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TECHNOLOGICAL ENTREPRENEURSHIP

**AN INQUIRY INTO THE RELATIONSHIP BETWEEN CREATIVITY,
INTELLIGENCE, EXPERTISE, MOTIVATION, AND SPIRITUALITY**

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Master Thesis

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Short-Bio

Inês Almeida was born in Porto, Portugal, on February 11th, 1981. In 1998, she moved to Lisbon to pursue her dream of becoming a professional dancer by auditioning at the National Conservatory Dance School, from where she graduated in 2001. In 2002, she moved to Brussels, Belgium, where she worked as an independent artist, actively participating in various dance performances and creations presented in Brussels, Amsterdam, Bilbao, etc. In 2007, Inês returned to her roots and in 2008 started undergraduate studies in the Institute of Accounting and Administration of Porto, earning a Degree in Administrative Assistance and Translation, in 2011. She has been working at the CISTER Research Unit, since 2009, supporting its Management Board. Apart from dancing, Inês loves to travel and is completely in love with her senior dog, Pirata, which she adopted from a Rescue 3 years ago.

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Contributions

Some parts of this dissertation have appeared in the previous published paper listed below (the respective author is marked by an asterisk):

- Au-Yong-Oliveira, M. and Almeida, I.* (2015). An Inquiry into the Relationship between Creativity, Intelligence, Work Ethic and Spirituality. In M. Au-Yong-Oliveira, A. Moreira, J. Ferreira, & R. Gonçalves (Eds.). *IMC 2015 - Proceedings of the International Management Conference*. July, University of Aveiro, Portugal (pp. 146-154). Aveiro: Universidade de Aveiro Editora.

Dance first. Think later. It's the natural order.

- Samuel Beckett

An Inquiry into the Relationship between Creativity, Intelligence, Expertise, Motivation, and Spirituality

Abstract

People all have conceptions of what it means to be creative and most of the times these (implicit) theories are mistakenly linked to two types of individuals: the “geniuses”, who with an inexplicable Dionysian act of muse-making give the world awe-inspiring “gifts”, and the “creatives”, who no matter what they will do it is going to be creative. Thankfully, research puts forward an entirely distinct framework where the phenomenon of being creative is seen in a different light: all humans are capable of creative behavior in some domain, some of the time.

There are several studies that show that the level and frequency of this creative behavior may be influenced by a variety of factors and not solely determined by our genes (albeit still an internal factor to be considered). Based on literature it was possible to determine that factors such as intelligence, expertise, motivation, and spirituality propel creativity, however, these studies are mainly focused in a one-dimensional relationship: whether it is creativity and intelligence or creativity and expertise, and so on. As a result, the present study sought to evaluate if these factors actually relate to each other and how, in order to determine the extent to which these variables connected as a whole imprint the human creative potential.

With this goal in mind, a qualitative study - through the Grounded Theory Method - was used, for which the author interviewed recognizably creative individuals – the “outliers” - and to contrast these testimonies with those of so-called “normal” people. Interviews were used in order to collect data, being later transcribed (previously recorded with permission) and analyzed. This gave rise to a detailed and rich account of narratives provided by 21 individuals, inserted within a framework that allowed an insightful comparison between the different realities and experiences.

Evidence gathered showed not only that the level of creativity appears to be conditioned by the individual’s experiences and realities, having a strong impact in their life, particularly in work life, but also that the way the different individuals perceive intelligence, expertise, motivation, and spirituality permits to establish a connection between the variables in study.

Keywords: Creativity, Intelligence, Expertise, Intrinsic Motivation, Extrinsic Motivation, Spirituality

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1. Introduction

Conventional wisdom has led us to believe that all creative acts are natural only to a restricted, exclusive group of people, the so called “geniuses” - those who were lucky enough to be bestowed with a “kiss from God on their brow”, allowing them to achieve major breakthroughs or create marvelous pieces of art with little or no effort at all. There is also a general belief that creativity is an inherent trait of creative people “which implies that whatever a “creative person” does must be creative.” (Amabile, 1996, p. 2). Fortunately for the rest of us - mere mortals - considerable research in recent decades has shown that these principles couldn’t be more questionable. Creativity is, among other things, the result of hard work and discipline (Sternberg and O’Hara, 2000; Tharp, 2003), and the level and frequency of creativity can be influenced by internal variables, such as backgrounds, personality traits, work styles, intelligence, to name a few, and by exterior variables, notably by social environmental factors (Amabile, 1996).

The proposed study solely focuses on a person-centered approach. In this context, we find that it is fundamental to look at the relationship between creativity and intelligence, creativity and expertise, creativity and motivation (intrinsic or extrinsic), and creativity and spirituality.

Although empirical creativity research is seated on a scientific tradition of over 60 years of investigation (Jauk *et al.*, 2013; Plucker and Esping, 2015), it is still unclear how creativity and intelligence correlate (Amabile, 1996; Sternberg and O’Hara, 2000; Jauk *et al.*, 2013). On the one hand, the concept of intelligence itself is blurry (Emmons, 2000). As Sternberg (2000) so elaborately has put it in his *Handbook of Intelligence* “Looked at in one way, everyone knows what intelligence is; looked at in another way, no one does” (Sternberg, 2000, p. 3) so it is not surprising to see the diversity of conceptions that naturally emerge from people’s perceptions and evaluations of their own intelligence and that of others. On the other hand, the concept of creativity can be seen as “mysterious, vague, slippery, or ephemeral” (Amabile, 1996, p. 4) but it has long been conceived as a process through which one produces new and useful appropriate solutions for a given problem no matter the domain (Fisher and Amabile, 2009; Piffer, 2012). The underlying idea that arises from this definition is that creativity is critical to the modification or shaping of environments, and in the same way, intelligence can be seen as the ability to adapt to one’s environment (Sternberg and O’Hara, 2000). Therefore, we could assume that because the two concepts share the element of adaptation it would be straightforward to understand the relationship between creativity and intelligence, however, the multiplicity of definitions of both intelligence and creativity make it very difficult to reach a consensus on how they relate: is intelligence a superset of creativity? Is intelligence a subset of creativity? Are intelligence and creativity overlapping sets? Are intelligence and creativity coincidental sets? Are intelligence and creativity disjointed sets? (Sternberg and O’Hara, 2000).

Another variable such as expertise is seen to influence creativity (Mansfield and Oliveira, 1994; Gladwell, 2008). That is, a minimum level of expertise is seen to be necessary in order for one to be creative (Amabile and Fisher, 2009; Bernstein and Barrett, 2011). Expertise is the groundwork for creativity for the reason that it is needed for creative problem-solving (Fisher and Amabile, 2009; Bernstein and Barrett, 2011) since it embraces important

cognitive abilities such as memory for factual knowledge, technical proficiency, and special talents (Amabile, 1996).

The motivational dimension plays an equally important part in creativity. This component determines what a person actually will do whereas the expertise component determines what a person could do. Motivation can assume two forms: intrinsic motivation and extrinsic motivation. The first refers to a behavior that arises from within the individual such as “deep interest and involvement in the work, curiosity, enjoyment, or a personal sense of challenge” (Amabile, 1996, p. 7). The second refers to behavior that is driven by external rewards, for instance “the desire to attain some goal that is apart from the work itself, such as achieving a promised reward or meeting a deadline or winning a competition” (Amabile, 1996, p. 7). A number of studies have demonstrated that intrinsic motivation is more favorable to creativity than extrinsic motivation, however, in some cases intrinsic and extrinsic motivation may go hand-in-hand (Fisher and Amabile, 2009).

Furthermore, the role of spirituality in creativity is to be analyzed. All humans are spiritual because all individuals have their own value system, world views, beliefs, practices and behaviors (Emmons, 2000). This set of principles plays an important role on how individuals perceive the meaning and purpose of life and how they define their most important and far-ranging goals, whether at a personal or professional level. Spirituality is the ultimate concern in life, the ultimate motivator (Emmons, 2000). With this underlying idea, and perceiving spirituality as an (intrinsic) motivator - a reliable enhancer of creativity – (Kauanui *et al.*, 2008; Amabile and Fisher, 2009) we will try to establish the relation between creativity and spirituality by assessing how the latter can contribute to the former in one’s life work.

In the present study, we will carry out a comprehensive review of the work that covers and supports all the proposed relations. The objective of this study is to interview recognizably creative individuals, from different walks of life, who have attained recognition and success in their careers, and to contrast these testimonies with those of so-called “normal” people – people who have normal jobs and do not excel in their professions or industries. The interviews were audio-recorded and fully transcribed. Grounded theory (Elharidy *et al.*, 2008), whereby the voices in the data lead to theory development, is the methodology, following a transcription of the interviews (previously audio recorded) and subsequent codification of the data (Gibbs, 2007), to find connections between the data and to generate new theory. The empirical field work continued until a point of (data) saturation was reached.

This study is structured as follows: the next chapter reviews the relevant literature on creativity and intelligence (Section 2.1), creativity and expertise (Section 2.2), creativity and motivation (section 2.3), and creativity and spirituality (Section 2.4). Chapter 3 describes the methodology that was carried out, and the empirical results are presented in chapters 4 and 5. Finally, chapter 6 draws on the conclusions reached and chapter 7 puts forward the limitations of the current study and future research.

For a summary of some aspects of the research please see Au-Yong-Oliveira and Almeida (2015).

2. Literature review

2.1. Creativity and intelligence

Intelligence is a complex construct. We all have different perceptions of what intelligence is so it is not surprising the multiplicity of definitions that are available. Nobody “owns” intelligence.

