Universidade de Brasília

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SYSTEMIC CREATIVITY, SUSTAINABLE DEVELOPMENT AND BUSINESS ADMINISTRATION: Understanding the bridge between Furtado and Csikszentmihalyi in the context of the Brasília National Park

Brasília - DF

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Monografia apresentada ao departamento de Administração como requisito parcial à obtenção do título de Bacharel em Administração.

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A Comissão Examinadora, abaixo identificada, aprova o Trabalho de Conclusão do Curso de Administração da Universidade de Brasília da aluna

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Brasília, December 11, 2019

AGRADECIMENTOS

Sinto que esses 5 anos de UnB passaram em 5 dias. Dezenas de pessoas foram importantes nessa jornada, e estou mandando minhas graças mentalmente para todos (prometo). Mas, algumas ultrapassaram imensamente os níveis de apoio emocional e prático que as boas maneiras nos indicam - e ficam registrados aqui, pra eternidade das estantes da BCE. Primeiro o guru indiano que falou pros meus pais que em 2008 eu teria meu próprio negócio, e plantou a sementinha da Administração na minha cabeça. Família, especialmente mãe e pai, pelos exemplos de excelência e dedicação que me passaram desde que me entendo por gente, e tantos momentos de ternura para recarregar minhas baterias. Meu avô, por sempre me impulsionar para ir mais longe, e acompanhar cada decisão de carreira. Minha vó, por ser a melhor pessoa que já pisou nesse mundo (que me acolheu no modo foco total nessa reta final) e é meu exemplo de tudo que há de bom (mesmo afirmando que as mulheres da família não são intrinsecamente boas). Meus amigos de curso, por aguentar tantas aventuras, quedas mentais, e risadas. Meus amigos de vida, por contribuírem com quem eu sou hoje, e como penso (destacando a Julia, porque ela é minha pessoa, e ficaria ofendida se não fosse mencionada explicitamente). Meu namorado, que viveu esses últimos momentos de graduação sendo tanto âncora como leveza. E, por fim, eu seria uma órfã sem rumo na UnB se não fosse por essa orientadora mágica que me ensinou tanto sobre a vida, e abriu meus olhos para a decisão mais importante da minha carreira: podemos unir criatividade, sustentabilidade e Administração. Não tenho palavras pra demonstrar minha gratidão, Ziggy, e sinto que nossa parceria não termina aqui. E claro, a todos aqueles que entenderam que podem ser criativos, depois de escutar minha explicação do TCC. Amo vocês.

ABSTRACT

This thesis explores the social aspect of creativity, a more modern approach, and how our society comes together to produce novelty through Csikszentmihalyi's (1988) Systems Model of Creativity. To add an economic perspective to this socio-cultural background, brought by the model, Celso Furtado (1978) and his Development and Accumulation theory is introduced to the theoretical model of this thesis. This research builds a bridge between both authors to understand how Systemic Creativity functions, when we add sustainable development to the equation, considering a business administration perspective. To achieve this objective, a qualitative, exploratory field research, combining participant observation, documental research and semi-structured interviews as data collected methods, was made, using the Environmental Education Nucleus as a case study. The content analysis technique was used to process the data collected, and a mixed grid was made with seven initial categories (field, individual, domain, development, accumulation process, insufficiency of accumulation, building bridges between theories), and four others (multi-level perspective, characterization of the field, mapping out cultural references, institutional perspective) were added after the empirical discoveries. The results analyzed include a multi-level perspective regarding all of the categories, depending on the stakeholder considered, and an empirical validation of the theoretical model. A mapping of the field around the Nucleus was essential for building the analysis, that also included how business administration is favoured by the comprehension of the Systems Model, and how a sustainable point of view is a necessity for this profession.

Key-words: Creativity, systemic creativity, Systems Model of Creativity, Development, Accumulation Process, Insufficiency of Accumulation, sustainability.

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LIST OF MONOGRAMS AND ABBREVIATIONS

A3M - (Aprendizagem para o 3º Milênio) Learning for the 3rd Millennium Program

A3M project - Project *Use of Art through Digital Interactive Media to Promote Learning in Business Administration*; Project developed by UnB Business Administration under the A3M program

Center - Visitor Center at the Brasília National Park, headquarters of the Environmental Education Nucleus

Course - Teacher Formation Course

DF - Federal District, Brazil's capital

EEN - Environmental Education Nucleus

ICMBIO - (Instituto Chico Mendes de Conservação da Biodiversidade) Chico Mendes Institute for the Conservation of Biodiversity

Park - Brasília National Park

SISNAMA - (Sistema Nacional do Meio Ambiente - Sisnama) National Environment System

SNUC - (Sistema Nacional de Unidades de Conservação) National System of Conservation Units

UC - (Unidade de Conservação) Unit of Conservation

UnB - (Universidade de Brasília) University of Brasília

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1. INTRODUCTION

This chapter begins with a brief revision of studies around creativity, giving more context around the theories chosen to comprise this thesis. It also addresses the problem statement that led to the choice of themes and object of study, introducing the question it hopes to answer, as well as general objective and specific objectives. It finalizes with the practical and theoretical justifications for the research.

1.1. Contextualization

The human curiosity around creativity dates back to the Ancient Greek times, but its scientific study as an area of knowledge is very recent (SIMONTON, 2000). It wasn't until Guilford's (1950) notorious speech for the American Psychology Association in 1950, that the academy really began exploring creativity more thoroughly. Since then, there hasn't been a consensus of a single definition for what is creativity, (ALENCAR & FLEITH, 2009), but the field of Psychology was the most involved in its study, focusing mainly on four aspects (SIMONTON, 2000): creativity as a cognitive process that happens in our mind through association of references; how it develops during our lifetime, from childhood to elderly age; the personal characteristics that made creative individuals stand out among the average population; and the social aspects surrounding creativity. The first three are focused on the individual who creates, whereas the fourth pillar considers that this individual is embedded in a social context, and the social interactions and background shape how creativity occurs (AMABILE, 2001).

One researcher, from the social line of creativity studies, will be the focus of the present research. Csikszentmihalyi (1988) developed the Systems Model of Creativity, where he indicates that the individual is only one piece of the creative process that happens involving all of society (CSIKSZENTMIHALYI, 1988). This model is composed by three forces, that interact to develop creative novelty: the individual, who introduces the variation to the system; the domain, or the socio-cultural background containing a particular society's references; and the field, which is the network of actors and institutions that the individual is

part of (CSIKSZENTMIHALYI, 1988). His model has a series of implications, like the effects of time, culture and how the field can have an essential role in deciding what is creative or not, and should therefore be incorporated in a society's domain (CSIKSZENTMIHALYI, 1988).

Considering the social nature of humans, and how collaboration happens in most creations through social interactions (AMABILE, 2001) surely, creativity cannot happen in a "vacuum" where studies around it only consider the individual aspects (GUILFORD, 1950). And if it doesn't occur detached from a social context, it won't happen separated from an economic background. To connect this economic aspect to the study of creativity, Celso Furtado (1978) and his book *Creativity and Dependence in the Industrial Civilization* (1978), is the scholar explored in this thesis. He describes how the accumulation process is required for any creation to occur, where the collective nature of any society ends up accumulating a surplus of resources (FURTADO, 1978). From this surplus, what he calls the Development Process is able to begin: the new resources present a challenge to human inventiveness, allowing people to create new things, and to also generate new social values that shape a society's lifestyle (FURTADO, 1978). A negative aspect that may happen because of this movement is the Insufficiency of the Accumulation Process (FURTADO, 1978): a phenomenon where creativity is put in service of industrial production, and a our environment is therefore degraded due to the endless extraction of resources (FURTADO, 1978).

Although their works are separated by 10 years, Furtado (1978) and Csikszentmihalyi's (1988) visions on creativity have many similarities (that will be deeply explored in chapter 2), allowing them to be combined, for a broader look. This socio-economic perspective of creativity, is where Business Administration can mostly benefit from, through the holistic view required. Considering how recent the research on creativity is, and how there hasn't been a single definition established among the academy, researches that combine multiple perspectives are encouraged by authors (ALENCAR & FLEITH, 2009).

This research will explore the phenomenon of the Systems Model of Creativity (CSIKSZENTMIHALYI, 1988), combined with Development (FURTADO, 1978) on the context of the Environmental Education Nucleus of the Brasília National Park. The Park is a Conservation Unit founded in 1961, with the aim of preserving the flora, fauna and water resources of the Cerrado region. Since its creation, it contains environmental education as part of its principles - whose actions are today carried out by the Environmental Education Nucleus. The Nucleus is surrounded by an intricate network of actors in its field, being an

adequate object of study to explore both the Systems Model (CSIKSZENTMIHALYI, 1988) and Development (FURTADO, 1978).

The nature and typology of the study is a qualitative, exploratory field research (LAKATOS, 1999), combining multiple methods of data collection: participant observation, documental research and semi-structured interviews (LAKATOS, 1999) using the Environmental Education Nucleus as a case study (YIN, 2001). To analyze all the data collected, a content analysis shall be conducted, with a mixed analysis grid, allowing for the discovery of new analytical categories that may come up in the field research (VERGARA, 2005). The complexity of the theories chosen is aided by the multiple resources analyzed, in order to better understand how these processes happen in a real-life context.

1.2. Problem Statement

If creativity is still being explored by Psychology, with many gaps to be filled around the social level of it (AMABILE, 2001), in the area of Business Administration it is still in early stages. Most works focus on its impacts on teams, or brainstorming activities (AMABILE, 2001), and also barriers and facilitators inside companies. The systemic approach of Csikszentmihalyi's (1988) model favours its application in practical organizational contexts, considering it takes into consideration the complex network of actors and institutions surrounding it, as well as the cultural background. However it is not used in most Psychology researches, because they still focus on the individual aspects of creativity (ALENCAR & FLEITH, 2009); nor is he well-established in Business Administration researches, where creativity is more focused on the perspective of enterprises. Furthermore, there's little application of his model in Brazilian contexts, and virtually no researches combining it with Furtado's (1978) Development process.

Creativity has definitely become a buzzword in today's corporate jargons, and so has increased our focus on sustainable solutions, for a more conscious production. Considering all the destruction mankind has caused to our planet since the Industrial Revolution (FURTADO, 1978) sustainable development has not only become very popular in society, but an actual necessity. Sustainability should have a bigger focus within Business, but especially with this holistic point of view, of how we can unite organizations to change the system's logic as a whole to decrease our impact on the environment. Singular examples of micro, sustainable actions - like the creation of recyclable products, or eco-friendly

companies - should be encouraged, and are already explored by researchers. But how could real changes be made when we are able to introduce sustainability as a value within our domain? And this broader phenomenon uniting Systemic Creativity, Development and environmental education is yet to be explored by researchers, with many possibilities that can unfold through its examination.

The idea of this research, is, therefore, to answer the following question: how does the dynamic of the Systems Model of Creativity (CSIKSZENTMIHALYI, 1988) function when Development (FURTADO, 1978) is encircled in the context of the National Park as an environmental education initiative?

1.3. General Objective

Considering the problem the research aims to address, the general objective is to comprehend how the dynamic of the Systems Model of Creativity function when development is encircled in the context of the National Park as an environmental education initiative.

1.4. Specific Objectives

As specific objectives, this research hopes to address the following points:

- Understand how the Systems Model of Creativity function in the context of the Environmental Education Nucleus of the Brasília National Park;
- Understand how the Accumulation and Development processes occur within the Environmental Education Nucleus of the Brasília National Park;
- Identify the role of environmental education in the reversal of the insufficiency of accumulation process;
- Understand how Business Administration benefits from the study of the Systems Model of Creativity combined with Development.

