' curriculum vitaes, develop new products, and potentially many more benefits.

Walt Disney used to say: "Creativity is like a gym: we become stronger how much more is the training" [39]. With this philosophy, he created a method based on three types of personality:

- The Detailer — which means the trouble-shooter who lives in us all and which evaluates ideas systematically in the belief that all ideas should be evaluated and analysed logically.

- The Designer — which means the innovator who lives in us all analysing ideas with the intention of developing new ways of acting and making projects possible.

- The Dreamer — which is the child inside us all, looking for opportunities instead problems in an innovative way.

2.5. Second strategy – Brainstorming

The second strategy for developing creativity, in addition to the set of actions that characterize individual efforts, is the brainstorming technique. It consists in an application of rules encouraging reflection where a group of people should suggest the greatest possible number of unique ideas that can function as solutions, as well as to stimulate ideas in others. Such rules are that participants:

1. Encourage group mates to suggest all sorts of ideas — the more daring and radical the better.

2. Do not judge ideas.

3. Value quantity over quality.

4. Pay attention to ideas that arise and build on those of others.

5. Treat any idea as valid, even if it seems silly, impossible, or irrelevant.

6. Do not censor or criticize their own ideas or the ideas of others.

This reflection process goes through phases in which there are many ideas, and others in which the ideas come more slowly. When the process slows down, it is a good time to review the ideas and work on them. The group reflection can last from five minutes to two hours, although most of the groups work within a range of five to fifteen minutes.

2.6. Third strategy – Detecting the creative potential

As noted earlier, we know that creative potential originates in the brain, more properly in the left and right cerebral hemispheres, which represent both sides of the human brain: the left

side governing analytic functions, and the right side governing creativity and emotional capabilities.

2.7. Fourth strategy — Exercises for creativity practice

Testing our creativity is key and we propose that this strategy can be applied to several exercises [40], of which we examine only two examples as follows:

1. Explaining sight to a person without that sense. Imagine that a group mate near to you is blind.

    • Explain to him how the clouds appear.

    • Explain to him how the blue colour appears.

    • Warming Exercise: The Cow [41]

    • Outline three different business models, all using a cow.

    • Start by defining some characteristics of the cow (produces milk all day, moos, etc...).

    • Use these features to produce an innovative business model based on a cow.

(Note: the people have three minutes in which to do these exercises.)

2.8. Fifth strategy — Build entrepreneurial teams

The fifth strategy consists in building entrepreneurial teams and submitting them to a 'Conflicts Management Diagnosis Test inspired by Rahim [42]. To organize a group of this nature we advocate providing supporting resources, formulating objectives, and meeting the team, in order to be effective in achieving efficiency, operationalizing results, and materializing ideas. This means that two or more people must come together in working to achieve a common goal, such as planning a picnic with staff, updating company policies, or creating a new product line. The best form for an entrepreneurial team to be is that of a self-managed team. This kind of team exists to recruit people from different areas of the organizations who possess different bodies of knowledge, competencies, and cultures. A team of this nature must be small because larger groups create communication problems, and this team must be able to act effectively and be multidisciplinary. The 'Conflicts Management Diagnosis Test based on Jesuino [43] permits knowledge of what kind of people we can insert in the team, according to their motivation levels and relationships with others, in the following manner:

2.9. Entrepreneurial team creation using conflict management diagnosis

First step:

Ask the subjects to answer the following questions in a sincere and spontaneous manner. To do this, they should place a cross (x) at the site that best represents the correct answer.

When experiencing conflict, to what extent do you perform each of the following behaviours:

	Never	Rarely	Sometimes	Frequently	Always
1. I explain the problem, clearly looking for a solution					
2. I try not to argue					
3. I try hard to solve the problem					
4. I draw attention to common interests					
5. I am looking for a mutual commitment					
6. I face the question openly					
7. I try not to get involved					
8. I insist that a particular solution is taken					
9. I note that the differences are less important than goals					
10. I am looking for an intermediate solution					
11. I do not let the issue pass without resolving it					
12. I give up easily					
13. I impose my interests on others					
14. I bridge the gap					
I am ready to negotiate					
16. I face the conflict directly					
17. I am ready to quit the situation					
18. I do not accept "No" as an answer					
19. I look to smooth out disagreements					
20. A little early in order to receive something in return					
21. I express my point of view clearly					
22. I ignore the conflict					
23. I impose my solution					
24. I behave as if mutual objectives were of vital importance					
25. I take both sides of the problem into account					

Table 1. Conflict Management behaviours

Second step:

Assign the values one, two, three, four, and five to their responses, according to the following logic:

Answer	Assign the value
Never	1
Rarely	2
Sometimes	3
Frequently	4
Always	5

Table 2. Scale punctuation.