Western countries tend to give emphasis on speed of mental processing while Eastern countries have a more philosophical approach about intelligence - the syllable emphasis here resides in the characteristic of benevolence and in doing what is right. In turn, African notions about intelligence stress the importance of facilitating and maintaining harmonious and stable intergroup relations (Emmons, 2000).

On a more explicit approach, there is a manifold of descriptions or metaphors as called by Sternberg (2000) that bring about some of the most notorious conceptions of intelligence, to name a few:

- i) Geographic Metaphor: intelligence is perceived as a map of the mind, where the basic unit of analysis is the factor that typically is alleged to be a source of individual differences among people;
- ii) Computational Metaphor: in this case, the basic unit of analysis is the component (or the elementary information process);
- iii) Genetic – Epistemological Metaphor: the main unit of analysis is the schema analyzed through methods of close observation by the use of case studies and experimentation;
- iv) Anthropological Metaphor: the main concern is to determine the forms intelligence can take as a cultural invention – the interaction of the individual with his or her cultural context is the basic unit of analysis;
- v) Systems Metaphor: perceives intelligence as a complex system that embodies many levels of analysis, combining geographic, computational, genetic, anthropological, and others, whereby the unit of analysis is the system and its elements interaction.

Despite the uncertainty surrounding the intelligence construct, there is one aspect that has long been associated with the notion of intelligence and that is the element of adaptation to the environment (Lubart, 2003; Richard and Zamani, 2003). Creativity, in the same way, can be viewed as a construct “critical to the modification or shaping of those environments” (Sternberg and O’Hara, 2000, p. 611) seeing that in its core definition lies the idea of production of novel and useful ideas “appropriate to the goal at hand, correct, valuable, or expressive of meaning” (Amabile, 1996, p.1). The definitions of both intelligence and creativity are prolific but they do have in common the element of adaptation, to some extent (Sternberg and O’Hara, 2000).

In so doing, we are in the presence of a creative intelligence, an intelligence that acts in an adaptive way when confronted with novel situations. However, the ability to suit the environment cannot be merely adaptive for adaptation’s sake. In fact, in changing oneself to adjust to the environment little or no creativity may be used. When an individual copes with a new situation in an adaptive intelligent way, it might happen that he or she will just use an

already existing path, that is, a noncreative solution to resolve it. In that sense, even when dealing with novelty, creative intelligence may not be present. Therefore, intelligence is most related to creative intelligence when the situation is highly novel and for which it will be required highly sophisticated actions (Lubart, 2003).

But are the two related? And if so, how are they related? The following lines will attempt to give an answer to these questions by briefly addressing five distinct theories that have been developed to enlighten the several possible relations between creativity and intelligence:

Intelligence is a Superset of Creativity

A recent example of a theorist that defends this relation is Howard Gardner. For Gardner (1995) intelligence cannot be perceived as a unitary construct but rather a group of constructs. In so doing, he proposed eight distinct intelligences – linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalist – and with this set he put forward the Theory of Multiple Intelligences (MI). According to Gardner, each one of these intelligences corresponds to a specific part of the brain, which implies that people can be intelligent in many different ways. Additionally, these intelligences are not limited to achieve creative ends hence creativity is seen here as a subset of intelligence for the reason that the creative functioning is perceived as one independent feature of the multiple intelligences.

Intelligence is a Subset of Creativity

Some of the main theorists here are Sternberg and Lubart (1996) with the Investment Theory of Creativity. For Sternberg and Lubart creative thinkers are like good investors: they buy low and sell high. Just like the investors that operate that way in the world of finance, creative people operate analogously in the world of ideas. The generated ideas here are like undervalued stocks - stock with a low price-to-earnings ratio – that nobody wants to invest in. When creative ideas are proposed, it is not unusual to see them being put aside. New ideas are often ostracized and frequently rejected. It is in the hands of the creative thinker to convince the others of the value of these new ideas to be adopted - sell high – while they move on to their next, and yet again, unpopular idea as so economist Paul Samuelson brilliantly quipped that change occurs one funeral at a time¹ (Gardner, 2011).

According to the investment theory, there are six key elements that combined produce creativity and those are intelligence, knowledge, thinking styles, personality, motivation, and the environment (Plucker and Esping, 2015).

Intelligence and Creativity are Overlapping Sets

In line with this view, intelligence and creativity overlap but are two distinct constructs, implying for instance that people need a certain IQ [intelligence quotient] level in order to be creative. One of the main theorists adopting this view is Renzulli (1986) with the Three Ring-Model. In this model, each ring represents a trait: **i)** above average ability, **ii)** creativity, and **iii)** task commitment. These traits when combined form creative accomplishment (or gifted behavior), therefore the rings for ability – intelligence - and creativity do overlap (Plucker and Esping, 2015).

Intelligence and Creativity are Coincidental Sets

¹ <http://www.thedailyriff.com/articles/the-theory-of-multiple-intelligences-the-battle-scarred-journey-908.php>, accessed on 2014-11-19

In this case, creativity and intelligence are seen as a “unitary phenomenon”, or in other words, a conjoint set, whereby creativity is the ultimate expression of intelligence (Sternberg and O’Hara, 2000).

Intelligence and Creativity are Disjoint Sets

Some researchers have suggested that intelligence and creativity cannot be seen as a conjoint set because of practice effects (Ericsson, 2013), or in other words, expertise of any sort, including creative expertise, is a result of deliberate practice in a given domain therefore creativity is not perceived as an ability. The underlying idea that arises from this theory is that the level of intelligence does not influence the level of creativity but rather the level of effort / years of active work that one commits to a certain domain, decisive for the production of creative work (Sternberg and O'Hara, 2000).

2.2. Creativity and expertise

As discussed in the previous section, in order for an individual to be considered creative he or she needs to find solution paths that were never located and/or used before, appropriate (and thus adaptive) to the environment. These solutions are only made possible through experience and knowledge in an effort to develop automatic procedures that in turn set free cognitive resources for novel tasks (Lubart, 2003). In that sense, to be creative one has to prepare himself or herself to be creative (Gallagher, 2015). Creativity is the result of a learning process that involves hard work and discipline that can be translated by a certain level of expertise in a given domain. For Amabile (1996) expertise is “the foundation for all creative work” (p. 5) and she is not alone. Researchers, such as Hambrick *et al* (2014), Ericsson (2013), Gardner (1995), have also argued that significant creative production seems to require ten years of active work in a field. Expertise will therefore determine how capable an individual will be in a certain domain, which in turn will be determined by how hard one works for it (Baer, 2015). This component is the problem solver's tool to generate novel, useful and appropriate solutions and the level of novelty, usefulness and appropriateness is a function of the individual's knowledge, technical proficiency and talent in the target work field – the more educated and experienced the individual is in a domain, the more he or she will be creative in this particular domain (Amabile and Fisher, 2009). A person's expertise base allows the comprehension of a problem, preventing the individual from reinventing already existing ideas, and helps one to be open to events that arise by chance. At the opposite end of the spectrum resides the idea that expertise may hinder creativity in the sense that knowledge may lead to unsuitable solutions driven by promptly available but inappropriate information (Lubart, 2003).

2.3. Creativity and motivation

However, no amount of skill can compensate for a lack of motivation to solve a problem or do a task. Unlike expertise, the level of motivation will determine what an individual actually will do (Mansfield and Oliveira, 1994; Amabile and Fisher, 2009). One can do work because it is interesting, engaging and challenging - intrinsic motivation - or because it is driven by the desire to achieve a goal, such as a reward or meeting a deadline or avoiding punishment – extrinsic motivation (Kauanui *et al.*, 2008; Amabile and Fisher, 2009). On the one hand, a lack of intrinsic motivation will cause the individual not to perform the activity or do it in a way that simply meets the extrinsic goals. On the other hand, a high level of intrinsic motivation can make up for a lack of domain-relevant skills or creativity-relevant-skills. All in all, it is the degree of intrinsic motivation that will determine the extent to which the individual engages “his domain-relevant skills and creativity-relevant-skills in the service of

creative performance” (Amabile, 1996, p. 7). When one is fully committed to his or her work, totally absorbed and engaged in it, positive feelings may arise from it, and in its highest forms intrinsic motivation can be matched to a feeling of passion (Vallerand *et al*, 2010).

Although research (Amabile and Fisher, 2009; Bénabou and Tirole, 2003) has shown that extrinsic motivators may lead to a decrease of intrinsic motivation, under some circumstances, both intrinsic and extrinsic Motivation may coexist (Amabile and Fisher, 2009). Amabile and Fisher (2009, p. 486) explain this relation as follows:

“This “motivational synergy” is most likely to occur when people start out highly intrinsically motivated to do their work, and when the extrinsic motivators are limited primarily to the stages of the creative process that involve the preparation to generate ideas or the validation and communication of the final idea. Synergistic effects are unlikely when people feel that the extrinsic motivator – say, a reward – is being used to control their behavior. Synergistic effects are likely, however, when people feel that the reward confirms their competence and the value of their work, or enables them to do work that they were already interested in doing.”

A recent study (Forgeard and Mecklenburg, 2013) has put forward a new dimension of motivation where creativity originates not only from the engagement in one’s work for the sake of the process itself or the outcomes external to the process but also from the effects that creative work produces on the individual who engages in creative behavior – the creator - and on other people. Creativity is therefore perceived as a dynamic and reciprocal process, where the creator may affect others and in turn others may influence the creator back. Each of the forces fuels one another through the exchanged inputs.