1.5. Justification

There are a series of practical and theoretical motivations that drive this research. The combination of multiple perspectives within creativity is justified and encouraged by several authors (ALENCAR & FLEITH, 2009). Yu-Tung Liu (2000), while reviewing the Systems Model, also states in his paper *Creativity or Novelty* (2000) that "any study of creativity based on a single perspective would be limited both in view and in its explanatory power" (YU-TUNG LIU, 2000, p. 263). Watson (2007), in her paper *Who or What Creates? A Conceptual Framework for Social Creativity* also explored the importance of adding perspectives when it comes to the study of creativity. She states that although it might increase the level of complexity, researchers should be encouraged to study organizations in practical settings. Csikszentmihalyi (1988) himself, in his work *Society, Culture, and Person- A Systems View of Creativity*, also opened the doors for studies that unite several fields of knowledge:

> Psychologists studying creativity have begun to realize the relevance of related approaches. The history of science, the history of ideas, cognitive science, artificial intelligence, and organizational sociology are no longer out of bounds for those who wish to get a strong grip on the issues. But all these promising studies—and the many others there was no room to mention—are thus far unrelated to each other, as if these distinct aspects of the creative process could be understood in isolation from each other. Perhaps even more than new research, what we need now is an effort to synthesize the various approaches of the past into an integrated theory. […] The systems approach demands that we become versed in the skills of more than one discipline. The returns in knowledge, however, are well worth the effort. (Csikszentmihalyi, 1988, p.60)

In terms of theory advancements, Amabile (2001) stresses the need for studies around social creativity to be made assessing real teams, within real organizations and natural settings, facing actual problems, so there will be a better understanding of the particularities of their creative process, results, and struggles, for instance. Furthermore, in a collaborative world, any studies that account for them, are evermore relevant and applicable to the workplace (AMABILE, 2001).

Considering the context of University of Brasília, there are only two classes ministered about creativity to the graduate program, one in the department of Psychology, and one in Business Administration, so there still a lot of ground to be covered when it comes to this axis of research. Besides, in UnB's Library repository of graduation thesis, there are only 33 thesis made regarding creativity, and none of them explore the Systemic perspective.

We can conclude that the present paper will, therefore, strengthen the University's creativity axis in the academy, and try to decrease this clear gap.

In terms of practical outcomes, it is especially beneficial to the Environmental Education Nucleus of the Brasília National Park, considering few researches have been made [1]focusing on the initiatives they develop regarding sustainability. Furthermore, it will bring more visibility to their efforts regarding environmental education, considering the importance of their work in changing how Brasília's society perceives sustainability. This thesis is also another step in solidifying the partnership between the Environmental Education Nucleus, and the Business Department of UnB, strengthening both institutions, and promoting even more efforts around this subject with UnB's presence.

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[1] As stated by Interviewee 1, during the field research.

2.   THEORY

In this chapter, the theories that support this thesis shall be explored. The main author behind the theoretical model is Csikszentmihalyi, through his book *The Systems Model of Creativity* (1988). Then, other authors, like Amabile (2001) and Glăveanu (2010), that critique the Systems Model will be cited to sophisticate the analysis that will be conducted in chapter four. The other pillar of the theoretical model is Celso Furtado (1978), with his book *Creativity and Dependence in Industrial Civilization*, adding an economical point of view to the study of creativity. This chapter concludes with the creation of a bridge between Csikszentmihalyi and Furtado, to use this dialogue of both theories, to address the case study.

2.1.   Historical Overview of Creativity

Creativity itself, and the outcomes of creative processes, are present in pretty much every aspect of our lives as human beings, but haven't been thoroughly investigated in psychology until recently (SIMONTON, 2000). As a consequence of the lack of research on the field, many myths and generalisations were built around its concept over the years (SIMONTON, 2000).

The Ancient Greeks believed it to be the fruit of inspiration by the Muses, and it wasn't rare for other civilisations to connect it to divine phenomenons (SIMONTON, 2000). Greek Mythology described a human's soul to be consisted of two chambers, one for the deities to fill with inspiration, and the other for the individual to express it; and Plato, for one, supported the idea of poets being exceptional people inspired directly by godly muses (SIMONTON, 2000). Aristotle confronted this idea, being the first philosopher to propose creativity being originated from the person's interior through mental associations (STERNBERG & LUBART, 1999).

Although being affected by a predominantly spiritual perspective*,* the Ancient Era was a very fruitful moment for the contemplation of what creativity meant. In the following centuries, there was a significant hiatus in the study of creativity that lasted through the

Roman Empire, subsequent Feudalism and in Middle Ages (STERNBERG & LUBART, 1999). It was only when anthropocentrism returned with the Renaissance period that it came back as a critical instrument (STERNBERG & LUBART, 1999).

As time passed, and society became less oriented by religion, people ceased to link creativity directly to deities, but associated it to other generalizations or misconceptions. For centuries it was thought to be a gift only few intellectually privileged individuals were lucky enough to be born with (ALENCAR & FLEITH, 2009), or even a practice exclusive to the world of the arts, and other specific areas (CSIKSZENTMIHALYI, 1988). Philosophers in the 18th century strengthened the notion that creativity was an all-or-nothing perspective: either you were born as a creative genius, or had no creative capacity at all (STERNBERG & LUBART, 1999). It was no longer thought to be a supernatural phenomenon, and was also differentiated from talent, but still considered a form of exceptional geniality (STERNBERG & LUBART, 1999).

In the 19th century, Galton made a breakthrough by examining creativity through empirical studies that pointed out a continuum between supposedly non-creative individuals, and creative geniuses (STERNBERG & LUBART, 1999). He also explored his own introspection, by writing down all thoughts he had during a train ride between cities, coming to the conclusion that mental objects, that resided in the "mind's basement", were associated to form creative thoughts (STERNBERG & LUBART, 1999).

The first half of the 20th century was especially marked by psychoanalysis and attempts to measure creativity. Simonton cites how some researches developed an intelligence scale that contained creativity as some of the parameters measured quantitatively (SIMONTON, 2000). Alencar & Fleith (2009) also cite how Wallas (1926) was the first to map out a creative process that happened in an individual's mind.

In the second half of the 20th century, it wasn't prior to Guilford's (1950) notorious presidential address to the American Psychology Association in 1950, that science turned its gaze into that area of human development and realised the dormant potential behind it. Guilford really introduced a paradigm shift in how the field viewed creativity: from a divine gift, to a complex psychological dynamic (SIMONTON, 2001). Fortunately, the second half of the 20th century was a vibrant time for creativity studies to blossom, and by 1960's and 1970's, there was a crescent number of studies in the area, evolving furthermore how we perceived the creative potential.

Although the advance in creativity studies must be regarded optimistically, it's important to note that there hasn't been a consensus around the theme, nor a single definition for it (ALENCAR & FLEITH, 2009). Dean Keith Simonton (2000), in his review of how researchers developed creativity as a known field, points out its major four fronts of exploration: the cognitive process perspective; how personal characteristics influence creative outcomes; the development in people's life span; and the role of social context. In order to further explore creativity in its state of the art, this historical review of the theme shall be guided by Simonton's division, and complemented by several other authors.

2.1.1. Creativity as a Cognitive Process

Cognitive processes are the psychological processes involved with knowledge, comprehension, perception and learning (ALENCAR & FLEITH, 2009). They reference how individuals deal with stimuli from the external world, by absorbing and processing new data (ALENCAR & FLEITH, 2009). Simonton points out four main topics of study that support the notion of how creativity was later on proven to be a cognitive process (SIMONTON, 2000): insightful problem solving, creative cognition, expertise acquisition and computer simulation.

Particularly notable were the studies around creative cognition[2] that characterise creativity as a series of "ordinary cognitive processes" (SIMONTON, 2000, p. 152). This is a remarkable shift: the idea of creativity as a cognitive process like any other that happens in our minds, overriding the previous notion of it being a gift some individuals possessed. Consequently, it proposes a more accessible and egalitarian perspective on the theme: that virtually all human beings are capable of demonstrating a creative potential (SIMONTON, 2000). Guilford, for instance, differentiates creative potential from creative thought, and states that creativity can be found in the absence of a creative product or outcome, being present simply in thoughts, regardless of them being expressed or not (GUILFORD, 1967). This notion reinforced the "cognitive process revolution" (SIMONTON, 2000), overriding the previous misconception of creativity being a gift only residing in the realm of the arts, but rather a cognitive feature present in the thought process.

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[2] Simonton (2000) cites SMITH, WARD, & FINKE, 1995.

The insightful problem solving field was mostly explored by Gestalt psychologists, focusing on incubated ideas and how insight surfaced from them (SIMONTON, 2000). Theoretical models and empirical analysis described this process of cognitive unconscious and how we process information with the right stimuli (SIMONTON, 2000).

2.1.2. The Role of Personal Characteristics

When researchers began exploring how personal characteristics affect the development of creativity, they came across two divergent foundations on where the individual contribution lied (SIMONTON, 2000). Some defend how intelligence plays a major role in individuals considered creative, while others claim that personality is predominant in affecting the creative potential. It became a matter of intellect or disposition (SIMONTON, 2000).

IQ studies were very popular in the 20th century, and some researchers linked it with creativity (SIMONTON, 2000). Researchers like Barron and Harrington (BARRON & HARRINGTON, 1981) bring forth the idea that intelligence levels only matter to a certain degree when addressing creativity (SIMONTON, 2000). Guilford (1967) also contributed to the intelligence conception with his notion of divergent thought - and how we can come up with numerous alternative answers to a single problem. Alongside Gardner's studies in multiple intelligences (1983), it adds complexity to what was considered intellectual capacity around that time, pointing out that creativity is an ability that should be included in intelligence tests (ALENCAR & FLEITH, 2009).

Although intelligence and creativity as a cognitive process have grabbed scholar's attention for quite some time (SIMONTON, 2000), studies around the personality of individuals deemed creative have been growing (ALENCAR & FLEITH, 2009; SIMONTON, 2000), and moving beyond the mad-genius argument (SIMONTON, 2000). Since 1949, the Institute of Personality and Social Research in UC Berkeley, California, has been the stage of many studies around that theme. Donald W. MacKinnon (1978), who led many studies around creativity and personality, was the founder of the Institute himself, affirming once more the crescent importance of creativity as a research field. But as important as the characteristics themselves, is whether the personality traits of creative individuals precede

creativity, or act as a consequence of being more creative (ALENCAR & FLEITH, 2009). While this question remains unanswered due to lack of correlational evidence in research, there have been studies that aim to stimulate creativity and demolish barriers that inhibit it (ALENCAR & FLEITH, 2009).

2.1.3.   Life-span Development of Creativity

Another evolving branch of research states that creativity goes beyond cognitive or dispositional aspects, and is actually an activity that varies through the course of life (SIMONTON, 2000). Starting from that premise, scholars have explored the acquisition of creative potential while analysing creative people's childhoods and adolescence; and how that potential is actualized in adult years (SIMONTON, 2000).

Regarding the acquisition aspect, it's important to note how the power of adaptability in human beings plays a major role in creative individuals (SIMONTON, 2000). Perseverance, challenging upbringings and diverse experiences actually nurture creativity more than nourishing environments in some cases (SIMONTON, 1984, 1994, 2000). Considering the diversity of conclusions between studies, it's possible to point out the importance of both nature and nurture as inputs of creative potential (SIMONTON, 2000).

Meanwhile, studies focused on the actualization of creative capacity remind us the complexity involved in this area of study. As individuals grow, the complex dynamic between external and internal factors - like their personal worldview and the socio-cultural environment in which they're located - is apparent (SIMONTON, 2000). Authors like Csikszentmihalyi (1997), Simonton (1991, 1997), explore creativity and aging, also taking down a previous misconception that children demonstrate more creativity than older individuals.

2.1.4.   The Role of Social Context

By this point it's noticeable, that there was a predominance of an individualistic approach to what is considered creativity (SIMONTON, 2000). The cognitive, dispositional or

intrinsic characteristics of creative people were the main topics of investigation - all phenomenons explored in a person's singular mind. Beginning in the 1970's though, the social aspect surrounding them became a substantial theme of study (SIMONTON, 2000). By the 1980's, a social-psychology creativity branch solidified, enriching the previous perspectives already developed (AMABILE,1983); and according to Simonton (2000), they fall into basically three main angles: the interpersonal; disciplinary; and sociocultural environments.

Creative outputs don't often occur in isolation, and the how people interact with each other, in interpersonal settings, affects the process (ALENCAR & FLEITH 2009). Depending on the specific characteristics of the task at hand, expectation around the activity may intensify or restrain creativity (AMABILE, 1983). Amabile (1996), for instance, studied how intrinsic or extrinsic motivation affects creativity, in her componential model of creativity. The currently popular studies on brainstorming also propose a groupal approach to creative problem-solving process (AMABILE, 2001).

Csikszentmihalyi (1990), on the other hand, expands the angle proposed by the interpersonal point of view, to a disciplinary and societal environment. His systems view of creativity proposes the interaction between individual, the field of work they're situated and the culture around it. Creativity therefore, can be found not only in the individual, but in the social system they're in, and can't be separated from its disciplinary context (CSIKSZENTMIHALYI, 1990). As a side note, it's interesting to point out the changes in methodology required in research to further investigate this systems view. Martindale (1990) validates it empirically, but the soon the difficulty of validation inside a laboratory was too big to ignore, and researchers, like Dunbar (1995) began to use participant observation methods instead (SIMONTON, 2000).