Third step:

Fill in the tables below, using the figures arrived at through step two. Calculate the totals by adding up the values in the columns.

Collaboration	
Answer	**Assign the value**
6	
9	
16	
18	
25	
Sum	
Accommodation	
Answer	**Assign the value**
2	
4	
14	
19	
20	
Sum	
Sharing	
Answer	**Assign the value**
1	
5	
10	
15	

Collaboration	
Answer	**Assign the value**
21	
Sum	
Competition	
Answer	**Assign the value**
3	
8	
11	
13	
23	
Sum	
Avoidance	
Answer	**Assign the value**
7	
12	
17	
22	
24	
Sum	

Table 3. Style punctuation.

Fourth step:

Taking into account the values received, check the style of conflict management that is used most frequently. Through the above, the results reflect on its effectiveness in managing conflicts. We know that all individuals have interests, and according to the degree of satisfaction in personal interests those of others, we obtain the values of these interests. This measurement identifies five kinds of individual behaviour:

1. **Accommodative**: This style of behaviour means: "I subjugate my power to your will". The person is only interested in satisfying the interests of others rather than their own interests. This kind of person demonstrates submission and complacency if issues agree with them and meets the interests of other. We use this style when:

    • We know that we are wrong, and if we want to hear a better opinion.

    • When it is important to meet the other halfway and maintain their cooperation.

- When we want to create a good environment and store personal credits to be used in the future.

- When harmony and stability are very important, allowing subordinates to learn from mistakes.

2. **Avoidance**: This style of behaviour means: "Let the problem take care of itself". The person is not interested in satisfying either their own interests or those of others. This kind of person has the procedure of ignoring the conflict and hoping that it will pass, encouraging slow procedures that delay conflict resolution, being secretive to avoid confrontation, and calls on bureaucratic rules as a source of conflict resolution. This kind of style is used:

- When an aspect is trivial or more important ones are pending.

- When there is a perceived inability to meet the issue's needs.

- When disruption outweighs the benefits of resolution.

- When it is important to collect more information before resolution

- When others can resolve the conflict in a more satisfactory way.

- When the current problems depend upon others being resolved first.

3. **Competitive**: This style of behaviour means: "For me to win the other must lose". The individual is only interested in satisfying their interests. This kind of person inserts themselves in win-lose situations, makes use of rivalry and power to achieve their own objectives, and to force submission in others. We use this style when:

- Quick decisions are needed, as in emergencies.

- Where unpopular decisions need to be implemented: cost reduction, discipline, and implementation of disliked rules.

- When, in aspects vital to the well-being of the company, you know that you are right.

- You need to counter the behaviour of people who take advantage of the complacency and submission of others.

4. **Collaborative**: This style of behaviour means: "These are my objectives, what are yours and how we can achieve together". The person is interested in fully meeting both their interests and those of others. This kind of person facilitates the sharing of ideas and information, investigation of integrative solutions, and situations where everyone can win. Problems and conflicts are viewed as challenges. This kind of person is:

- Used in the search for an integrative solution where it is important to reach a compromise between both sides of the problem.

- When the aim is learning.

- When we aim to find better solutions through understanding the different perspectives of other people.

- When we aim to gain commitment through the establishment of a consensus.

- When we try to resolve feelings that may compromise the working relationship.

5. **Sharing:** This style of behaviour means: "Let's make mutual concessions to one another so that we both win a little". This kind of person is very interested in satisfying the interests of others, negotiates, and focuses their attention on trade and agreements, and demanding satisfactory or acceptable resolutions. This kind of person is used:

- When the goals are important.

- When opponents with equal power are involved with objectives that can be shared.

- When there is a need to achieve a temporary understanding of complex issues.

- When there is a possibility of collaboration and competition is not possible.

Finally, we verify in each member the awareness of capabilities that we need to for a productive business life according to an application of a frequency scale [44], measuring variables such as time pressure, family life, mobility, interest, challenge, task, risk assumption, tolerance of failure, confidence, reaction to criticism, leadership, delegation capability, decision making, choice of partners, success, and the capacity to request help. The test may present the following results: more people put an "x" by "always" and "sometimes" the more closely they come to being successful as an entrepreneur. If an "x" were placed by them predominantly by "sometimes" and "occasionally", we recommend that they must think twice before moving on because their profile shows some weaknesses as an entrepreneur. If on the other hand, putting most "x" by "occasionally" and "never", they must be advised to choose a better opportunity for them than being an entrepreneur. See the table below:

Scale	1	2	3	4
1. Are you able to work several hours?	Always	Sometimes	Occasionally	Never
2. Are you persistent?	Always	Sometimes	Occasionally	Never
3. Is your project more important than the rest your family?	Always	Sometimes	Occasionally	Never
4. If your project mobilized you intensely for five years, would you continue to pursue it?	Yes, easily	Yes	Yes, with difficulty	No
5. Do only your financial business successes interest you?	Completely	Mainly	Partly	No
6. Do you consider yourself as a survivor?	Always	Sometimes	Occasionally	Never
7. If you experience difficulties, can you find an original way to overcome them?	Frequently	Sometimes	Rarely	Never

Scale	1	2	3	4
8. Do you always complete the projects or tasks you are involved in?	Always	Normally	Sometimes	Occasionally
9. Are problems a challenge for you?	Always	Normally	Sometimes	Occasionally
10. Are you able to live with a situation of uncertainty with jobs and personal finances?	Yes easily	Yes	Yes, with difficulty	No
11. Do you have self-confidence?	Yes, always	Yes, sometimes	Sometimes, I lack confidence	No
12. How do you deal with failure?	It is an opportunity to learn	With disappointment	It is a defeat	It is a disaster
13. Do you accept being criticized?	I agree, but I may not agree	I always agree	I agree, but do not like it	I cannot agree
14. Do you ask others' opinion of your performance in order to correct them in the future?	Always	Normally	Sometimes	Rarely
15. Do you believe that your success depends from external factors only?	Entirely Disagree	I disagree	Sometimes I agree	I always agree
16. Do you like to lead situations?	Quiet	Very	Not really	No
17. Do you consider that you will always be able to find the right people to get what you want?	Very capable	Reasonably capable	Not really	I never can manage it
18. Can you recognize when you need help?	Always	Normally	Sometimes	No
19. Can you identify what decisions are important and which are not?	Yes, always	Yes, normally	Yes, sometimes	No
20. Are you able to delegate to others?	Yes, when appropriate	Yes, sometimes	With difficulty	No
21. Have you already taken risks in the past?	Yes, calculated	Yes, high	Yes, low risk	Sometimes I ran risks

Table 4. Awareness of capabilities needed in business life

With this method, we found over the years that this diversified methods that increased the likelihood of generating more organizational and social gains, not only in the content of the strategies and exercises but also in their number and scope. Thus, methods facilitating creativity encouraged research subjects to develop their designs of prototypes, contribute to their motivation and autonomy, and enhance the use of their technical competencies and relationships. Therefore, we enumerate a list of products or services that have been designed since 2008 during creativity classes by students in Portugal, Spain, and Italy:

1. Funeral coffin of sturdy card holding weights of up to 250 kg, ideal for cremation.

2. Mattress alarm for deaf people.

3. Universal restaurant with dishes from around the world.

4. Mobile multipurpose space.

5. Diaper with dirt detector alarm.

6. Ghetto music: music publisher for amateurs.

7. Mobile sports equipment.

8. Multipurpose chair.

9. Vegetable crackers.

10. Cup multi drinks.

11. Pre-school convenience.

12. Ecological Clearwater.

13. Smart Eco point.

14. Personalized products distribution.

15. Student smart card.

16. Auto recycling centre.

17. Automatic self-cleaning kit.

18. Anti-theft pocket.

19. Bag multi uses.

20. Anti-vandal handle.

21. Multipurpose toothpaste.

22. Multi-function beach kit.

23. Smart t-shirt.

24. Seed separation filtration machine.

25. Glasses with windshields.

26. Facilities space organizer.

27. Multipurpose alarm.

28. Electric motorbike.

29. Dog robot watcher.

30. Multipurpose ladies handbag.

31. Support mobile charger jack.

32. Glasses detecting obstacles for the blind.

33. Deodorant sticker.

3. Conclusions and future trends

Given the deficiencies in the data analysis of investigations considered in this article, we hope to have suggested how the principles of creativity can be applied to more disciplines, courses, and professions. We also found, in the analysis of the samples, that it is very difficult to find a "pure creative". The scientific community must extend this theme to their own conditions and to those of creativity consulting firms, teachers, and students, also extending it to the study to genetic studies, brain studies, biological studies, motivational studies, and all types of interpersonal relationships, using larger samples to cover larger universes and increase the probability of finding purely creative people. With these strategies we can establish a methodology for learning about creativity in entrepreneurial action, constituting important skills that everyone should be able to carry out and operate. There will remain no doubt that creativity is the most obvious sign of human evolution and practical use of intelligence. This constant interrogation of creating can materialize competitive advantages for companies, point towards alternatives in knowledge, technology, business, and crises, to further Mankind's development and progress. Understanding the principles of creativity gives us a suite of options with which to act effectively.

We suggest the following terms as keywords for this article: qualified teams; group mates; entrepreneurial teams; goals and commitments; conflicts; negotiation; self-managed teams; standardization; and creativity.

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