2.4. Creativity and spirituality

Spirituality and religion are often perceived as synonymous constructs. A clear distinction between spirituality and religion is put forward by the respected Dalai Lama. In his view religion is concerned with faith in the claims of salvation, it involves the acceptance of some sort of metaphysical or supernatural reality, and is connected with religious teachings or dogma, and ritual prayers. Spirituality in turn is concerned with the basic qualities of the human spirit (basic as in qualities that we all are born with), such as human affection, a sense of involvement, honesty, discipline and human intelligence properly guided by good motivation, which brings happiness to both self and others (Kauanui *et al.*, 2010).

All in all, spirituality may be perceived as a set of value system, world views, beliefs, practices and behaviors that shape the way the individual perceives the meaning and purpose of his or her life and consequently influence the degree of commitment vis-à-vis the objects and principles that define his or her sphere of life (Emmons, 2000).

For Emmons (2000) spirituality is the “personal expression of ultimate concern” (p. 4). In recent years, studies conducted to assess spirituality and work, have come up with some interesting definitions about workplace spirituality:

- “basic feeling of being connected with one’s complete self, others, and the entire universe.” (Mitroff and Denton, 1999, p. 83)

- “recognition of an inner life that nourishes and is nourished by meaningful work that takes place in the context of the community.” (Ashmos and Duchon, 2000, p. 137)

- “Spirituality at work is about incorporating together an individual’s mind, body and spirit into the workplace environment.” (Kauanui *et al.*, 2008, p. 163)

The underlying idea that is being unfolded here is that spirituality may be critical to how we operate in all walks of life, be it personal or professional.

Humans are goal-oriented beings, constantly engaged to pursue toward personal meaningfully defined goals, which in turn come forward as the individual’s implicit and/or explicit motives, and basic needs (Emmons, 2000).

Spirituality helps define what people should be striving for in their lives, functioning almost as a mapping system that gives direction to a person’s ultimate concerns in life (Emmons, 2000), and in that way helping individuals find a purpose and meaning for their lives. It has been suggested that the workplace can function as an individual’s source for wholeness and integration, a way to find life purpose (Karakas, 2010). For many, at a certain point in life, work becomes a vocation, or in other words, a calling. This calling is the “expression of personal essence, the inner core, the ‘voice’ within that must surface” (Kauanui *et al.*, 2008, p. 163) - the ‘self’. Personal fulfillment plays a significant role in spirituality at work because it arises from deep within the ‘self’. Fulfilling purpose provides a profound sense of identity, belonging, and direction giving meaning to life (Karakas, 2010). In line with this reasoning, work and task performance is embodied as a form of intrinsic motivation (Jaiswal, 2014).

3. Methodology

As previously mentioned, the present research study followed the Grounded Theory Method (GTM) (Elharidy *et al.*, 2008) for theory creation, whereby “the researcher moves from data to theory” (Remenyi, 2013, p. 5, in Oliveira, 2014). On the one hand, during the process of theory building researchers must become as intimately close with the data as possible, “while remaining constantly involved with their emerging analyses.” (Bryant and Charmaz, 2007, p. 1). In a synergetic effort, data collection and analysis progress in chorus, while each of the forces fuels one another (Bryant and Charmaz, 2007). It is therefore not advisable to previously review all the literature in the given domain and thus prevent the researcher “to be so steeped in the literature that he or she is constrained and even stifled by it.” (Corbin and Strauss, 2008, p. 36). On the other hand, it is essential, and to some extent inevitable to relate materials from previous literature and the researchers’ prior experiences in the process (Corbin and Strauss, 2008). It is therefore required to set in motion a basic description to organize data into specific categories in conformity with their properties and dimensions (Corbin and Strauss, 2008).

Data saturation involves gathering data until researchers find that “no new data are emerging” (Corbin and Strauss, 2008, p. 143) and this was the case with this research, albeit still recognized as being exploratory in nature. That is, the objective was “to collect some data to determine whether a topic is indeed worthy of further investigation” (Yin, 2012, p. 5).

The objective of this study was to interview recognizably creative individuals, from different walks of life, who have attained recognition and success in their careers – the outliers, and later contrast these testimonies with those of so-called “normal” people - people who have regular jobs and do not excel in their professions or industries.

The present exploratory study consists of a sample of twenty-one interviewees, eleven who fall in the outlier group, with the other ten falling in the “normal” group. The interviewees were selected on the one hand due to convenience (convenience sampling) – that is, individuals who were accessible to the research team, due to time and budget constraints – on the other hand “outlier” individuals were chosen for them having excelled, at least on a regional level, in society, while the “normal” people were chosen for apparently registering more regular, day-to-day performance in their professions – namely purposeful sampling (Koerber and McMichael, 2008). Convenience sampling is considered acceptable and is quite popular in exploratory research, the case herein, and oftentimes reveals interesting results which may later on, in subsequent research efforts, be studied more in-depth (Bryman and Bell, 2011). The outliers in this study have recently won prizes (including, for example, outstanding paper awards in reputable academic conferences, outstanding Ada Community Contribution Award of SIGAda, Foreign Direct Investment API Universidade de Coimbra, Best Trainer – High Play Institute – for a number of consecutive years, since 2008 to 2012) and / or have set up outstanding enterprises and were at the time of the interviews acting as CEOs (Chief Executive Officers) for these companies – and, thus, had the desired characteristics necessary to answer the research questions on the topics of creativity, intelligence, expertise, motivation and spirituality and their influence on [their] success.

An interview script developed from the conducting literature review (English exemplar in Annex A, p. 43) with a combination of closed-ended questions and open-ended questions was employed so that the interview inquiry process could give a perspective into what the interviewees were thinking and in that way evolve without narrowing the rich flow of data.

Five key areas of investigation were delved into: creativity, intelligence, expertise, motivation, and spirituality.

The interview script was primarily written in English and translated into Portuguese afterwards. The script was applied (in person, via Skype or telephone) in Portuguese to Portuguese respondents (the same logic was applied to the English speaking respondents), in order to prevent any constraints such as misunderstood questions, misleading answers and inversely potentiate the flowing of ideas of the interviewees. The researcher, a Portuguese native speaker and fluent in English (and with the support from an English native speaker), ensured the quality of the interview scripts in English and Portuguese, as well as the translation to English of the relevant data extracted from the interviews (which is thus seen to be assuredly accurate).

Given that the themes and related questions were expansive, the researcher was able to collect a large and rich set of data. The duration of the interviews varied between 8 and 57 minutes. The interviews were audio-recorded (with permission) and fully transcribed into Microsoft Word files. After carefully reading the transcribed interview narratives, the researcher collected the sections most pertinent to the areas being analyzed and imported them to two separate Microsoft Excel files, one containing the data collected from the interviews performed with the outliers and the other containing the normal people's data collected from the corresponding interviews.

For each group, the data collected from the interviews considered to be more relevant was organized into several distinct descriptive segments – according to its characteristics and properties. This allowed the researcher to become more familiar with the data and consequently observe, detect and name unique themes and patterns (in particular, “to solve a problem in an innovative way”, “all humans are capable of creative behavior”, “is about connecting the dots”, “is part of a learning process”, “is the result of hard work and discipline”, “all humans are intelligent”, “intrinsic and extrinsic motivation must go hand-in-hand to propel creativity”, “[spirituality] is an intrinsic motivator”). This procedure is a part of content analysis and the definition and use of patterns has been undertaken in a number of different research contexts (Oliveira and Ferreira, 2011; Gonçalves et al., 2013; Au-Yong-Oliveira et al., 2015).

This step was then followed by the coding of the data, a fundamental tool of GTM that was applied to bring to light the emerging theories (Elharidy *et al.*, 2008). A coding scheme was developed and put in place.

During the data analysis process, cross-case analysis (Khan and VanWynsberghe, 2008) was applied to compare and contrast concepts that emerged from the interviews of the two groups. This tool forced the researcher to go further than the initial impressions and in this way make sure the theory came to a close fit to the data (Khan and VanWynsberghe, 2008).

At critical points during the course of the ongoing research, triangulation was applied to support reliability and validity of data (Pettigrew, 1990). This methodology was used to cross check different types of data and thus identify the particularities and strengths of the various collection methods – interviews were providers of depth, subtlety, and personal feeling but also of low factual detail; documents in turn provided facts but at the same time were conditioned by the possibility of selective deposit and survival; and direct observation helped the researcher identify discrepancies between what was said during the interviews and what people actually did (Pettigrew, 1990). Additionally, and when considered necessary, interviewees were re-contacted to provide clarification on key issues and/or data verification.

Advantages of using a qualitative research method for this study are that, as the topic is contemporary and relatively new, it necessarily involves speaking and researching participants with given characteristics, as defined in the methodology above. Interviewees were approached directly, which allowed an explanation of the main concepts involved, quite complex in a sense (hard to communicate via a questionnaire), and any existing queries which subsisted were answered later during subsequent contacts. Thus, interviews and their intuitive analysis, by the researchers, was seen to be the most appropriate approach. The work experience of the researchers has involved previous contact with people who have excelled in the arts and in sport, as well as in academia and in business, and so an analysis of outliers versus normal or more regular people was easier and seen to be more reliable than if this had not been the case. Other studies (Oliveira, 1993; Mansfield and Oliveira, 1994, 1995) have compared different types of groups of people, and their behavior leading up to certain [successful] outcomes, and this research follows and seeks to add to this research path.

4. Data Collection: An exploratory analysis

4.1. Outliers

When things or phenomena lie outside normal experience they are described as “outliers”. Within this context, the outliers are men and women who are outside of ordinary experience² (Gladwell, 2008).

In line with the description above, 11 men and women were interviewed between November 2014 and September 2015. The characteristics of the individuals of this sample are described below, in Table 1.