The crescendum in scope of research doesn't stop in the interdisciplinary aspect. Researchers began to see the individual and their fields as part of a complex socio-cultural environment, where the historic time-frame does interfere in creative outputs (SIMONTON, 2000). Therefore, political, social, and cultural variables should be included in this particular point of view (ALENCAR & FLEITH, 2009). Simonton's research includes the historiometric perspective, consisting of how does the *zeitgeist* of the period influence creativity (SIMONTON, 1984). The focus on political effects as variables include how different political environments lead to creativity manifestations on certain populations; and how nationalist

rebellions encourage cultural heterogeneity, and therefore provide more cultural diversity for creativity to flourish (SIMONTON, 1994).

In conclusion, it must be clear by now that there isn't a single definition for what is creativity. The various theories all present distinct perspectives on the theme, and are not exactly excludent amongst themselves, permitting one to associate different studies depending on the aspects wished to explore. Inside the spectrum of what has been researched about creativity, it's possible to choose with which perspective to address a situation[3].

2.2.   The Systems Approach

2.2.1.   An Introduction

As stated by researchers like Simonton (2000) and Amabile (2005), people are social beings, and you cannot separate them from their social context when assessing creativity. One researcher in particular will be the focus of the following chapter, guiding the division of themes and insights presented hereinafter. His work will serve as the theoretical backbone of the present thesis, due to its broad perspective that dialogues with the chosen objects of study, and overall systemic point of view, much required in Business Administration.

In his book *The Systems Model of Creativity (1988),* Csikszentmihalyi begins his argument by pointing out that so far, psychology was always invested in answering *what* is creativity - therefore researching the creative outputs, cognitive processes around it, measuring it, finding ways to boost it, and so on (CSIKSZENTMIHALYI, 1988). And that point of view isn't necessarily inaccurate, it's just not portraying the whole picture (CSIKSZENTMIHALYI, 1988). It is true that the individual, and everything that happens psychologically to them, does contribute to the creation of new products, processes, services and so on. But they're just one of the pieces of an intricate mechanism, where the milieu they belong to, and the socio-cultural background they're in, matter just as much as the individual

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[3] Author's note: although there's a myriad of studies examining the individual's creative process and its phases, this thesis shall not explore them thoroughly, since its intention is to understand creative processes in a broader scale, through the Systemic Model by Csikszentmihalyi, including external factors that affect individual creation.

contribution (CSIKSZENTMIHALYI, 1988). Hence, the author stresses a necessary shift from the question of *what* is creativity, to the question of *where* is creativity (CSIKSZENTMIHALYI, 1988).

Csikszentmihalyi's thesis is, therefore, based on the premise that you cannot separate the individual from the historic and cultural medium they reside in (CSIKSZENTMIHALYI, 1988). Creativity only exists in social and historical contexts, where society relies on complex reference points to evaluate if an individual's creation is actually creative, or just a bizarre, random assortment (CSIKSZENTMIHALYI, 1988). In the researcher's model of creativity, creative outputs will always be a product of a relationship between three elements: the *individual,* who creates something new; the *field*, or the area where they act upon; and the *domain*, which is the culture applied in that society's context (CSIKSZENTMIHALYI, 1988). In his own words:

> This is because what we call creative is never the result of individual action alone; it is the product of three main shaping forces: a set of social institutions, or **field**, that selects from the variations produced by individuals those that are worth preserving; a stable cultural **domain** that will preserve and transmit the selected new ideas or forms to the following generations; and finally the **individual**, who brings about some change in the domain, a change that the field, will consider to be creative. (Csikszentmihalyi, 2014, p. 47).

Csikszentmihalyi constructs this notion by proposing a series of arguments, one on top of the other, like bricks building a wall, which will be explored henceforward.

He starts with the question of how do we judge if something is creative or not - and how our opinion is then based on faith (CSIKSZENTMIHALYI, 1988). Not the faith that used to guide creativity in the Ancient Greek Era. But the faith we rest on the domain guiding that particular society, and the trust we have on reliable professionals that belong to that particular field (CSIKSZENTMIHALYI, 1988).

To illustrate this apparently abstract concept, in chapter 4 of his book *The Systems Model of Creativity* (2014), Csikszentmihalyi constantly brings up examples in the realm of the arts and sciences. So in order to further examine his model, bringing it to a more palpable level, let's use an art-related example, like the one Csikszentmihalyi (1988) gives: how can we judge if a modern painting is creative or not? The viewers might not be experts in modern art themselves, but they turn to the opinion of art critics, look up peers of the painter, or museums and galleries in which the painting was exposed, to form an opinion. As important as the painter who made the piece, are the actors involved in the same field of work, who are

the ones that validate it as creative or not. There is an elaborate interaction of actors in an ecosystem for something to be deemed as creative.

Csikszentmihalyi cites Kuhn (1970, 1974, apud CSIKSZENTMIHALYI, p.50, 1988) to exemplify how creativity can also be found in the hard sciences, and numerous other fields of research. For further clarification of this dynamic, we can turn to an example in Biogenetics. Let's suppose there's an article in the newspaper disclosing a recent groundbreaking discovery related to the human DNA. By reading the news, the viewer can agree that the researchers were very creative in their laboratory experiments. But does that agreement come from the vast knowledge the viewer has on Biogenetics, and how they can accurately affirm that creativity was applied? The average newspaper readers aren't likely to have a PhD in that area, and yet they acknowledge that the researchers were creative, because they trust Science as a field, and know that there were many experts evaluating the groundbreaking discovery, and confirming it of being creative.

A creative output cannot be considered creative deliberately, or automatically, solely by its objective attributes; it depends on multiple stakeholders, who are set in a specific socio-cultural context, involved in that area, to validate it (CSIKSZENTMIHALYI, 1988). Therefore, creativity is relative - it depends on social arrangements (CSIKSZENTMIHALYI, 1988). It is a result of a series of social processes of negotiation and legitimation (CSIKSZENTMIHALYI, 1988).

2.2.2.   Systems Model of the Creative Process

Csikszentmihalyi (1988), after researching for more than 25 years the characteristics of creativity, developed a model that describes the relationship and interaction between the forces mapped out in his systems view: the individual, the field and the domain. The premise that the person cannot be separated from their social environment (CSIKSZENTMIHALYI, 1988) causes many implications in this model that will be explored in sequence, followed by a deeper analysis of the three elements.
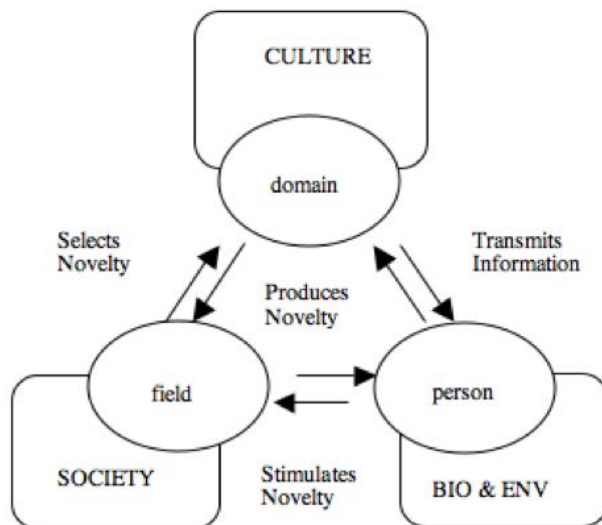
DIAGRAM 1 - The Systems Model of Creativity

Source: Csikszentmihalyi, 2014, p. 52

"The focus of creativity. This "map" shows the interrelations of the three systems that jointly determine the occurrence of a creative idea, object, or action. The individual takes some information provided by the culture and transforms it, and if the change is deemed valuable by society, it will be included in the domain, thus providing a new starting point for the next generation of persons. The actions of all three systems are necessary for creativity to occur" (Csikszentmihalyi, 2014, p. 52).

It is relevant to point out that all forces act together to produce novelty, or a valid creative output (CSIKSZENTMIHALYI, 1988). For instance, the individual may capture references from the domain, and techniques from the field; while the field validates the creation at hand; and later on incorporates it to what constitutes the cultural aspect of the domain (CSIKSZENTMIHALYI, 1988). All of these phenomenons may happen simultaneously, or not following a particular linear, sequential order (CSIKSZENTMIHALYI, 1988). Therefore, it's important to note how they are "dynamic links of circular causality", like Csikszentmihalyi refers to (CSIKSZENTMIHALYI, 2014, p. 51). In their circular interaction, all links exchange information, and have the power to influence, and be influenced by one another.

Having this particular behaviour in mind, it's noticeable how there is no correct starting point to interpret the map, it is solely arbitrary (CSIKSZENTMIHALYI, 1988). As the

individual-centered creativity may have lead us to believe, it *should* start by the creator (CSIKSZENTMIHALYI, 1988), right? But the creative thought only materializes into creation because of the multitude of references accumulated by the individual, from the field and domain before them (CSIKSZENTMIHALYI, 1988). Not just references contribute, but even the notation to portray such creation, linguistics, and other practices depend not on the person, but the field, or domain (CSIKSZENTMIHALYI, 1988).

Now that we've covered the main aspects and implications of the model, let's delve into each of the three compounds of the Dynamic Model in order to clarify their particularities.

2.2.3.   The Person

The individual's role is to bring a degree of variation from what was inherited from the domain, and learnt in the field (CSIKSZENTMIHALYI, 1988). The motivation behind that variation, and how it was conceived (or the creative cognitive process), are basically the fruits of most researches in psychology (CSIKSZENTMIHALYI, 1988). Everything the individual has lived through, their intelligence level, their personality traits, etc, all contribute to what was created after all. The author at hand doesn't therefore disconsider what was explored before him (including his own previous works on creativity in the individual), instead he reinforces the notion that the individualistic perspective of creativity is not showing the complete picture of what's really happening when a creation is made (CSIKSZENTMIHALYI, 1988).

Considering that the individual aspects of creativity have already been more extensively discussed in the previous sections through the historical review of creativity, the other two forces of Csikszentmihalyi's model will be more deeply explored in sequence.

2.2.4.   The Domain

The domain is the social system that embraces the field, including society's resources that support new ideas (CSIKSZENTMIHALYI, 1988). It contains the cultural reference points that are passed down to new generations, and embodies values a certain society cherishes (CSIKSZENTMIHALYI, 1988). It is made up by all variations that have been previously validated by the field, and considered "important" enough to be incorporated in all of society's memory (CSIKSZENTMIHALYI, 1988).

Csikszentmihalyi also brings forth the studies of another scholar to solidify the implications of time, evolution and culture[4] in creativity. Dawkins (1976, apud CSIKSZENTMIHALYI, p. 55, 1988:) is responsible for the term "meme" or "unit of imitation" (CSIKSZENTMIHALYI, 2014, p. 55) consisted by any form of structured information that was meaningful enough to be transferred to the following generations (CSIKSZENTMIHALYI, 1988). A domain, therefore, would be a system of analogous memes that are altered periodically by the process of creativity (CSIKSZENTMIHALYI, 1988).

Similar to the phenomenon that happens with the field, the structure of the domain can also facilitate or obstruct the production of novelty (CSIKSZENTMIHALYI, 1988). Notation plays a major role in this case, being determinant on how the field can detect variations and include them in the domain: if the notation is precise, it's relatively easier to decide if it is a relevant addition or not (CSIKSZENTMIHALYI, 1988).

Carrying on into Csikszentmihalyi's initial provocation of *where* is creativity, a moving question is how certain communities made creativity flourish so significantly through time (CSIKSZENTMIHALYI, 1988). The exploration of the domain allows us to better understand why some specific cities, in specific time-periods were crucial to the production of novelty (CSIKSZENTMIHALYI, 1988). Analyzing it through a materialistic perspective, a domain only favours the production of novelty when there is disposable wealth and disposable attention that can be devoted into the investment of new ideas (CSIKSZENTMIHALYI, 1988). The circumstances as to how communities can favor creativity will be more deeply discussed in following chapters, for it is primal to the understanding of the objects of study chosen.

2.2.5.   The Field

The field's role is to select promising variations introduced by individuals and incorporate it to the domain (CSIKSZENTMIHALYI, 1988). The field includes everyone who can interfere with the structure of the domain, and is therefore composed by a heterogeneous network of actors and institutions (CSIKSZENTMIHALYI, 1988). There is a varying degree of importance between actors in the field (CSIKSZENTMIHALYI, 1988). Those whose opinion matter the most, are entitled by Csikszentmihalyi as domain

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[4] This thesis recognizes Vygotsky and Hofstede's crucial importance in the study of culture, but unfortunately will not include them in the theoretical model, considering it would increase the complexity of an already sophisticated model.

"gatekeepers" (CSIKSZENTMIHALYI, 2014, p. 52) - for they are the ones who select what creations can become part of the existing culture (CSIKSZENTMIHALYI, 1988).

The structure, or characterization of the field can vary a lot - together with the responsiveness of gatekeepers, validation criteria and methods - which causes some implications on the other forces in the model (CSIKSZENTMIHALYI, 1988). A field can be very well established, with clear rules and traditions, or looser, with more flexibility, for example (CSIKSZENTMIHALYI, 1988). Each type of field isn't necessarily better than the other, it just means that it can be easier or harder to introduce variations. With no clear selection criteria, or no acknowledged gatekeepers, it is more complicated for new ideas to be developed seriously, and be acknowledged by other fields; yet a stiff, protective system, that may be set in a conservative social system, also disheartens new ideas (CSIKSZENTMIHALYI, 1988). Societies must therefore seek a more balanced structure of field, in order to incentivize creative outputs (CSIKSZENTMIHALYI, 1988).

2.2.6.   The Generative Force of the Field

It is important to include in this examination of the field, a discussion brought by Csikszentmihalyi (1988), that seeks to answer the question of why Florence was the Renaissance's birthplace and pinnacle. If we expand that angle, the question that remains is: what makes certain contexts historically more prone to the development of creativity? For that sake, the author dissects his model and analyses the specific movement that takes off from the field and is directed to the person - that proves to be vital for creativity (CSIKSZENTMIHALYI, 1988).

To answer that question, the individual-centered perspective would look for changes in the artists' creative potential, or life events, but Csikszentmihalyi (1988) argues that the creative potential remains constant, and what varies is the context around the artists. In the case of Florence, for instance, there were systematic changes through the previous decades that lead to the flourishing of the Renaissance: the guilds, and consequently fields, were fortified; there was a lasting economic strength with the rising of capitalism; increases in production that boosted average consumption, channeling the elite's spendings to the arts; influences of other cultures (contact with eastern cultures) and a change in mindset with the return of Anthropocentrism (CSIKSZENTMIHALYI, 1988). Basically, there were variables of

different spheres that, when combined, favoured Florence to be the leading capital of Italian Renaissance.

It is undeniable that the artistic advances proposed by the individuals themselves were crucial for all the innovation brought by this period - let's keep in mind that the individual *is indeed* a fundamental force within the Dynamic Model (CSIKSZENTMIHALYI, 1988). However, more decisive than the person's impetus to create, was the driving force sparking from a series of actors around them: the wealthy patrons, political unions, artists' guilds, the Catholic Church, among others (CSIKSZENTMIHALYI, 1988). The field grew in terms of different areas and members involved, portraying a huge engagement from the community, that caused artistic production to be actively guided by the society around them (CSIKSZENTMIHALYI, 1988).

A powerful notion derives from this interaction: the eruption of creativity in that period was neither a fortunate accident, nor dependent solely on the individual's creative potential - it was instead a highly calculated political movement made by those who had power, money, and influence (CSIKSZENTMIHALYI, 1988). As Csikszentmihalyi (2014, p.58) cites Hauser (1951): "[In] the art of the early Renaissance […] the starting point of production is to be found mostly not in the creative urge, the subjective self-expression and spontaneous inspiration of the artist, but in the task set by the customer" (HAUSER, 1951, apud CSIKSZENTMIHALYI, 2014 p. 41).

2.2.7.   Implications of Time

Timeframes and historical perspectives also play an important role when addressing how we perceive creativity, and impact the production of novelty described in the systems model of creativity (CSIKSZENTMIHALYI, 1988).

When we analyze the variable of time through the systemic approach, the common view of insight in the creative process fades away (CSIKSZENTMIHALYI, 1988). The gestation period of a new idea within the domain may last a very long time - unraveling many potentialities, and prompting its problematic - before an individual contribution appears, and is considered as adequate (CSIKSZENTMIHALYI, 1988).

There are some individuals though, who are popularly considered to be "ahead of their time", or who made groundbreaking discoveries when the world was headed in a

different direction. The Systems Model of the Creative Process does address such apparent outliers, turning to the forces described, to further illuminate this phenomenon. Some people propose reformulations, within their creations, that are so powerful, that they exceed the boundaries of their own field (CSIKSZENTMIHALYI, 1988), foreshadowing the fields that will emerge with time. However, for that novelty to be carried forward, neighbouring fields must be captivated by the new idea (CSIKSZENTMIHALYI, 1988).

Considering the premise mentioned previously - that creativity is relative, and based on social agreement - the validation of something as creative is only achieved by comparing and interpreting it (CSIKSZENTMIHALYI, 1988). Some creative outputs are considered creative only several decades after its conception, when a society's collective domain seems to be "ready" to accept it as creative (CSIKSZENTMIHALYI, 1988). Thus we can perceive the importance of what Csikszentmihalyi refers to as "retrospective reinterpretation", when future generations reanalyze past creations (CSIKSZENTMIHALYI, 2014, p. 50). Moreover, after the consensus of validation, the creation is not automatically inserted in the domain: the time for it to be settled as part of the culture varies[5] depending on the domain and field (CSIKSZENTMIHALYI, 1988).

A specifically intriguing and complex implication of Csikszentmihalyi's model is its consonance with other studies about evolution. We begin the examination of this idea by noticing the direction of arrows in the model that flow from the person to the field and stopping on the domain (CSIKSZENTMIHALYI, 1988). This spiral-like dynamic draws the conclusion that the *variation* proposed by the individual, its subsequent *selection* by the field, and final *transmission* to the domain - becomes an input to the following generation; describing a process of cultural evolution (CSIKSZENTMIHALYI, 1988). Those expressions (variation, selection, and transmission) are in fact commonly descriptive by evolutionary researchers, permitting a parallel, for instance, with Campbell's evolutionary sequence phases (CAMPBELL, 1956, 1976, apud CSIKSZENTMIHALYI, p.55, 2014). Csikszentmihalyi then boldly indicates that creativity constitutes an element of evolution, that doesn't involve alterations of information within the human *body*, but the *culture* it resides in (CSIKSZENTMIHALYI, 1988).

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[5] To point out a matter of curiosity, in his paper written in 1988, Csikszentmihalyi points out an average of 7 years before a new idea is included in textbooks of the domain, however, we can predict that time to be currently even shorter, due to the rapid growth in technologies like the Internet.

2.2.8. Questions to be Answered

When concluding chapter four of his book *The Systems Model of Creativity* (2014), Csikszentmihalyi proposes a series of questions, derived from the forces studied in his model, that are still open for further inquiry by scholars. Many authors are already investigating the issues - which demonstrates once more the importance of the theme - and their contributions will also be examine henceforward, considering their connection to the case studies here presented. The questions proposed by Csikszentmihalyi will be described in sequence, to elucidate the relevance of the theme, and how there are still many gaps to be filled by future researches - an endeavor that this present thesis humbly aims to address.

Person

1) "How do some individuals get to produce a greater amount of variation in the domain than others?" (Csikszentmihalyi, 2014, p. 59).

Field

1) "What forms of organization facilitate the selection of new variants and their inclusion in the domain?" (Csikszentmihalyi, 2014, p. 60).

Domain

1) "What are the various ways in which information can be stored and transmitted, and how does the structuring of information affect creativity?" (Csikszentmihalyi, 2014, p. 58).
2) "How can we make past creativity available to the most people, so as to facilitate future creativity?" (Csikszentmihalyi, 2014, p. 59).
3) "How can we motivate people to become involved in a particular domain?" (Csikszentmihalyi, 2014, p. 59).

2.3. Responses to Csikszentmihalyi

Csikszentmihalyi was without a doubt very significant in the establishment and evolution of social creativity, being debated but also acclaimed by many authors (Glăveanu, 2010). Authors that followed him both expanded and scrutinized his Systems Model of Creativity, with arguments that are well-built and backed up by other studies. In the following chapter, we will explore some critiques to Csikszentmihalyi, but most importantly, examine related topics of study that come up when assessing his model's gaps. A few questions can be made, in order to prepare the reader for the concepts that will be appointed subsequently:

1. In an extremely collaborative environment of the contemporary age, is it still valid to attribute creations to single individuals? How can a group-perspective be added in the Systems Model?
2. In a fluid society, where collaborative work is more popular than ever, is a single field responsible for any creation? How do fields interconnect and expand into networks, to collaborate in the application of collective creativity?
3. How can creativity be influenced by economic and market-led aspects, being linked to the development of the economy?
4. Taking into account that the models chosen to back up this thesis regard culture as a paramount factor influencing creativity: how does the Latin American cultural background, and specifically, the Brazilian perspective, alter how creativity occurs within an economical perspective?

2.3.1.   Everyday Creations and the Cultural Perspective

Authors like Glăveanu, in his paper *Creativity as a Cultural Participation* (2010), reinforce the notion of creativity being a *"socio-cultural-psychological process"* (GLĂVEANU 2010, p.50), due to the following aspects: social interaction being necessary for individuals to develop skills needed for creation; creativity mainly being conceived through collaboration itself; being strongly influenced by social judgement; and only occurring within a cultural medium, with its own norms and products.

While analysing Csikszentmihalyi's systemic model, Glăveanu points out that other authors like Wilson (WILSON, 1986 p. 110, apud GLĂVEANU, p. 51 2010), Dewey (DEWEY, 1934 apud GLĂVEANU, p. 51 2010), and Stein (1953, p. 320, apud GLĂVEANU, p. 51 2010), have also brought forth the relation between creator, and the "others" involved with the creation - like audience, collaborators, users or perceivers; and firmly advocates that they are all embedded in culture (GLĂVEANU, 2010). They validate Csikszentmihalyi's notion of field and domain, since creativity can't, therefore, occur without these other actors, and is immersed in a cultural medium.

However, Csikszentmihalyi, he argues, has a very institutional vision of the domain and field, by postulating their binding organization and structure, based on clear hierarchy, and a power-driven dynamic by gatekeepers (GLĂVEANU, 2010). The author therefore,

disconsiders the "Little c" (GLĂVEANU, 2010), or everyday creativity, present in the lives of regular people in daily problem-solving, or children's play. That type of creativity wouldn't even reach the radar of gatekeepers, and if it did, would hardly be considered relevant enough to be incorporated in the domain (GLĂVEANU, 2010). But that doesn't mean they are not a significant demonstrations of culture, and immersed in it. As Amabile presented, creativity is "rooted in social agreement". Glăveanu reminds us that not only the judgement of art critics affects artists, but the judgement of their family members and friends, in a "lower" level of the field's hierarchy. Thus, Glăveanu's Cultural Perspective of Creativity (2010) firmly addresses all levels of creative demonstration present in field and domain, strengthening the micro-level of creativity.

Glăveanu's work is relevant for this paper by contributing with two main ideas:

1. While Csikszentmihalyi proposes a highly complex composition of field, including high-profile actors, and diverse stakeholders that are difficult to detect in empirical researches, Glăveanu mentions a simplification of what he calls "audience", and still recognizes the influence of culture (or Domain, using Csikszentmihalyi terminology)- facilitating the identification of the actors involved in the creative process, when beginning the field work. In his own words, the "audience" (or "field" for Csikszentmihalyi) is composed by:

> Collaborators (persons who directly contribute to the creative work), users (persons who utilise the creation) and perceivers (persons who are simply in contact with the creation). All the elements of this creator—creation—audience triad are immersed into culture. (Glăveanu, p.51, 2010).

This descriptive depiction of who constitutes the field, will be particularly useful in the following chapters of the present article, once the field work begins.

2. Reinforces the importance of creativity in a smaller scale, especially when considering the systemic perspective, clearing the path for researches involving not so grandiose or ambitious creative outcomes, but also local examples of creativity being used - which will be the case of the objects of study chosen.