Table 1 – The outliers

Age	Profession	Academic Qualifications	Nationality
36	Professor / Real-Time and Embedded Computing Systems Researcher #1	Doctorate	Greek
42	Professor / Real-Time and Embedded Computing Systems Researcher #2	Doctorate	Portuguese
45	Professor / Economics and Innovation Researcher	Doctorate with Habilitation	Portuguese
46	Professor / Information Systems Researcher	Doctorate with Habilitation	Portuguese
42	Coach	Master’s Degree	Portuguese
43	Ask for Alchemy’s CEO	Master’s Degree	Portuguese
44	Infosistema’s CEO and co-founder	Doctorate	Portuguese
32	Performer / Choreographer	<i>Licenciatura Degree</i>	Portuguese
31	Architect / Illustrator	Master’s Degree	Portuguese
48	Lawyer	<i>Licenciatura Degree</i>	Portuguese
31	Manager	Master’s Degree	Portuguese

The length of the interviews varied between 19 and 57 minutes.

² <http://gladwell.com/Outliers/Outliers-q-and-a-with-malcolm/>, retrieved April 30, 2015.

In what concerns creativity, most of the interviewees agree that the creative construct is related to problem-solving, and for some not only creativity is related to problem-solving but also to finding innovative solutions for unexpected problems, as indicated in Table 2.

Table 2 – Outliers: creativity and problem solving

INTERVIEWEE	QUOTE
Professor / Real-Time and Embedded Computing Systems Researcher #1	“[Creativity is about doing] something in a novel way, either something completely new or to combine pre-existing elements in an innovative way and to add in this way to what was there before.”
Professor / Real-Time and Embedded Computing Systems Researcher #2	“[Creativity is] the capacity to think out of the box (...)”
Professor / Economics and Innovation Researcher	“[Creativity] is the way one tries to overcome an unexpected problem and the different innovative alternatives he or she uses to overcome this same problem.” “[Creativity is about] finding solutions that are not always obvious and therefore in this light they are seen as new paths, new processes, new procedures (...)”
Professor / Information Systems Researcher	“[Creativity] is the ability of looking at a problem in a disruptive way (...)”
Coach	“I don’t settle with the first solution that comes to mind (...) I always try something else; there is always a concern so I think I’m creative [because] I’m restless, I try to solve problems in a different way (...)”
Ask for Alchemy’s CEO	“[Creativity is about] taking an idea or a concept and giving it a disruptive shape.”
Infosistema’s CEO and co-founder	“[Creativity is the capacity to] think differently when facing problems in order to find solutions (...)”
Performer / Choreographer	“[Creativity] is a "weapon" to solve problems and overcome obstacles (...)”
Architect / Illustrator	“[Creativity] is like a “tool box”, where we store our mental capacities and experiences, which we use every time we need to solve problems.”

However, the appropriateness factor is evident in only one of the respondents’ answers: “creativity has more to do with the intelligence of selecting bits of information we have - in my case, resources I have to solve a given problem.”. Nonetheless some others mentioned that creativity “depends on the domain” and that people “can be creative in many different activities”, which in part is related to finding suitable solutions for a given problem, in a given domain. These implicit theories also show that all humans are capable of creative behaviour. As evidenced below, in Table 3, most of the interviewees shared this idea.

Table 3 – Outliers: creative behaviour

INTERVIEWEE	QUOTE
Professor / Real-Time and Embedded Computing Systems Researcher #1	“[Creativity] depends on the domain.”
Professor / Real-Time and Embedded Computing Systems Researcher #2	“[Creativity] is something that can be trained (...)”
Professor / Economics and Innovation Researcher	“In my opinion creativity is multidimensional therefore all individuals can be creative in many different activities (...)”
Professor / Information Systems Researcher	“[Creativity is something that] can be potentiated (...)”
Ask for Alchemy’s CEO	“Creativity is something that is latent, which is in potential within all individuals, and it is something that is available.” “[Creativity] is the capacity to receive knowledge available everywhere – tangible and intangible – i.e., the creative potential is within all people.”
Performer / Choreographer	“I believe that everyone has their own creativity wide open, everyone has that present within themselves (...)” “[Creativity] is a constant flux that is happening (...) everywhere and every time (...)”

This train of thought clearly contradicts the idea that creativity is something innate, which would imply that only a few would be gifted, bestowed or withheld by some capricious divinity. From the answers above two important elements arise and those are the facts that individuals must prepare themselves to be creative and must be available to receive information in order to attain a certain level of creativity. In other words, creativity is the result of a learning process that involves hard work and discipline as supported by the interviewees’ inputs in Table 4.

Table 4 – Outliers: creativity as a learning process

INTERVIEWEE	QUOTE
Professor / Real-Time and Embedded Computing Systems Researcher #1	“I think [I achieved such a high level of creativity] through experience and being around other people who are also good in my area and learning from them (...)”
Professor / Real-Time and Embedded Computing Systems Researcher #2	“[Creativity is the result of] one percent inspiration and ninety-nine of perspiration.”
Professor / Economics and Innovation Researcher	“I dedicate long hours to study and interact with many different people, namely students, and this is a great source of creativity (...)”
Professor / Information Systems Researcher	“When we are faced with problems that cannot be solved in a standard way we are tempted to find other ways, and then at certain times by the nature and difficulty of the problem I find myself tempted to attend courses and training activities, and read about other realities in order to apply this new knowledge in solving the problem.”
Coach	“(...) to diversify training activities and occupations, and constantly relate yourself with completely different people from you is very important [for creativity]”
Ask for Alchemy’s CEO	“I believe that the starting point is curiosity and when we embrace this curiosity and we are always on the look to learn and be available to learn... diversity also helped a lot: meeting people from different countries, interacting with different realities, taking courses in many different areas (...), diversity is very important for the development of creativity.”
Infosistema’s CEO and co-founder	“[In order to be creative] I read and research extensively.”
Performer / Choreographer	“[Creativity] can also be worked and improved. (...) Essentially, what allows my creativity to flow is to keep myself open and curious (...)”
Architect / Illustrator	“[I fuel my own creativity] by reading books, watching movies, and especially by being around people who can teach me things (...) and that is very important. I am a person who loves to be around people precisely because this allows me to absorb from them and learn (...)”

Following the above feedback, it is evident that for one to be creative knowledge must go hand-in-hand with experience. Put differently, creativity is about connecting the dots; it is about collecting ideas, fragments of knowledge and experiences and making connections between them. The importance of these connections is further evidenced in the respondents' answers, in Table 5.

Table 5 – Outliers: creativity and the connection of dots

INTERVIEWEE	QUOTE
Professor / Economics and Innovation Researcher	<p>“I have the privilege of travelling a lot, interacting with very different people and this makes our ‘baggage’ bigger and bigger (...)”</p> <p>“(...) all the people I deal with are so different and have so many different ways of thinking that this helps me to widen my thinking in terms of flexibility and so this is a very important contribution in the day-to-day.”</p> <p>“I’m not a person who is always researching in my comfort zone, i.e., I like to look into other areas, I try to include a multidisciplinary approach in my work (...)”</p>
Professor / Information Systems Researcher	<p>“There are people who throughout their lives lose interest and focus too much in one area and then there are people, which is my case, who like to enrich an area by knowing other areas of knowledge and cross this new knowledge with their specific areas of knowledge.”</p> <p>“I consider myself to be a creative person because for some time now I’ve discovered that all the skills and knowledge that I had didn’t allow me to solve a set of problems and this forced me to somehow study remote areas of my area of expertise to regain new dimensions of problem analysis.”</p>
Coach	<p>“I’m always involved in different training activities and my work, on the other hand, is always different. I’m always working with different people in different companies in different cities.”</p>

Table 5 – Outliers: creativity and the connection of dots (continued)

INTERVIEWEE	QUOTE
Ask for Alchemy’s CEO	<p>“At the same time I’m able to take information and ideas, connect concepts and philosophies and disciplines and create something new from there, precisely because I’m always available to receive information.”</p> <p>“I’m a curious person and am always trying to learn in all circumstances; I read a lot and expose myself to many different experiences and situations.”</p>
Architect / Illustrator	<p>“Creativity has more to do with the intelligence of selecting bits of information we have - in my case, resources I have to solve a given problem.”</p>

Similarly to creativity, the respondents are of the opinion that intelligence is mostly related to problem-solving; that is, it is the capacity of making decisions that are appropriate to the given problem, in other words, the capacity to adapt to the context in order for the person to take appropriate decisions. As demonstrated below, in Table 6, some of the interviewees shared this idea.

Table 6 – Outliers: intelligence and problem solving

INTERVIEWEE	QUOTE
Professor / Real-Time and Embedded Computing Systems Researcher #1	<p>“I think intelligence (...) is defined in terms of problem-solving (...)”</p>
Professor / Economics and Innovation Researcher	<p>“(...) to be an intelligent person is closely related to what we sometimes understand to be creativity. It’s a person who in the face of his/her base of knowledge is able to solve problems, be assertive, and with the information in his/her possession is capable to make decisions that are appropriate to the problem he/she faces.”</p>
Professor / Information Systems Researcher	<p>“In my opinion intelligence is the ability to adapt to new circumstances (...), it is the ability to use knowledge in entirely new circumstances that will allow us or not to gain knowledge but I think it’s more related to one’s capacity to adapt.”</p>
Infosistema’s CEO and co-founder	<p>“[Intelligence is the] ability to make something in a simpler, faster and different way; it is the ability to innovate.”</p>

Table 6 – Outliers: intelligence and problem solving (continued)

INTERVIEWEE	QUOTE
Performer / Choreographer	“Similarly to creativity, intelligence is how a person is able to implement all his/her intuitive and creative side, and how this can be used to intervene in the reality in which we live so that it can be transformed and so that people can grow and overcome all sorts of barriers.”
Architect / Illustrator	“I think that intelligence is to resort to memory, in other words, resources that we have been accumulating throughout life and in the right moment be able to pick the right tools to take [as much] advantage [as possible of opportunities]”

In line with what has been said above, the element of adaptation through the process of problem solving may put in evidence the relation between creativity and intelligence. Moreover, all shared the idea that intelligence is not a linear construct in the sense that it is not only linked to cognitive abilities, as indicated below, in Table 7.

Table 7 – Outliers: human intelligence

INTERVIEWEE	QUOTE
Professor / Real-Time and Embedded Computing Systems Researcher #1	“[I consider myself intelligent] in most domains, yes, but in terms of interpersonal intelligence, or being able to communicate with people, not so much in that domain, perhaps.”
Professor / Real-Time and Embedded Computing Systems Researcher #2	“I consider myself an intelligent person because I have a pretty good reasoning. I have a mind that is very good in terms of solving computer problems that come from mathematics, however, I can recognize that there are intelligent people for other reasons. In my particular case it has to do with the reasoning but maybe you can even consider that a person who has emotional intelligence (...) is also intelligent.”
Professor / Economics and Innovation Researcher	“All humans are provided with intelligence, however, some have better preparation than others which enhances intelligence (...) and therefore have more tools to make more informed decisions (...)”

Table 7 – Outliers: human intelligence (continued)

Professor / Information Systems Researcher	“All human beings have the capacity to adapt. Some are more sensitive to certain inputs and less sensitive to other inputs but we all have the ability to adapt. This intelligence, this adaptability is what distinguishes us as human beings.”
Coach	“For me there are eight types of intelligence. It's a talent, it's a skill that you have in a particular area of activity and according to the area and your genetic and learning predisposition you will have a talent or a series of talents.”
Ask for Alchemy's CEO	“There are several types of intelligence. It's difficult to define [intelligence] because there are people who are intellectually intelligent but not emotionally and then there are others who are emotionally and spiritually intelligent (...)”

It is implicit in the aforementioned contributions that to be intelligent one has to prepare himself/herself to be so. Like creativity, intelligence is a construct that can be developed and that development is likely to be the result of a learning process that involves hard work and discipline, as additionally supported by some of the interviewee's inputs, in Table 8.

Table 8 - Outliers: intelligence as a learning process

INTERVIEWEE	QUOTE
Professor / Real-Time and Embedded Computing Systems Researcher #2	“Firstly, [to be intelligent] one must know how to transform intelligence into a talent and then you must work a lot.”
Professor / Economics and Innovation Researcher	“I believe that work can leverage, potentiate the intelligence of a person (...)”
Professor / Information Systems Researcher	“I firmly believe in the effort of people. I can have (...) ten talents but if these are never explored I'll never know that they even existed. So I believe much more in the idea that there is a set of questions to which I am more sensitive and for that reason they'll be explored and this will make me very good [in a given domain]”

Table 8 - Outliers: intelligence as a learning process (continued)

<p>Ask for Alchemy’s CEO</p>	<p>“(…) we must develop intelligence [otherwise] we stultify. If people stop, if they don’t read, if they don’t question themselves or talk, they will stultify or will become stupid. The brain is not apathetic, it’s elastic. I admit that there’re people who are more limited than others but intelligence is something that can be stimulated. If we stop we can be intelligent but sooner or later we’ll become dumb, stupid and will eventually get old emotionally and mentally.”</p>
<p>Architect / Illustrator</p>	<p>“Intelligence has to do with a certain sense of opportunity, of preparation. In my opinion, an intelligent person is the one who is prepared, and has been preparing for a long time to seize opportunities.”</p> <p>“(…) talent is a very special thing, it’s like a ‘little star’, and maybe it’s something that is more inexplicable than intelligence. Intelligence, in turn, is a bit more practical and pragmatic; anyone can be intelligent regardless of having a talent or not. People think I’ve a talent for drawing but I don’t – I learnt how to draw and have a special taste for it, and I have a certain intelligence in solving problems through drawing or painting.”</p>

As evidenced in the analysis presented above, expertise plays an important role in the creativity of the interviewees. It is therefore clear that one or more of the following factors - preparation, hard work, and experience - is fundamental for the respondents to reach the level of creativity where they are at. Additionally, all of them admit working long hours - between 45-50 hours per week - during the weekend as well, and sometimes even during the holidays.

In terms of motivation, only some of the subjects viewed internal rewards, such as personal satisfaction, a sense of personal worth, the pleasure provided by the activity being developed, as the main propellant to creativity, while the others admitted that both internal and external rewards were very important for the development of creativity, as demonstrated in Table 9 and Table 10.

Table 9 – Outliers: internal rewards

INTERVIEWEE	QUOTE
Professor / Real-Time and Embedded Computing Systems Researcher #1	“[What motivates me the most] I think it’s a sense of personal – not honor – but to prove oneself (...)”
Professor / Economics and Innovation Researcher	“When people choose this type of career it is more for the pleasure that the activity provides and for everything good that comes with it, such as being able to be and interact with many different people with extraordinary characteristics, being able to constantly learn something new, being able to be active...there’s not enough money in the world that could ever fulfill me. Sometimes I say that if I were rich I would even pay myself to do what I do.”
Ask for Alchemy’s CEO	“I like it when people read my book and call me and invite me or when customers say that the work was fantastic and totally different and that caused a profound change in them or in the team - that to me is a reward. To advance in my career or to earn more or less, I don’t even know what that is...what moves me is to make a difference, to provoke changes in people, to see changes happening – that is the kind of recognition I seek.”
Performer / Choreographer	“[What motivates me the most is to] work out of curiosity and personal satisfaction. (...) I’ve never been an ambitious person, I’ve never wanted to win something. I’ve always done this [performance/choreography] as some kind of personal mission, interior, much more mythical.”

Table 10 – Internal and external rewards

INTERVIEWEE	QUOTE
Professor / Real-Time and Embedded Computing Systems Researcher #2	“What motivates me the most is personal satisfaction. One of the most important things that motivates me is when I’m totally engaged in what I’m doing but this isn’t to say that external rewards aren’t important.”
Professor / Information Systems Researcher	“(...) when the rate of effort is very large and people don’t even have the basic conditions to take life forward, I think this will be decisive for people

	starting to do less rather than doing more.”
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Table 10 – Outliers: internal and external rewards (continued)

INTERVIEWEE	QUOTE
Coach	<p>“I’m at my best, in flow, when I’m working for internal momentum. (...) But the truth is that one has to be well paid in order to produce higher quality work.”</p> <p>“(…) money began to be more important in recent years. I know that I need to be careful not to work only for money because I know that this isn’t a good motivator, a good creativity booster – [the important thing is to] maintain things balanced (...)”</p>
Infosistema’s CEO and co-founder	<p>“Clearly the internal rewards [are very important] but as long as the external dimension provides a reasonable quality of life for me and my family (...)”</p>
Architect / Illustrator	<p>“I believe there is a balance [between internal and external rewards].”</p>

The inputs in Table 10 show that intrinsic and extrinsic rewards may correlate because they balance each other. This balance evidences the ‘motivational synergy’ discussed before when people feel that the external reward serves as a confirmation of their competences and value of work.

Some of the other external factors mentioned by the respondents are the recognition by others and the importance of one’s work, and the possibility of travelling is also pointed out as an important motivator. From these indications a social dimension of motivation stands out and denotes the (positive) effects that creative work produces on the self and others.

One of the subjects during the interview, during which motivation was discussed, was of the opinion that motivation is also linked to hard work and discipline: “motivation is clearly an important issue. There is a Portuguese saying that goes ‘more does the one who wants than the one who’s able’. The one who’s able might be a very intelligent person but without motivation he/she won’t do much so a great amount of motivation is necessary for people to do things”. This idea confirms what already has been said and that is that no amount of skill can compensate for a lack of motivation to solve a problem or do a task.

From the interviews performed it is made clear that the variable spirituality is by far the least unambiguous. Most respondents had difficulties discussing the given matter. The line between spirituality and religion was unclear for most of them, probably because the two concepts are generally seen as synonyms, for example one of the Real-Time and Embedded Computing Systems researchers said: “I believe that the human spirit is something that exists and it is extremely important.” but later the same interviewee stated that he believed in the human spirit and not in spirituality thus in religion. Another example, the Economics and

Innovation researcher admitted that she confounded spirituality with religion because it was “difficult for our brain to distinguish one thing from the other”. Nonetheless, all held one thing in common and that was that spirituality (whatever the sense the interviewees make out of the concept) was important for their sphere of life. Moreover, most of the subjects believed that spirituality contributed at some extent to their professional success, as shown below, in Table 11.