2.3.2.   Creative Synergy and Team-level Creativity

Other scholars have also stretched the level of complexity when studying social creativity by pointing out other factors that can affect it. Amabile (2001), for instance, revisits Guilford's notorious speech (1950), to reinforce the gap left by researchers when examining the influence of interpersonal interactions in creative processes, and how team-level creativity was left mostly unexplored by academics. Although this present article doesn't intend to focus on group interactions, and specific team dynamics, it is relevant to mention Amabile's research, considering how creativity doesn't, in fact, happen in a vacuum (GUILFORD, 1950). It is an evermore collaborative activity, and groups or team perspectives will be central within the evolution of creativity studies in the next century (AMABILE, 2001). Therefore some particularities of team-level creativity must be pointed out, so there will be a more realistic observation and analysis of the object of study chosen by this thesis.

Group-level interaction can offer many benefits for creative production, specially considering creative synergy: when the team shares the processes of inspiration, generation and adaptation of idea, producing something that no individual could generate alone (AMABILE, 2001). Amabile (2001) stresses how this poses as an opportunity for theoretical development of this thematic, and also applicability among organizations and teams alike.

Some concepts already studied by scholars can offer important insight when addressing interpersonal creativity (AMABILE, 2001). How ideas are generated through association can be much enriched by groups who combine different expertise, experiences, and manpower, for example, while personal characteristics also affect problem solving styles and interactions (AMABILE, 2001). Amabile (2001) also calls attention to two variables that can strongly influence - both positively, and negatively - member's interactions, and consequently the team creative process: conflict and diversity.

Amabile's paper *From Guilford to Creative Synergy: Opening the Black Box of Team-Level Creativity* (2001) contributes to this thesis with three main notions:

1. Same-time and same-place interactions can deeply influence creative processes; therefore, creativity is not only found amongst social interactions, it can be extremely enriched by teams (AMABILE, 2001). It is unrealistic not to take into consideration those interactions, in a collaborative world, and studies that account for them are evermore relevant and applicable to the workplace

(AMABILE, 2001).

2. Amabile also assesses Csikszentmihalyi's Systems Model, stating that his view addresses the influence of the external environment after creative ideas are already developed (AMABILE, 2001). It didn't take into consideration the interpersonal dynamics that can impact the idea generation phase, and how they can alter the course of creative processes (AMABILE, 2001).

3. Amabile (2001) also criticizes the nature of group-related researches in creativity so far, considering that most researches have been focusing mainly on brainstorming processes, in laboratory settings, with groups made up solely for the purpose of the study, and individuals who had not met each other, nor interacted as a team before, and had no bigger motivation to engage with the task, other than the to reach the conclusion of the research.

It is important to note that although this paper explored the criticism around Csikszentmihalyi's Systems Model, the model will still serve as the theoretical base of the present research, considering:

1. Csikszentmihalyi is appointed as one of the biggest contributors for the social creativity field, and presents a reliable and respected model to follow. His analytical categories (individual, domain and field) are more abstract as opposed to other models. Other models detail and slightly differentiate his analytical categories more thoroughly, but once you address them with a more abstract point of view, most of them can be summarized and fitted into Csikszentmihalyi's categories. His abstraction level is stronger and embraces the ideas proposed by other authors, confirming, once again, the theoretical strength of his model.

2. His model is very applicable given the context around the chosen objects of study;

3. The model provides a holistic point of view of organizations, stakeholders, individuals and all parts that act together to create, and integrate novelty into their culture. It doesn't dive deep into the psychological aspects of the individual, which suits the

purpose of the present research of addressing a management point of view, rather than focusing on the psychology of creativity;

2.4.   Creativity and Development

In his book *Creativity and Dependence in Industrial Civilization*, Celso Furtado (1978) explores themes like "power, reason, history, future, interdependence, wealth and creativity", as described by William Diebold in his review of the book for Foreign Affairs Magazine (DIEBOLD, 1984, vol. 62, n. 4). Being a notorious economist, he brings to light a fairly singular view of creativity, linking it to an economical perspective. It is pertinent to include his work in this thesis, not only because his brazilian, and latin-american perspective enrich the particularities of the case study proposed, but due to the economical aspect of creativity he enlightens. His link between creativity and development will be discussed in this chapter along with the connection between his ideas and Csikszentmihalyi's model - thus further elevating his importance in this thesis.

2.4.1.   Development and Accumulation

The process of social change we call "development" is clarified when we link it to the idea of creativity (FURTADO, 1978). For societies to grow, they need means of defense and adaptation - like hypothesis development, problem solving, and decision making[6] - in order to replicate and multiply its traditional structures, in an environment permeated in uncertainty (FURTADO, 1978). The emergence of a resource surplus within said society - regardless of how it may happen - widens the field of possibilities and human potentialities. This newly found extra material presents a challenge to humans' inventiveness (FURTADO, 1978): a process he refers to as *accumulation*. Different civilisations around the world have historically made a huge effort to acquire surpluses of resources; and that is a direct consequence of the nature of our social life: it generates potential energy that is so powerful, it requires additional means to be liberated (FURTADO, 1978). This liberation process - composed of both a generative force, and impulse of new cultural values - is what we understand as *development* (FURTADO, 1978).

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[6] All examples of phases present in the creative process, already indicating the link with creativity that Furtado (1978) proposes.

Although Furtado (1978) doesn't include a theoretical model of development and accumulation processes in his book, one will be included in this thesis, to elucidate such complex ideas. It illustrates how the accumulation process (FURTADO, 1978) occurs: how social life generates potential energy, that needs a surplus of resources to be liberated. This surplus of resources presents a challenge to human inventiveness, that excites social life, in turn generating more resources, starting the cycle once again. The development process is represented by the liberation of energy that happens through the accumulation process, generating two effects: the impulse to create new values (that are passed down to the "social life" of a society); and generating a force to create new surpluses (linked to the challenge of human inventiveness, starting the accumulation process once more).
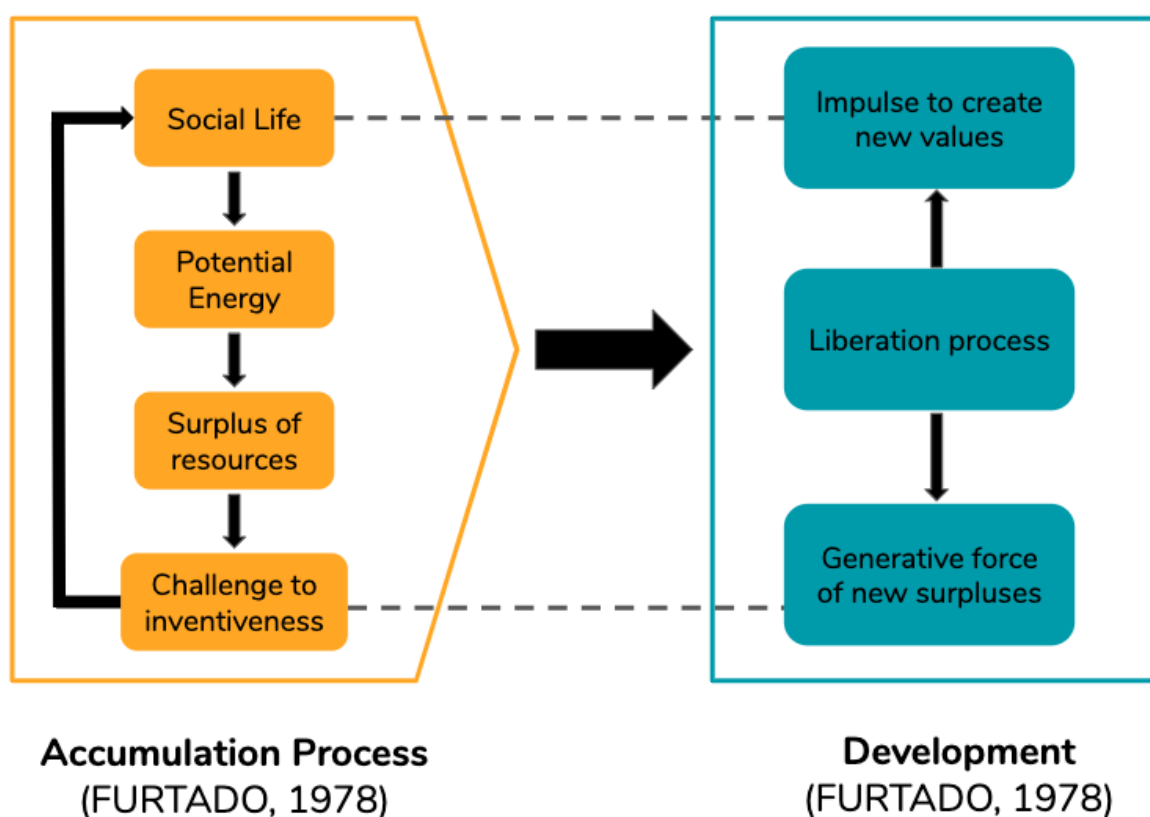

DIAGRAM 2 - Accumulation Process, and Development Process
Source: Elaborated by the author

This inventive movement is not erratic, but evolves within a structured space: society begins by reproducing itself, shaped coherently to its time-period, values, context and culture; then eventually it finds limitations amidst the saturation of creations, forcing itself to

produce discontinuities and new inventions (FURTADO, 1978).

This idea of challenging human inventiveness meant that in order to transform the world, we need to understand it (FURTADO, 1978). For centuries, to know the world was an adventure of the "higher spirit", a quest amongst artistic, religious and philosophical experiences where human beings yearned to comprehend the world and themselves (FURTADO, 1978). Furtado mentions that the matrix of creative activity also came from the need to understand the world and ourselves, through philosophical reflection, artistic creation, mystical meditation and scientific research (FURTADO, 1978). However, the bourgeois revolution and the industrial civilisation in European society that came next, is a chronicle of advancement, not only in this pure form of creativity, but in technique: how instrumental rationality progressively shaped all forms of creative activity (FURTADO, 1978). Furtado (1978) revises the evolution of our scientific production, linking how it gradually changed its focus from philosophical queries, to suit the needs of consumer behaviour. Gradually, the idea of *knowing the world to transform it* became a part of the accumulation process (FURTADO, 1978). Consequently, scientific research stopped being this pure search for meaning, and was bended in service of technical inventions, which, in turn, provide the pursuit for efficiency and diversification of consumer patterns (FURTADO, 1978).

Bringing forth this materialistic approach of creativity, Furtado (1978) states that the manifestations of creative activity were also forced to subordinate themselves to the transformation of the physical world for the purposes of accumulation. The act of creation conceived as a pure expression of humanity, with an end in itself, subsided to give space for the creation of instruments to transform the world (Furtado, 1978). Furtado cites Marcuse (MARCUSE 1968, p. 135, apud FURTADOp. 114, 1978), affirming that "science, in virtue of its own method and concepts, projected and promoted a universe in which domination of nature remained tied to the domination of men". In a lighter tone, Furtado (1978) reminds us that creativity can only be fully understood within its cultural context (once again in convergence with Csikszentmihalyi), where current methods, the problems that need to be solved, and our perception of reality are all interconnected.

2.4.2.   Industrialization and Insufficiency of Accumulation

To fully understand the tacit norms through which our productive system is based on, we must examine how our industrial heritage stills affects what is created (FURTADO, 1978). The capitalist approach on the accumulation process can be described by two pillars (FURTADO, 1978): innovation, that differentiates consumers; and diffusion, that homogenises the forms of consumption. The innovation level requires higher investment, which means it will only be accessible to a few privileged consumers (FURTADO, 1978). But all objects are created having diffusion in sight, overcoming the high investment rates, allowing the market to eventually grow in all dimensions (FURTADO, 1978). The counterpart of the intensity of the innovation is how quickly it becomes obsolete (FURTADO, 1978). The laws of this market growth, through the accumulation process, condition creativity to generate the current consuming lifestyle. The consumer presents a passive rationality, in which his role is to answer "correctly" to different stimuli proposed by the market (FURTADO, 1978).

All forms of human creativity can serve the accumulation process (FURTADO, 1978). But those whose results are by nature cumulative - science and technology - are the ones that best satisfy the demands of this process, which guarantees the privileged space they occupy in society (FURTADO, 1978). Furtado (1978) continues his argument by pointing out that creativity is therefore working for the accumulation process. This causes the means to be usually seen as ends, producing the illusion that every advancement in "rationality", in the economic sphere, contributes to the "liberation" or "de-alienation" of men (FURTADO, 1978, p. 116).

Such advancements in technique, that accelerated the capitalist production, end up having accumulation as a goal, and not just for the purpose of gaining enough resources to challenge inventiveness and solve humanity's problems (FURTADO, 1978). When we look at the effects this logic has on our world today, more than 40 years after Furtado wrote his thesis, we can see they are still present, with serious effects on our planet. It's an equation that is imbalanced: our natural resources are finite, and the average capitalist production system requires an endless surplus of resources to reach its innovation and diffusion phases. We can conclude that the accumulation process has become insufficient in our society, generating problems that will affect itself and our planet. When inserted in the industrial perspective, this insufficiency of the accumulation process can be seen in the degradation of

the environment to serve consumption and production needs. Furtado himself concludes chapter five of his book (1978) remarking that:

> "In the acceleration of accumulation phase - of dependant industrialisation - there will be problems of greater meaning. The social structures will be affected by the insufficiency of accumulation regarding the techniques that will be adopted". (Furtado, 1978, p. 122)

The question that comes to mind is most certainly: how can this accumulation dynamic, of creativity driving obsolete creation, be sustained? It was built during an early industrialisation period - where concepts like "sustainability", and "conscious consumption", weren't even close to being a concern - and still apply to our economic lifestyle. However, now, to rethink that logic is a matter of deep urgency.

The point of this digression is to identify, through an economical perspective, the space in which creativity is exerted, conceived within its sense of inventing culture (FURTADO, 1978). Afterall, if creativity doesn't happen in a vacuum, it most certainly won't happen in an environment free from the implications of our economic, capitalist system. And our capitalist system has brought complex problems, that affect our environment negatively. After this conclusion, we're then starting to build the connection between theory and practice, present in the case study[7] of environmental education in the Brasília National Park.

2.5. Building Bridges Between Theories

After exploring Amabile, Glăveanu, and mainly Furtado, we've reached a point of theoretical maturity that enables the construction of this thesis' theoretical model. Csikszentmihalyi's Systems Model of Creativity is still very relevant to real-world issues, but a few concepts may be added, to make it more applicable to to the case study chosen. Fortunately, the aggregation of concepts is not only common when studying creativity, but encouraged by authors (AMABILE, 2001; WATSON, 2007; YU-TUNG LIU, 2000) validating this theoretical maneuver that will be unravelled henceforward. It becomes evident that research on creativity can benefit from the inclusion of correlated concepts. The domain, field

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[7] This dynamic will be more deeply explored in chapters 3 and 4 of this thesis.

and individual, or the three forces that constitute the Systems Model (CSIKSZENTMIHALYI, 1988) - while still being consistent variables - will be amplified therefore, by Furtado's work.

Although it was written almost a decade earlier, it is possible to link Furtado's chapter, to Csikszentmihalyi's Systems Model of Creativity (1988), transposing Furtado's examples and examination of an economical perspective of creativity, to Csikszentmihalyi's (1988) terminology within the model. For instance, Furtado (1978), although using a slightly different terminology, reinforces the idea of how creativity is shaped by culture and references already established in a society's lifestyle - to an extent in which the present creations become saturated, and the need for an abrupt widening of perspective becomes apparent. This phenomenon brings the emergence of critical consciousness in individuals, that in turn create alterations that will be incorporated later on, in their culture (or domain, for Csikszentmihalyi). Another example of the proximity of both works is Furtado's approach to what he calls "authentic mutation": individual alterations (or creations), that "program" how future creative processes will be carried out. This speaks closely to Csikszentmihalyi's (1988) description of the incorporation of alterations made by individuals in the domain and, later on reproduced by culture. Furtado (1978) also reviews historical examples of creativity, concluding that certain aspects of culture are able to cross over long periods of frenetic creativity, mirroring the impact of time in the cycle of the systems model of creativity.

In the table below, we can examine the similarities between the two thesis, when concepts are juxtaposed:

TABLE 1

Csikszentmihalyi and Furtado's concepts - Building Bridges between Theories

Csikszentmihalyi (1988)	Furtado (1978)
Importance of Context	**Importance of Context**
You cannot separate the individual from the historic and cultural medium they reside in (Csikszentmihalyi, 1988). Creativity only exists in social and historical contexts, where society relies on complex reference points	Furtado reminds us that creativity can only be fully understood within its cultural context (once again in convergence with Csikszentmihalyi), where current methods, the problems that need to be solved, and our perception of reality are all interconnected.
Disposable wealth and attention	**Surplus of Resources**
Domain only favours the production of novelty when there is disposable wealth and disposable attention that can be devoted into the investment of new ideas	The emergence of a resource surplus within said society - regardless of how it may happen - widens the field of possibilities and human potentialities.
Creativity Triggering Evolution	**Creativity Triggering Development**
This spiral-like dynamic draws the conclusion that the *variation* proposed by the individual, its subsequent *selection* by the field, and final *transmission* to the domain - becomes an input to the following generation; describing a process of cultural evolution	This liberation process - composed of both a generative force, and impulse of new cultural values - is what we understand as *development*
Dynamic of the Systemic Model	**Dynamic of the Liberation Process**
The individual takes some information provided by the culture and transforms it, and if the change is deemed valuable by society, it will be included in the domain, thus providing a new	Society begins by reproducing itself, shaped coherently to its time-period, values, context and culture; then eventually it finds limitations amidst

starting point for the next generation of persons. (Csikszentmihalyi, 2014, p. 52).

the saturation of creations, forcing itself to produce discontinuities and new inventions. Authentic mutation: individual alterations (or creations), that "program" how future creative processes will be carried out.

Calculated movement

Creativity in that period was neither a fortunate accident, nor dependent solely on the individual's creative potential - it was instead a highly calculated political movement made by those who had power, money, and influence

Structured Movement

This inventive movement is not erratic, but evolves within a structured space: society begins by reproducing itself, shaped coherently to its time-period, values, context and culture; then eventually it finds limitations amidst the saturation of creations, forcing itself to produce discontinuities and new inventions

Domain

Cultural domain that will preserve and transmit the selected new ideas or forms to the following generations. Dawkins (1976) is responsible for the term "meme" or "unit of imitation"(Csikszentmihalyi, 2014, p. 55) consisted by any form of structured information that was meaningful enough to be transferred to the following generations (Csikszentmihalyi, 1988). A domain, therefore, would be a system of analogous memes that are altered periodically by the process of creativity (Csikszentmihalyi, 1988).

Culture crossing over time

Certain aspects of culture are able to cross over long periods of frenetic creativity

Field's Generative Force

More decisive than the person's impetus to create, was the driving force sparking from a series of actors around them.

Generative Force of our social nature

This newly found extra material presents a challenge to humans' inventiveness (FURTADO, 1978), a process he refers to as accumulation.

The field grew in terms of different areas and members involved, portraying a huge engagement from the community, that caused [creative production] to be actively guided by the society around them	Different civilisations around the world have historically made a huge effort to acquire surpluses of resources; and that is a direct consequence of the nature of our social life: it generates potential energy that is so powerful, it requires additional means to be liberated (FURTADO, 1978)
Incorporation in the domain	**Impulse to Create new values**
The field's role is to select promising variations introduced by individuals and incorporate it to the domain	Impulse to create new values (that are passed down to the "social life" of a society)

Source: Elaborated by the author; Csikszentmihalyi (1988); Furtado (1978)

Through Csikszentmihalyi (1988), we've learnt that creativity doesn't occur detached from its social context. With Furtado (1978), we understand that creativity is not only part of a social context, but is also inserted in an economical plane, serving a consumption logic.

When we add Furtado's (1978) arguments of diffusion and innovation to the Systems Model (CSIKSZENTMIHALYI, 1988) - of how the accumulation process serves the creation of obsolescence, and endless expansion of consumer markets (FURTADO, 1978) - a grimer tone is cast upon the model. Our creative potential as humanity is being channeled into the mere production of things. Things that accumulate, are disposed of, and reproduce a consumerist lifestyle.

That puts creativity in the spotlight for the renovation of the accumulation process. Using the Systems Model of Creativity (CSIKSZENTMIHALYI, 1988) perspective, it can be argued that the need for an alternative consumption logic was so urgent, that creative alterations that refer to sustainability were boosted; approved by the fields involved; and consequently added to the domain as part of our culture. Therefore, creativity is now an ally in the search for a more conscious consumption.

This union between Csikszentmihalyi's Systems Model of Creativity, and Furtado's Liberation Process is what will guide this thesis. Combined, their views of creativity in social and economic contexts reflect our creativity dynamic more than ever, even after more than

thirty years followed their conception. A combination of their theories was transformed into a model, that will guide the analysis of the case study in this thesis.

The theoretical model (DIAGRAM 3) was designed to combine both Furtado (1978) and Csikszentmihalyi's (1988) theories. Through it, it is possible to notice how the accumulation process serves as the base for field and society to have enough resources to produce variations. It is only from the *social life* and *potential energy* that comes from the interactions between *field* and *individual,* that a surplus of resources is generated, a primary condition for creativity to occur. The *liberation process of development*, in turn provides an *impulse to create new values* (that are incorporated in the *domain*); and also a *force that generates new surpluses,* (that enables *field* and *society* to produce *variations*). This is how both models can be integrated, building bridges between the two theories, and will be the lenses through which the case study will be analyzed.
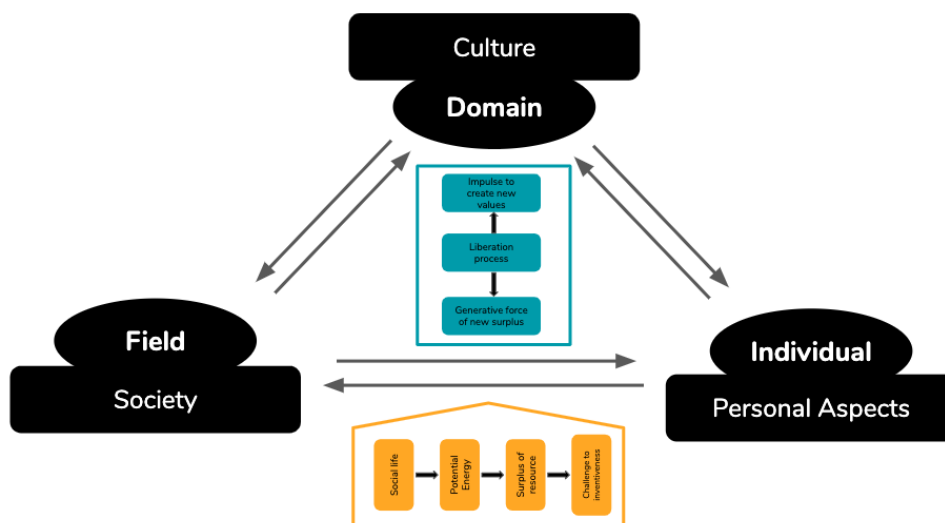
DIAGRAM 3 - Building Bridges between Theories - A Theoretical Model
Source: Elaborated by the author

To clarify all the concepts that will be explored during the analysis, and that make up the analytical model of this thesis, a table with all the key-terms and their respective definitions was built, and shown in sequence.