Table 11 – Outliers: spirituality and success

INTERVIEWEE	QUOTE
Professor / Real-Time and Embedded Computing Systems Researcher #1	“[Without spirituality] I wouldn’t have been able to finish my PhD. I was bogged-down, I was late in the process so at some point I asked for [spiritual] help. Of course, there are always more rational explanations for the fact I was able to get my PhD but I don’t accept them (...)”
Professor / Economics and Innovation Researcher	“The family and work spheres are very important but there is also a spiritual sphere that can balance and help the other spheres to become more successful.”
Professor / Information Systems Researcher	“(...) when I’m feeling down and more tired I feel that there will come a day, a moment, a time when a force will emerge and help me overcome these issues and this has a lot to do with spirituality.”
Coach	“Until five years ago I was a good professional, always on the rise but was constantly tired. I felt I used to do things with too much effort and now in recent years [since becoming a more spiritual person] I do them in a more relaxed way. [Spirituality] has helped me a lot. Meditation is essential to be more fluid, more creative, to be more connected with people.”
Ask for Alchemy’s CEO	“[Spirituality contributed to my career] a little against the wind but in a more solid way. Maybe for those who didn’t choose such a spiritual path it seemed much faster at the beginning but at the same time much emptier so for me it has been slower but more consolidated, i.e., it’s like I got there slower than the rest but further and I’ve been feeling this in a very strong way.”
Performer / Choreographer	“There is no doubt that [spirituality] has been accompanying my career. Obviously the more mature I am, the more I grow, the more it becomes easier for me to understand in a more global way

	what my spirituality is and what it means to me and how it affects me. There is more consciousness. The more I am conscious about my spirituality the more I have power of taking action (...)"
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Table 11 – Outliers: spirituality and success (continued)

Architect / Illustrator	"[Spirituality] is undoubtedly very important for coping with problems because we really need to have mechanisms to surpass them."
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From the feedback collected it is clear that the underlying idea being unfolded is that spirituality is critical to how humans operate in all walks of life. Spirituality helps people define what they should be aiming at in life, whether at a personal or professional level, by giving direction to the most important and far-ranging goals. In line with this reasoning, spirituality may be perceived as an intrinsic motivator in the sense that it may be determinant to the way an individual commits himself to embracing and achieving concrete goals in life.

4.2. "Normal" people

The concept of being "normal" is hard to define. According to the Oxford Dictionaries online, normal means "conforming to a standard; usual, typical or expected... free from physical or mental disorders". Gladwell (2008) relates normal to being of everyday experience, where normal rules apply versus being an outlier – that is, an extremely successful person who has thrived beyond what is deemed normal experience.

Ten "normal" people, falling under the description above (none of the interviewees had won awards for their work), were interviewed between April 2015 and May 2016 with the same interview script as was used for the outliers (interviews ranging from 8 to 20 minutes in length), and audio recorded with permission.

The characteristics of the individuals belonging to this sample are represented in Table 12.

Table 12 – The "normal" people

Age	Profession	Academic Qualifications	Nationality
36	Project manager	<i>Licenciatura</i> Degree	Portuguese
32	Accountant	<i>Licenciatura</i> Degree	Portuguese
29	Librarian	Master's Degree	Portuguese
30	Accounting technician	<i>Licenciatura</i> Degree	Portuguese

47	Office clerk	High school certificate	Portuguese
29	Kindergarten teacher’s assistant	High school certificate	Portuguese

Table 12 – The “normal” people (continued)

Age	Profession	Academic Qualifications	Nationality
41	Office worker	High school certificate	Portuguese
34	Housekeeper	Basic education	Portuguese
38	Part-time taxi driver (and a housekeeper in the remaining hours).	Basic education	Portuguese
52	Cleaning lady	Basic education	Portuguese

What was most striking about these interviews was how little creativity enters everyday life, and work in particular, despite most of the interviewees recognizing the importance of creativity. The housekeeper admitted to being creative at times when cooking. The kindergarten teacher’s assistant admitted that entertaining and taking care of twenty children requires a measure of creativity, at times. However, most of the respondents did nothing to improve their creativity and for the most part did not consider themselves to be creative at all, as depicted in Table 13.

Table 13 – “Normal” people and creativity

INTERVIEWEE	QUOTE
Accountant	“I am not very creative. I think that creativity is a bit linked to innovation and perhaps at that level I apply it in my professional life but no so much in my personal life.”
Librarian	“I don’t consider myself a creative person but I would like to be.”
Kindergarten Teacher’s Assistant	“When working with children we have to be a bit creative, to keep them occupied, every day, because sometimes we are challenged at work, but most of the time being creative is difficult for me. I am not very creative.”

Office Worker	“Creativity is not necessary nor important in my daily work, it is always the same.”
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Table 13 – “Normal” people and creativity (Continued)

Housekeeper	“I am not creative at all. Sometimes, when cooking, I am creative, I invent, and sometimes it goes well, others not so much.”
Taxi Driver/Housekeeper	“I am not very creative. I like to have things in an orderly fashion, and I follow rules. I am a very stable person.”

Of note is that after a number of years working in an office, doing repetitive work, which involves no creativity at all according to the office worker, spurred this interviewee into having a hobby related to the painting of clothes, with paint and paint brush, considered to be a creative activity. This, said the interviewee, was an important outlet for her, where she had space to be creative. So one might tentatively conclude that creativity is a human need – though not worked on, to be increased, possibly because our “modern” schooling and education system does not emphasize creativity at all. We are, rather, taught to follow rules and do repetitive jobs, day after day, where being responsible and dependable are deemed more important than being creative as said by the taxi driver: “I sometimes prefer to jeopardize myself than to have a fuss or noise over something, I never liked that. I have never had problems in any of the jobs I have had, with colleagues.”

Even though creativity is deemed fairly irrelevant for this group, it is clear for most of the subjects that creativity is related to problem solving, as illustrated in Table 14.

Table 14 – “Normal”: creativity and problem solving

INTERVIEWEE	QUOTE
Project Manager	“[Creativity is] a process allied to imagination with the aim of achieving something.”
Accountant	“[Creativity is] the ability to create something new or create new procedures or different ways to achieve a particular purpose.”
Librarian	“[Creativity is the capacity of being] able to do something better with what we have available.”
Office Worker	“[Creativity] is the need to invent or innovate, to create something different.”

Housekeeper	“[Creativity] is about creating new things.”
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Similarly to the outliers, and albeit most of the interviewees of the “normal” people group considered themselves not to be very creative, the majority of the subjects agreed that for one to reach a certain level of creativity a process of preparation must be triggered through learning, hard work and experience, as shown in Table 15.

Table 15 – “Normal”: creativity as a learning process

INTERVIEWEE	QUOTE
Project Manager	“Creative people are able to take advantage of everything and from everything create something new.”
Accountant	“I think that [creativity] is part of a process of sharing ideas, of hearing other opinions, of seeing things, reading, and learning about other areas of knowledge. In other words, it is a learning process.”
Librarian	“I would like to be a creative person. I try to learn more and more in order to reach that goal.” “One thing we do a lot in the workplace is team work and whenever someone has a work-related problem this is shared with the group in order for everyone to contribute to the solving of that problem.”
Accounting Technician	“I [fuel my own creativity] by exploring other realities.”
Office Clerk	“I [fuel my own creativity] by reading a lot.”
Office Worker	“I [fuel my own creativity] through practice.”

Relatively to intelligence, only two respondents related intelligence with problem solving and that was the project manager that was of the opinion that intelligence was the “ability that we have to create, innovate and find new mechanisms to address the problem that arises.”, and the librarian who said that “intelligence is about using everything we have learned, all the resources we have in order to be better at work and better as a person.”.

In the same way that some of the outliers considered intelligence a non-linear construct but instead a construct that can be developed, some of the “normal” subjects were also of the opinion that the level of intelligence depends on how much one prepares himself/herself to be intelligent, as depicted in Table 16.

Table 16 – “Normal”: intelligence as a learning process

INTERVIEWEE	QUOTE
Accountant	“Intelligence not only needs to be stimulated but also requires that the person recognize their own capacities and to know how to apply them. (...) Above all, we need to know what our capacities are and work them.”
Librarian	“I believe that for everything in life, and regardless of whether a person is very intelligent or not, the most important thing is motivation. Motivation is what drives us to want to achieve more and do what we really want (...)”
Accounting Technician	“I would say that most of the times I am intelligent but not always maybe because I need to ‘grow up’.”
Housekeeper	“We are not all intelligent in the same way. Some might be very intelligent in certain areas but no so much in others. There are people who have a great capacity to absorb everything but at the same time are irresponsible and do not take advantage of this ability. Intelligence is a set of things. To be considered intelligent one has to take advantage of everything around us.”

With regards to expertise, it should be stated that the interviewees were seen to be hard-working, with little idle time in their lives. In the case of the housekeeper, for example, after working during the week, over the weekends she worked as a taxi driver, to make extra money. The kindergarten teacher’s assistant also worked very long days in an understaffed institution, she said, where there was no way of getting around doing a lot of work, especially due to the hard times that state-owned organizations were going through, such as the one where she worked.

Concerning motivation, only some of the respondents considered internal rewards as the main motivator. Some of the internal factors mentioned by the subjects were personal satisfaction, a sense of personal worth, and the pleasure provided by the activity being developed. The majority admitted that external rewards in conjunction with internal rewards were very important, being the extrinsic factors the recognition by others, the importance of one’s work or the workplace itself (for example, feeling motivated through the relations with co-workers),

as show in Table 17. In fact, only the office Worker stated that the main motivator was the salary at the end of the month.

Table 17 - “Normal”: internal and external rewards

INTERVIEWEE	QUOTE
Project Manager	“(..) you might even be doing something that you don’t particularly like but if the work environment is good and you get along with your co-workers, those factors are important motivators (...)”
Accountant	“I always put motivation on my side; it is up to me to motivate myself. External factors motivate me but not in the sense of getting a reward or respecting a deadline. It has more to do with the relation I have with my co-workers, for example.”
Accounting Technician	“When I’m working on things that I really like, the extrinsic motivation doesn’t interest me much, however, when the opposite happens, i.e., when I don’t like what I’m doing so much those external factors – the deadline or knowing that something positive will come out of it – are determinant.”
Office Clerk	“I work for personal satisfaction, I work for love. (...) If, however, we know how to be and how to act and be humble then we will be able to achieve everything: friendship, money, everything that is important.”
Housekeeper	“I work because I like, I like to keep myself active. Even if I were very rich I would always keep myself active. I work not to avoid punishment or the like but to achieve recognition in what I do (...)”
Taxi Driver	“If I’m really in a job that I like, I feel super motivated and I try to learn more and more. (...) On the other hand, knowing that others value your work is very important, and not only in terms of money – I think that a reassuring word is also rewarding, like ‘thank you’ or ‘you were great’ is always comforting.”

Furthermore, while addressing motivation, one of the respondents reckoned that motivation is related to hard work and discipline: “In my opinion, motivation is always very important. Even if there is a lack of technical knowledge, for example, when a person is really motivated he/she will eventually ‘get there’. (...) When someone is really dedicated and interested,

everything can be learned.” This indication reaffirms what has been previously suggested and that is that people will benefit more from a right amount of motivation rather than from a perhaps deceptive amount of skill to solve a problem or do a task.

Finally, it should be added that the “normal” interviewees came across as being “spiritual”, that is concerned with the basic qualities of the human spirit which bring happiness to both self and others, as mentioned before – having come across as being very balanced people, who are not selfish, who adhere to their own value system, such as being fair to those around them, being honest, doing their best to get on well with others, actually to the extent whereby they neglect their own needs. Not wanting to step in front of (or on top of) anyone and generally wanting to get on well with everyone, at work and in family life, was emphasized. The family, children and spouses in particular, were seen to be very important and the main motivating factor for working long hours. Being “normal” and having a loving family came across as being very appealing to the interviewer, during the interviews.

In the same way that spirituality contributed to the outliers’ careers, some of the “normal” people also shared that their own respective careers were built together with spirituality, as evidenced in Table 18.

Table 18 – “Normal”: spirituality and success

INTERVIEWEE	QUOTE
Project Manager	“Spirituality starts with us, honesty has to start with us and only then are we able to project them to others (...) so in this sense of sharing I believe it is inevitable to build one’s career together with spirituality.”
Accountant	“My career was built together with spirituality in the sense of the value system I believe is necessary to human beings (...)”
Librarian	“In those up and down moments (...) we start thinking a bit more about what really motivates us and then it has to be something more than work itself and that’s when the spiritual factor is ‘turned on’. I believe there is something inside me, something ‘superior’ that helps me find strength and motivation (...)”
Accounting Technician	“I believe I’ve always had a ‘hand’ [spiritual help] in my career.”
Taxi Driver	“I believe [my career was built together with spirituality] because I’ve had really hard moments in my life and fortunately I

	was always able to overcome them.”
--	------------------------------------

One thing that struck the interviewer as being very interesting was what the accounting technician shared about spirituality in the workplace: “(...) I firmly believe that we should view our workplace as an extension of our family so as to achieve happiness (...)”. For this interviewee the workplace functions as a source for personal fulfillment that provides a profound sense of identity, belonging, and direction, giving meaning to life. In consonance with this reasoning, work may be perceived as an intrinsic motivator.

5. Discussion of the results

The literature suggests that creativity and intelligence share the element of adaptation, the former because it is conceived as a tool to produce new and useful, appropriate solutions (and thus adaptive) for a given problem (Amabile, 1996; Sternberg and O'Hara, 2000; Fisher and Amabile, 2009) and therefore a crucial construct to the shaping of the environment (Sternberg, 2000; Sternberg and O'Hara, 2000; Lubart, 2003; Richard and Zamani, 2003), and the latter because it can be perceived as the ability to adapt to the environment (Sternberg and O'Hara, 2000). Both outliers and "normal" people not only associated creativity to problem solving, as shown in Tables 2 and 14, but also associated intelligence to problem solving, even though this connection was less evident for the "normal" people with only two interviewees relating intelligence with problem solving whereas for the outliers this connection was far more evident with six interviewees linking intelligence with problem solving, as depicted in Table 6. In line with this reasoning, it may be safe to say that creativity and intelligence share the element of adaptation through the process of problem solving. The literature also puts forward that creativity may be seen as a subset of intelligence as intelligence cannot be understood as a unitary construct but rather as a group of constructs, creativity being perceived as one independent feature of the multiple intelligences, also known as the Theory of Multiple Intelligences (Gardner, 1995), which implies that people can be intelligent in many different ways. By the same token, the literature proposes that creativity depends on the domain and that people can be creative in many different areas (Amabile, 1996; Amabile and Fisher, 2009). What these theories suggest is that creativity and intelligence are not linear constructs in the sense that they can be developed, which implies that as long as people invest in their creative and intelligent abilities all humans will be creative and intelligent. In that sense, to be creative and intelligent one has to prepare himself or herself to be so. For that reason, creativity and intelligence are likely to be the result of a learning process that involves hard work and discipline that can be translated by a certain level of expertise. These theories are corroborated by the respondents' inputs in Tables 3, 4, 7, 8, 15 and 16. Once again, the underlying theories are substantiated to a greater extent by the outliers than the "normal" people.

So, in order for an individual to be creative he or she needs to find new solutions that are appropriate to the environment. These solutions are not only made possible through knowledge but also through experience (Lubart, 2003; Jauk *et al*, 2014). In other words, creativity is about collecting ideas, fragments of knowledge and experiences and making connections between them – it is about connecting the dots. The importance of connecting the dots in creativity is obvious for the outliers, as depicted in Table 5, while for the "normal" people experience seemed to have little significance, as shown in Table 15. What came across to the author as being very interesting is that from the outliers' feedback one may conclude that an individual cannot be merely an expert in a given domain for expertise's sake. One must delve into other areas of knowledge in order to make available the most appropriate solutions to a given problem.

Concerning motivation, the literature suggests that intrinsic motivation is more favorable to creativity and that only under specific circumstances may both intrinsic and extrinsic motivation relate (Amabile and Fisher, 2009), generating a 'motivational synergy' when people feel that the external reward serves as a confirmation of their competences and value of their work.

Curiously, for most of the respondents, except for a few who admitted that internal rewards were crucial and one of the interviewees of the “normal” category who stated that the external reward was the most important motivator, what motivated the outliers and the “normal” individuals the most was this balance between the internal and external motivators - Tables 10 and 17 - so taking into account the feedback of both groups, it may be safe to say that a ‘motivational synergy’ is required for one to be more creative. What also arose from discussing motivation, although in a very superficial manner (only one contribution from each side), was that motivation is linked to hard work which supports what the literature puts forward and that is that motivation will determine what an individual will actually do (Mansfield and Oliveira, 1994; Amabile, 1996; Amabile and Fisher, 2009) unlike expertise that will only determine how capable the individual will be in a certain domain (Amabile and Fisher, 2009).

In what concerns spirituality, the literature proposes that spirituality can be seen as a mapping system helping people define what are the major concerns, or in other words, the ultimate motivations in life (Emmons, 2000), giving a purpose and meaning to life. Both groups demonstrated that spirituality was critical to how they operated in all walks of life. It was stated that spirituality played an important role in their careers in the sense that spirituality helped them embrace and achieve concrete goals in life – please refer to Tables 11 and 18. In this way, spirituality may be perceived as an intrinsic motivator for the fact that it may be seen as a provider of personal fulfillment.

6. Conclusion

Our exploratory research, based on 21 personal interviews, indicates most notably that “normal” people do not use creativity in their professions to the extent that more “successful” people do. Abiding by the rules may lead to keeping one’s job but in the absence of some degree of regular risk-taking and a creative stance, excelling to the point of recognition by one’s peers, and society in general, may be very difficult if not impossible.

The difference between the outlier interviews and the “normal” people interviews was very significant. From one perspective, in terms of the overall time of the interviews. The outlier interviews ran much longer, close to an hour in some cases, whereas the “normal” people interviews were much shorter, closer to 10 minutes long in most cases (with the same interview script). On the other hand, the time dedicated to each of the five topics also varied greatly, from the outlier to the “normal” people interviews – the topics being creativity, expertise, intelligence, motivation and spirituality. While “normal” people were mostly at a loss to describe and define creativity, for example, the outliers seemed more versed on this topic, coming up with definitions which have worked for them over time, and this was the case in each of the other areas, the outliers each having much more to say than the “normal” people.

Indeed, from reading the transcripts of the interviews one is able to quickly see “who is who”. The outliers in the sample had an entirely different type of discussion about the subject of creativity than the “normal” people, with more depth and self-awareness in this respect, recognizing that one has to “be creative or die” (outlier interviewee). The outliers are aware of what creativity entails and how to develop this trait, indeed showing a concern for its nurturing not found in the other sample of individuals, and most importantly they know how to take advantage of creativity in their professional lives. “Normal” people are somewhat at odds with questions about creativity, as they seldom implement it or have, in their view, the opportunity to be creative on a daily basis. Even intelligence is “sometimes associated with what we understand to be creativity” (outlier interviewee). The interviewer is tempted to state that in order to excel one must find a way to introduce creativity into one’s work life, an aspect which has been focused on by other authors: “We found that innovators “think different”... Their minds excel at linking together ideas that aren’t obviously related to produce original ideas... All are questioners, frequently asking questions that punctured the status quo” (Dyer, Gregersen, and Christensen, 2011, p.3). In sum, challenging the status quo and being creative were definitely not traits of the more “normal” individuals who were a part of this study.

On the other hand, outliers see themselves as being successful as they have a given work ethic, engineered around their competences – outliers avoid having repetitive jobs, though at the same time recognizing the importance of having a work ethic, over the years, that makes possible their level of success – in academia or in industry. Motivation by a balance between internal and external rewards is equally evident in both samples.

Spirituality, on the other hand, was the object of various definitions and understandings but all in all both outliers and “normal” people saw spirituality as an internal or intrinsic reward, a propellant to personal fulfilment or, in other words, success in life and work.