TABLE 2

Conceptual Definitions

Concept	Definition	Citation
Systemic Creative Process	"Map" [that] shows the interrelations of the three systems that jointly determine the occurrence of a creative idea, object, or action. The individual takes some information provided by the culture and transforms it, and if the change is deemed valuable by society, it will be included in the domain, thus providing a new starting point for the next generation of persons. The actions of all three systems are necessary for creativity to occur.	Csikszentmihalyi, 2014, p. 52
Systemic Model	"Cycle in the process of cultural evolution"	Csikszentmihalyi, 2014, p.55
Person	Individual thought, object, or action produced by the person. Person who has no access to this information will not be able to make a creative contribution, no matter how able or skilled the person otherwise is. Role: is to produce some variation in the information inherited from the culture.	Csikszentmihalyi, 2014, p. 47, p. 51
Domain	Social system [with] symbolic system of the culture. Input for the next generation of persons. A system of related memes that change through time, and what changes them is the process of creativity. Role: preserve and transmit the selected new ideas or forms to the following generations	(Csikszentmihalyi, 2014, p. 51, p. 52, p. 55
Field	Includes all those persons who can affect the structure of a domain. [The] field, is made up of a network of interlocking roles [...] [that] act as "gatekeepers" to the domain. Role: the task of the "field" to select promising variations and to incorporate them into the domain. p. 52	Csikszentmihalyi, 2014, p. 5)
Generative Force of the Field	How the field can stimulate the emergence of creativity. Tremendous involvement of the entire community in the creative process. [...] Calculated, conscious policy on the	Csikszentmihalyi, 2014, p. 56, 57, 58

	part or those who had wealth and power.	
Accumulation process	[the] emergence of a surplus of resources […] opens up a horizon of options for the members of society […] that widens the field of what is immediately possible […], where human potentialities are materialized. The new surplus constitutes, therefore, a challenge to inventiveness.	Furtado, 1978, p. 111
Insufficiency of Accumulation Process	In the acceleration of accumulation phase - of dependant industrialisation - there will be problems of greater meaning. The social structures will be affected by the insufficiency of accumulation regarding the techniques that will be adopted.	Furtado, 1978, p. 122
Creative activity	A set of norms, derived from the accumulation process, superimpose themselves to the creative activity in its most universal expression, which is the invention of a society's lifestyle.	Furtado, 1978, p. 116
Development	Social life generates potential energy, whose liberation requires additional means [or surplus]. In its double dimension of generative force of new surpluses, and creative impulse of new cultural values, this liberation process of human energies constitutes the ultimate source of what we understand as development.	Furtado, 1978, p. 111
Diffusion	In the capitalist economy, the accumulation process marches over two feet: innovation [...], and diffusion, that conducts to the homogenisation of certain forms of consumption.In their majority, the consumption objects are already conceived having their posterior diffusion in sight, even if it's through the form of less costly models.	(Furtado, 1978, p. 115, 116)
Innovation	In the capitalist economy, the accumulation process marches over two feet: innovation, that allows the discrimination among consumers, and diffusion [...] The intensity of the innovation has as a counterpart the quickness of its obsolescence.	Furtado, 1978, p. 115, 116

Source: Elaborated by the author

3.   METHOD

Methods and techniques chosen must correspond to the type of problem studied, as well as hypothesis, and the sort of information, and in most researches there's a combination of methods, uniting whichever are appropriate to the case studied (LAKATOS, 1999). In this chapter, we shall describe the methodology used in this research, as well as other technical aspects used to explore the case chosen.

3.1.   Typology and general description of research methods

The typology of research is qualitative, and more specifically, a field research shall be carried out. A field research was chosen due to its exploratory character, that allows the researcher to get information and knowledge about a certain problem, or even to discover new phenomena and the relations between them (LAKATOS, 1999, VERGARA, 2013). The advantages of this type of study include the accumulation of information about certain phenomena, that can be later explored by other researchers, regardless of their interests towards the matter (LAKATOS, 1999).

The nature of the study will be exploratory, considering they are empirical investigations, that aim to formulate questions or define a problem (LAKATOS, 1999). The objective of this thesis with the exploratory nature is to increase the familiarity of studies regarding the topic (LAKATOS, 1999) of systemic creativity and development, and to understand the dynamics underlying it.

To illustrate the exploratory research carried out, a case study shall be delivered, since this strategy looks into contemporary events, to comprehend individual, organizational, social and political phenomena (YIN, 2001). Exploratory researches benefit from case studies, who, due to their flexibility, allow complex themes to be examined by single researchers, when there's a variety of observable factors (VERGARA, 2013).

To further clarify the research framework: the case study will be around the National Park of Brasília; the object of study will be the Environmental Education Nucleus within the Park; the focus will be their initiatives of environmental education; and the analysis unit will be the dynamic of Systemic Creativity (CSIKSZENTMIHALYI, 1988) combined with Development (FURTADO, 1978).

3.2. Characterisation of the organisation, sector or area, and individuals object of study

This case study was developed within the Environmental Education Nucleus of the Brasília National Park. The Park, built in 1961, and managed by the Chico Mendes Institute for the Conservation of Biodiversity (Instituto Chico Mendes de Conservação da Biodiversidade - ICMBio), had the aim of preserving the natural fauna and flora around a water reservation that would fuel Brasília's drinking water consumption. From its foundation, environmental education was also included as part of its goals towards society (SNUC, 2000). The Environmental Education Nucleus, or EEN, is the organ within the Park responsible for carrying out such projects, and contains many actors working together to deliver them. Therefore, the EEN was chosen as the case study's organization, fitting with the purpose of this thesis, of examining initiatives centered in development within a complex, creative system.

It is important to point out, that another practical motivation behind this choice of object of study came from an ongoing extension project that the Department of Business Administration at the University of Brasília carried out, called: *Use of Art through Digital Interactive Media to Promote Learning in Business Administration[8]*. Being founded in 2017, the project was part of UnB's A3M program (*Aprendizagem no Terceiro Milênio*, or Learning in the 3rd Millennium), a program that propels and funds initiatives that seek to disrupt how teaching and learning is conducted, connecting students and universities with the future of education (GUILLAUMON, 2019).

3.3. Research participants

It's not always possible to research all individuals within the group or community to examine the problem (LAKATOS, 1999). Therefore, instead of interviewing all individuals involved in all projects, and every stakeholder participant in the creative process, a few members of the EEN were chosen as primary data sources. Interviewed subjects with a wide range of knowledge regarding the object explored are likely to bring interpretations that will

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[8] The A3M project and its relation to the case study will be deeply explored in chapter 4 of this thesis.

benefit the research (YIN, 2001).

3.3.1. Interviewed Members of the EEN

The goal was to get a systemic perspective from all institutions that constitute the EEN: members of ICMBio; the Federal District's Educational Office; and the Environmental Military Police were chosen as interview subjects. All interviews were realized on October 23, 2019, at the Center for Environmental Education, and subjects were interviewed by the author.

Interviewee 1: Biologist, and environmental analyst, working for ICMBio for over fifteen years. Stationed in Brasília for the last ten years and operating in the National Park for the last three. Before he was transferred to the Park, he worked at the Contagem Biological Reserve, who, together with the National Park are part of an integrated management nucleus. Coordinates, oversees, plans and executes all environmental education activities in the EEN.

Interviewee 2: Originally a teacher from the Federal District's Education Office, he is the current director of the Environmental Education Center and EEN. He is the creator of most ongoing projects the Center promotes, adapting a few that happened before his term.

Interviewee 3: Originally a geography, and computers teacher, the interview subject has taught in public and private schools, being once nominated headmaster. He worked as a teacher associated with the Federal District's Education Office for 28 years. He was invited by the Office to serve in the Park, as part of the technical cooperation agreement with ICMBio and the Education Office. He coordinates most educational activities in the Center, putting his knowledge about the school's internal operations and politics in use.

Interviewee 4: Also a teacher serving in the Federal District's Education Office, with many years of experience in public schools. Like Interview subject 2, he is also serving as a teacher in the Center, as part of the EEN. He aids in the reception of students during visits, and ministers lectures about the Park and environmental education.

Interviewee 5: Federal District's Environmental Military Police officer, located in the National Park, representing the institution in the technical cooperation agreement with ICMBio. He's been in the Police Force for 16 years, and works with environmental education for 12 years. Graduated in Visual Arts in UnB, he is also a graffiti artist, who unites art and environmental education to protect the environment and prevent crimes. As part of his Police

duties within the Park's grounds, he patrols the area guaranteeing security for the visitors and safety for the fauna and flora, already arresting several offenders in the Park. Specifically under the EEN's projects, he is responsible for the Socio-environmental Course for Environmental Illicit Acts; where he talks about crimes against nature and public spaces, including bird trafficking and illegal wild-bird owning, criminal graffiti, and other illicit activities.

3.3.2.   Interviewed UnB Students

Interviews were also carried out with students from University of Brasília, in the period between 2017, and 2019, as a part of the A3M project. There were 9 students interviewed in total. They were all from University of Brasilia; 8 were Business Administration students, while 1 studies Public Policy Management. The students who participated in the interviews were chosen by the A3M project's coordinator, based on their engagement with the Park visits and project's activities in general, and their identities will remain anonymous.

3.3.3.   Group Discussion with UnB Students

One recorded group discussion was also carried out with a small focal group as part of the A3M project. Interviewee 1, together with two A3M scholarship students, the project's coordinator, and 4 students from UnB participated in the group discussion. Amongst the 4 students from UnB, 3 were Business Administration students, while 1 studied Forestry Engineering. The students who participated in the discussion volunteered to participate in the night-time visit to the Park (an activity the A3M project included in the first semester of 2019) that counted with a group discussion regarding the impact of the visits on the students.

3.4.   Characterization and description of research instruments

Since a single method is rarely used in research, a variety of techniques appropriate to the problem addressed should be employed (LAKATOS & MARCONI, 1999). In this research, a combination of instruments were used in order to enrich the qualitative aspect of the investigation. They include participant observation, interviews, documental research and group discussions within the participant observation, and shall be examined in the following

sections.

3.4.1.   Participant Observation

As mentioned earlier, the participant observation aspect of this project was made possible by the extension project *Use of Art through Digital Interactive Media to Promote Learning in Business Administration*. This project gained traction under the A3M Program, and in 2018 was approved by FAP-DF (the Federal District's Governmental fund that supports research) to receive public funding, to improve the project's technical resources (GUILLAUMON, 2019). The coordinator of this project, was UnB's professor, who took the Environmental Education Nucleus' Teacher Formation Course in 2017. After this initial contact with the Park, and the EEN, the coordinator decided to add visits to the Park as part of the scope of the project. Through the course of two years, 13 visits to the National Park were made, involving 250 students (GUILLAUMON, 2019), in order to connect Business Administration students with nature, and to broaden their awareness about sustainability and creativity (GUILLAUMON, 2019).

During those two years (from 2017, to the present day, in 2019) of project and Park visits, the author of this thesis, was a member and scholarship holder of the *Use of Art through Digital Interactive Media to Promote Learning in Business Administration*. As a part of the project's initiatives, and to provide transparency about the project to FAP-DF and A3M, footages of the Park's visits, and recorded interviews with students and staff were carried out, in order to produce two videos[9] that summarized the project's activities in the Park. Therefore, a very natural approximation with the Park occurred during that period; and also a relationship was developed between the EEN's staff and the extension project's members.

A meta-analysis can be spotted: while this thesis assesses the Visitor Center's Teacher Formation Course, the thesis' advisor was also a direct participant of it, and the author was one of the students impacted by the visits. Due to the role of teacher assistant, and scholarship fellow of the A3M project, they had contact with the EEN's staff and initiatives for two years, through 13 visits to the Park. During that period, the responsibilities below were carried out (GUILLAUMON, 2019):

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[9] The videos' link can be found in this paper's annexes.

1. Assist in the planning and development of the educational activities developed by the A3M project's coordinator together with the EEN's staff for the business administration students;

2. Attend the environmental education lessons ministered by EEN's staff and professor Guillaumon;

3. Record the activities that took place during UnB's visits to the EEN

4. Interview students during visits to evaluate the impact of the field trips, and discussions about creativity and sustainable development in the Park.

5. Track students after visits, during regular classes to evaluate the impact of the sustainability discussions.

The engagement with the activities described above put the author in the midst of the student visits - one of the Center's primary projects. This interaction, as well the proximity developed with EEN's staff for those two years, can be described as participant observation (QUIVY & CAMPENHOUDT, 2005). Dunbar (1995), another author already mentioned in chapter 2, already applied participant observation within the study of social creativity, validating this data collection method, Therefore, this was a complex means of research instrument.

3.4.2. Documental Research

To illustrate what was captured during the interviews, and participant observation, another method of research was used: documental research (LAKATOS, 1999). A priori, this research didn't count of physical documentation to be part of the analysis. However, during the course of the presencial interviews with the EEN, a few documents were donated by the EEN for this research's purpose, and will also be included as valuable, institutional sources. The documents collected are all written, contemporary, primary sources (QUIVY & CAMPENHOUDT, 2005).

3.4.3.   Interview

Another important instrument chosen to collect data is the interview, a useful and validated procedure for social investigation (LAKATOS, 1999). This technique suits the object of study chosen, considering there is no documented data (describing the history of the EEN's project, or how the analytical categories interacted, for example) that would suffice for a robust analysis (LAKATOS, 1999). The interviews with the actors present in the creative process themselves will be a more reliable primary source of information (LAKATOS, 1999), additionally providing multiple perspectives - a direct mirror of the Systems Model perspective.

3.5.   Data collection and analysis procedures

The interpretation and analysis of data collected is surely the central core of research (LAKATOS, 1999), where the importance of data isn't solely for their existence, but in their power of giving answers to investigations (LAKATOS, 1999).

3.5.1.   The interviews' Script

A semi-structured script (LAKATOS, 1999) was utilised as data collection instrument, to achieve a balance between a needed amount of structure, to detect and interpret the analytical categories intended; and fluidity, that gives space for unpredicted aspects, or new relationships between the categories to be identified. The interviews were recorded, with the permission of the interviewed subject, and transcripted[10].