In sum, creativity, and the self-knowledge of how to fuel it, distinguishes one sample from the other. But whether one would enjoy working alongside some more calculative people, who indeed need to be that way, to get the results they have obtained, working through and with

other people, is another question entirely. But truth be told, how would you like your child or protégé to be? More or less aware of people’s needs and how that can benefit you? The lesson here may be to always have something that other people need – be it knowledge, spiritual awareness, or a belief in the goodness of mankind that comes across as a much-needed motivating force in some cases.

But one may ask, also, what is success? Is it only material? Then, surely, Mahatma Ghandi would not be an outlier, as he was reportedly said to be worth less than 3 Euros when he was murdered, though followed and adored by millions of people worldwide. Life and being an outlier may then involve a number of aspects – and depending on who is doing the measuring, one may or may not be an outlier. Are you a good parent, rearing law-abiding and loving children, albeit less successful in material terms? We have throughout this research effort tried to identify outliers as people who have been able to be noted on some aspect relevant to society. But “normal” people may well excel at what really matters and is oftentimes invisible to society.

Figure 1 is a depiction of what, at a glance, this study has concluded, evident in the discussion above. With intelligence and motivation (intrinsic and extrinsic, for ‘motivational synergy’) one may gain expertise. Spirituality, on the other hand, is essential for finding meaning in work. The key to excelling in the workplace is being creative, however. One has to break the rules, take risks, and challenge the status quo - in an intelligent way (so as to not be overrun by the change one seeks). Longer interviews are interpreted as a desire to impose oneself and change the world. This will be reflected in a nurturing of one’s creativity and the desire (an important word, we found) to introduce creativity into one’s work life. From the basic building blocks in figure 1 to the ability to be creative (involving depth and self-awareness), and the need to be open to new experiences and knowledge, we hope we have managed to shed some light on success and recognition and what this may involve – for those who do indeed aspire to be successful and reputable in their chosen professions.

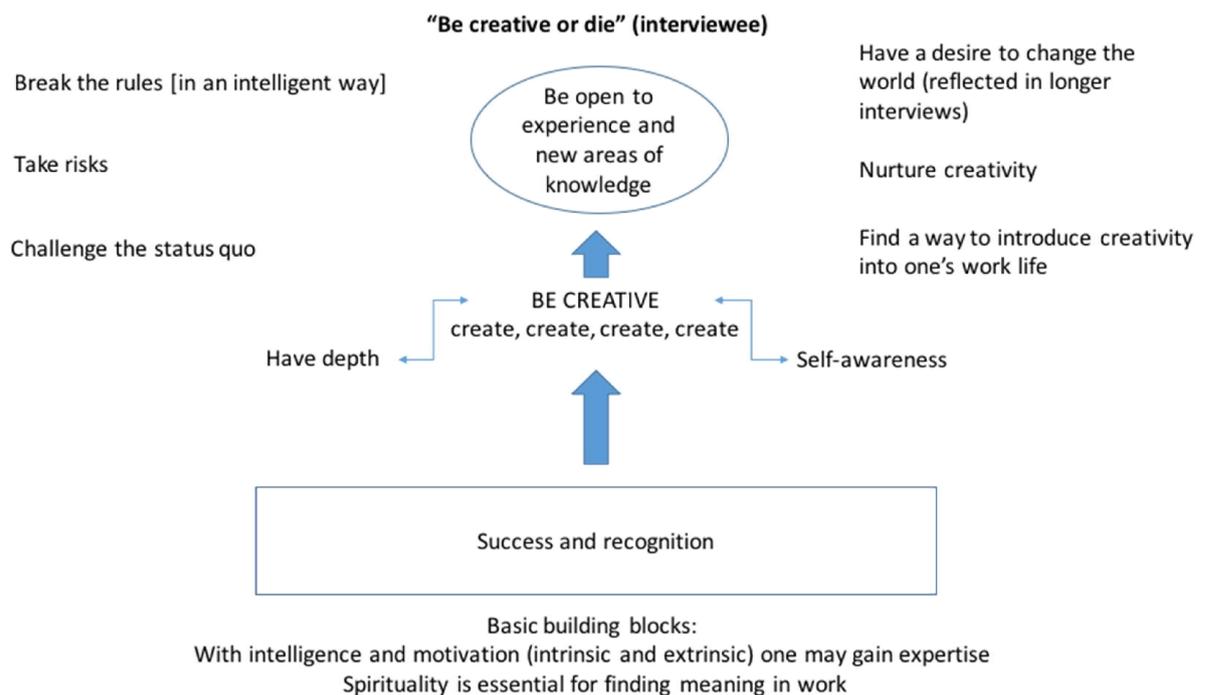


Figure 1 – Be creative or die: ingredients towards success and recognition

7. Limitations of the study and future research

Due to budget and time constraints a total of 21 interviews were performed. This number, for an exploratory study, is acceptable. However, more in-depth interviews, in greater number, in a subsequent study could be undertaken to further research and complete the results arrived at herein. Furthermore, except for one Greek national, who has been living in Portugal for a number of years, only Portuguese nationals were interviewed. The sample thus only involves Southern European subjects, with people from the West. If other cultures had been involved in the study, namely with interviewees from the East, or from Africa, the results may have differed, as different connections between success and the subject matter could be made, due to different personal and professional perspectives. Thus future research could be cross-cultural in nature.

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ANNEX A: Interview Script

The script was developed from the conducting literature review as evidenced on each of the questions below.

Name:

Age:

Profession:

Level of education:

Awards won (any activity, but preferably linked to the career of the interviewee):

CREATIVITY

- i)** Please define Creativity. (Amabile, 1996; Tharp, 2003; Fisher and Amabile, 2009)
- ii)** Do you consider yourself to be a creative person and why? (Amabile, 1996; Andreasen, 2014)
- iii)** In what situations (e.g.: showering, driving, exercising, washing the dishes, when awakening / when you are in bed) do your creative ideas occur? (Tharp, 2003)
- iv)** Do you consider Creativity to be an important aspect of your professional life? (Andreasen, 2014)
- v)** How do you think you achieved such a high level of Creativity? (Andreasen, 2014)
- vi)** Do you fuel your own Creativity? How? (Gladwell, 2008; Amabile and Fisher, 2009)
- vii)** Do you fuel Creativity in the workplace (“using” your colleagues)? (Gladwell, 2008, Amabile and Fisher, 2009)
- viii)** Do you consider yourself to be an adventuresome and exploratory person (someone who likes to take risks)? (Andreasen, 2014)

INTELLIGENCE

- ix)** Please define Intelligence. (Sternberg, 2000; Callahan, 2000)
- x)** Do you rank yourself as intelligent? (Emmons, 2000; Sternberg, 2000)
- xi)** In your view, do the terms “gifted” and “intelligent” mean the same? (Callahan, 2000)
- xii)** Do you think that Intelligence predicts job/academic performance? (Murray and Mount, 2009; Schmidt, 2009)

EXPERTISE

xiii) At what level did your academic path contribute to your current professional status? (Gladwell, 2008; Amabile and Fisher, 2009)

xiv) At what level did the following aspects influence your success? (Mansfield and Oliveira, 1994; Andreasen, 2014)

- Family milieu
- Social milieu
- Economic/Financial Resources
- Infrastructures

xv) What is a Normal work day like? For how many years has it been that way? (Mansfield and Oliveira, 1994; Sternberg and O'Hara, 2000; Gladwell, 2008; Oliveira, 2014)

MOTIVATION

xvi) How do you view failure? (Bernstein and Barrett, 2011; Andreasen, 2014)

xvii) How does Motivation manifest itself in you? (not working so as to not be punished and not working for fame and fortune - external rewards - but working for the self and interior satisfaction) (Mansfield and Oliveira, 1994; Amabile, 1996; Amabile and Fisher, 2009)

xviii) Has it always been like that or has this trait evolved over the years? (Mansfield and Oliveira, 1994; Amabile, 1996; Amabile and Fisher, 2009)

xix) How important and what is the role of extrinsic Motivation (external rewards) in your life? (Mansfield and Oliveira, 1994; Amabile, 1996; Amabile and Fisher, 2009)

SUM UP QUESTIONS

xx) Summing up, what motivates you the most?

- a deep interest and involvement in work, curiosity, enjoyment, or a personal sense of challenge
- the desire to attain some goal that is apart from the work itself (reward, meeting a deadline, winning a competition, avoiding punishment)

(Mansfield and Oliveira, 1994; Amabile, 1996; Amabile and Fisher, 2009)

xxi) When you hire (future employees, PhD students), what do you take into account more – the level of Creativity, [technical] Expertise, Intelligence or Motivation? (Murray and Mount, 2009; Schmidt, 2009)

SPIRITUALITY

xxii) Do you consider yourself to be a spiritual person? (Emmons, 2000)

xxiii) What role does Spirituality play in your professional life? (Wuthnow, 2003ab; Rossi, 2014)

xxiv) Do you ever discuss your personal beliefs in the workplace or is that best kept private? (Rossi, 2014)

xxv) Do you bring your faith/Spirituality to the workplace? (Rossi, 2014)

xxvi) Do you feel that you have been building your business/career together with God? (Wuthnow, 2003ab; Rossi, 2014)

xxvii) Do you feel that your Spirituality helps you beat moments of stress and difficulty in the workplace? (Wuthnow, 2003ab; Rossi, 2014)

xxviii) Do you bring religious principles (such as fairness, honesty and doing your best to get along well with other people) to the way you operate your business/manage your profession? (Wuthnow, 2003ab; Rossi, 2014)

xxix) Does Spirituality help you work well, or better, in groups? Why? (Wuthnow, 2003ab; Rossi, 2014)