The process of formulating the questions for the interview included: returning to Csikszentmihalyi's and Furtado's theories, and also on the bridge between them, to clarify concepts; dividing the specific objectives of the research into what theory they fit into; formulating questions that translated both theory and specific objectives into a more accessible language.

This series of questions formed a database for the interviews, where the interviewer could choose several from the list, and adapt them to the interviewed subject's discourse, as

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[10] Interview transcripts are cited in chapter 4 of this thesis.

part of the semi-structured script proposition (LAKATOS, 1999). The questions asked can be seen in full in the interviews' transcripts.

TABLE 3

Interview question database regarding Csikszentmihalyi's (1988) Systems Model of Creativity

Theory	Specific Objective	Interview Questions
Systems Model of Creativity - Csikszentmihalyi (1988)	Identify what actors are involved within the forces of Systems Model of creativity	1. What actors or organizations are present in the Center?
		2. What external actors are envolved with the Center?
	Identify what stakeholders constitute the field involved	3. What's the Center's role in relation to the community?
		4. What touchpoints do you have with the external public?
	Identify what actors constitute individuals and teams involved in the creative process	5. What other people are key in the development of the projects?
	Identify what variations were introduced by individuals and teams	6. When you first arrived, what projects were held by the Center?
		7. And today, did you notice any changes?
		8. What was the process of creating those new projects like?
	Understand how such variations were approved by the field	9. Who idealizes, develops and approves them?
		10. In the beginning, did you feel it was like a distant dream? Something that made sense only to a few people?
		11. And since their implementation, what did you feel that change in the Center's culture and the community around it?
	Understand how such variations were incorporated in the domain	12. Was there an initial resistence? Do the actors involved already accept those changes?
		13. Can you notice any difference between the visitors, after they engaged with the Center's

		initiatives?
	Understand how organisations benefit from the systemic creativity of stakeholders involved	14. How did the Center benefit with the changes? 15. What triggered those changes?
	Understand the motivations behind the generation of new cultural values added in the domain	16. What motivated the inclusion of those new values in the Center?
	Understand how does the creative process benefit from the involvement of multiple stakeholders in the field and teams	17. What were the benefits of adding all those new actors in the Center?

Source: Elaborated by the author

TABLE 4

Interview questions database regarding Furtado's (1978) Development Model

Theory	Specific Objective	Interview Questions
Development - Furtado (1978)	**Understand how the accumulation process functions within the organisation**	1. What resources were necessary to develop these new projects? How were they raised?
	Understand how the accumulation process within the organisation benefits development-centered variations	2. Where do the resources of the Center come from? 3. What does the Center give in exchange to ICMBio and the Park in general? Does it benefit the development of projects focused on sustainable development?
	Understand how the accumulation process in society propels the need for development-centered variations	4. How do you perceive this accumulation process we had as society? How do you think we got to this point of exhaustion of resources? 5. How do you see this accumulation process as a motor for the advancement of initiatives focused on sustainable development? 6. How do you see this dynamic in the Park and in the Center? Do you think it propelled more projects related to sustainability?
	Understand how innovation affects development-centered variations	7. How did this initial innovation to build the Center and the projects related to sustainability occurred? Was it very costly? Was it focused on a specific target audience initially?
	Understand how diffusion affects development-centered variations	8. How did the project became less expensive with time, and impacting more people?

Source: Elaborated by the author

TABLE 5

Interview questions regarding the bridge between the Systems Model and Development Model

Theory	Specific Objective	Interview Questions
Building Bridges between theories	**Understand how does territorial development benefit from Systemic Creativity**	1. How do you think creativity benefits sustainable development? 2. Do you think that all these actors who collaborate in the Center use creativity?
	Identify how territorial development was previously incorporated in the domain surrounding the field, and individuals	3. How did this movement of sustainability became present in the Center's culture? 4. Was there initial resistance at first? How is the acceptance today?
	Understand the motivations for field and individuals to become involved in territorial development	5. Today, many actors from different institutions work together at the Center. What motivated these actors to engage in the sustainable development projects?
	Identify what creative activities created collaboratively are development-centered variations	6. What projects are centered in development?

Source: Elaborated by the author

3.5.2. Other Sources of Data Collected

Other sources of data, derived from the participant observation (LAKATOS, 1999) made possible by *Use of Art through Digital Interactive Media to Promote Learning in Business Administration,* were the videos that recorded activities carried out in UnB's visits, recorded group discussions and interviews with students. Another important source of data was the A3M's project impact report, containing quantitative and qualitative data. The documents donated by the EEN are also resources used on the analysis. All data sources explored are described in the table 6, 7 and 8.

TABLE 6

Resources Collected During Participant Observation

Method	Data Collection Instrument	Name	Numbers	Description	Source	Actors involved
Participant Observation	Group discussions	Group discussions within A3M project	1 group discussion	Group discussion held during the night-time visit to the Park, as part of the activities developed with UnB students through the A3M project.	A3M (2017 - 2019)	UnB students, A3M project's coordinator, Interviewee 1, A3M scholarship students
	Videos	Raw video footage	10+ hours	Raw video footage of UnB visits to the Park during 2017 - 2019 as part of A3M project responsibilities	A3M (2017 - 2019)	UnB students, A3M project's coordinator, EEN staff, A3M scholarship students
		Edited videos	2 videos	Edited videos describing the experience UnB students had with the Park visits during the year of 2017 - 2019	A3M (2017 - 2019)	UnB students, A3M project's coordinator, EEN staff, A3M scholarship students

Source: Elaborated by the author

TABLE 7
Resources Collected During Interviews

Method	Data Collection Instrument	Name	Numbers	Description	Source	Actors involved
Interview during Participant Observation	Semi-structured script	UnB student interviews	9 students interviewed	During the participant observation in the A3M project, semi-structured interviews were made with UnB students to capture their perception about the Park visits	A3M (2017 - 2019)	UnB students and A3M scholarship students
Interview	Semi-structured script	EEN's staff interviews	5 members of the EEN interviewed	Five interviews with the EEN's members were conducted during one visit to the Visitor Center on October 23, 2019	Present thesis (2019)	Interviewee 1, Interviewee 2, Interviewee 3, Interviewee 4, Interviewee 5

Source: Elaborated by the author

TABLE 8

Resources Collected Through Documental Research

Method	Data Collection Instrument	Name	Numbers	Description	Source	Actors involved
Documental Research	Written, primary, contemporary documents	SNUC - Sistema Nacional de Unidades de Conservação (National System of Conservation Units)	1 journal	Journal, containing laws from the Brazilian Constitution: Law nº 9.985, 2000; Decree nº 4.340, 2002; Decree nº 5.746, 2006; Law nº 11.516, 2007; Decree nº 6.640, 2008.	Donated by EEN (2019)	ICMBio, Ministry of Environment, EEN
		2020 Environmental Education Nucleus' Calendar of Actions	1 Calendar	2020 Environmental Education Nucleus' Calendar of Actions with all events within the Center already confirmed for 2020.	Donated by EEN (2019)	ICMBio, EEN, all stakeholders mentioned in the calendar
		The Use of Art through Digital Interactive Media to Promote Learning in Business Administration Impact Report (2019)	1 impact report	The impact Report contains qualitative and quantitative data about the aftermath of the A3M project.	Made public by the A3M project's coordinator (2019)	A3M scholarships students and A3M project's coordinator

| | | Parque Nacional de Brasília - 50 anos | 1 book | Book published in 2012, celebrating the 50 years of Parque Nacional, developed by ICMBio, sponsored by Petrobrás. Includes a photography collection and testimonies made by ICMBio servers, historians, biologists, and Park's coordination. | Parque Nacional de Brasília - 50 anos (2012) | ICMBio, Petrobrás, Ministry of Environment, DF's government (GDF), DF's Public Archive, Boibumbá Design, cenoarte, A Casa da Luz Vermelha, National Museum |
| | | Saber Cerrado blog | 1 blog | The Saber Cerrado blog about art, environmental education and the EEN - founded and developed by Interviewee 5 | Shared by Interviewee 5 | Military Environmental Police, EEN's staff |

Source: Elaborated by the author

3.5.3.   Data Analysis

Once the data collection phase is over, the content of the interviews must be carefully examined to reaffirm their veracity and usability for the research (LAKATOS, 1999). This phase of the investigation is constituted by three stages:

- Selection: thorough examination of data, submitting them to critical verification in order to identify any errors or mistakes, but also to point out the excess or lack of data (LAKATOS, 1999).

- Codification: operational technique used to categorize related data, where they are converted into symbols, and can in turn be analysed (LAKATOS, 1999). This stage will be especially important due to its relation with the content analysis technique.

- Tabulation: disposition of data in tables, facilitating the verification of connections between them (LAKATOS, 1999).

The technique chosen for the treatment and processing of the data collected will be content analysis, that aims to identify what is being said regarding a certain theme, adapting to the particularities of exploratory field research (VERGARA, 2005). And a qualitative approach to the data analysis shall be carried out, focusing on peculiarities and relations between elements (VERGARA, 2005).

Quivy and Campenhoudt (2005) point out the importance of establishing a clear model of analysis including theory, dimensions and indicators - an important step before the actual analysis, that Vergara (2005) also reinforces. A structured and coherent analysis model enables the elaboration of a clear system of concepts and hypothesis (QUIVY & CAMPENHOUDT, 2005). Therefore, an analysis grid was built to investigate the data collected, being composed by theory, analytical categories, and analytical units (VERGARA, 2005). The chosen type of analysis grid is mixed, due to its flexibility between predetermined categories that suit the systems model, and permit new discoveries during the data collection phase (VERGARA, 2005).

The analysis grid was divided initially between 3 pillars: the Systems Model of Creativity (CSIKSZENTMIHALYI, 1988); Development (FURTADO, 1978); and the dialogue between the two authors, referred to in this thesis as *Building Bridges between theories* (Development and Systems Model of Creativity). Each theory was broken down into three analytical categories, or dimensions, that integrated their primary concepts. From these dimensions, a set of 29 analytical units were assigned, summarizing what was expected to appear from the data collected.

Another dimension called *Exploratory Findings* was added, including four analysis units that appeared during the interviews 1 to 5, who represent categories that weren't considered initially in the mixed analysis grid (VERGARA, 2005). They were, in their majority, already mentioned in chapter two of this thesis, when dissecting the theories; but were

considered too abstract to be explored during the interview. Here's an example to illustrate this: something that was thoroughly explored in the theoretical chapter of this paper is that the domain is built by cultural references and memes who serve as references to the future generations (CSIKSZENTMIHALYI, 1988). However, it was considered, in the preparation phase, very difficult for the interviewees to have clarity as to what those references are in practice. Therefore, there were no questions during the interview that directly asked "what reference points you think constitute the cultural fabric surrounding the Park?". However, surprisingly they appeared in all of the interviewee's testimonies, proving to be an essential analysis unit afterall. Therefore, they were included as extra Exploratory Findings, together with other units that will be discussed in the following chapter. The theories, analytical categories and analysis units can be seen with detail in Table 9.

TABLE 9

Analytical Model for Content Analysis

Theory	Analytical Categories	Analysis Units
Systems Model - CSIKSZENTMIHALYI (1988)	**Individual**	Actors who introduce variations
		Individuals take information from the domain
		Individuals generate variation
		What variations were created
	Field	What actors constitute the field
		How field validates variations
		Benefits of having multiple actors in field
		Field as a generative force
		Investment of disposable wealth and attention
		Calculated, conscious policies
	Domain	How are variations incorporated in the domain
		How variations become input for the next generation
Development - FURTADO (1978)	**Accumulation Process**	What are the surpluses (resources) present within the organization
		How "social life" generates potential energy
		What challenges were presented by new surplus
	Development	What new values were created
		Impulse to create new values
		Generative force of new surplus
	Insufficiency of accumulation process	Acceleration of accumulation process
		Dependant industrialisation
		Bigger problems generated

		How social structures are affected
		Creativity as a means to serve accumulation
		Role of environmental education in reversal of insufficiency of accumulation process
Building bridges between Development and Systems Model of Creativity	**Building bridges**	Development propelling creation of variations
		Values related to development incorporated in domain
		Accumulation process as generator of resources for field and individuals
		Environmental education favouring the incorporation of new values in domain
		Motivations for field and individuals to become involved with environmental education
Exploratory Findings		Characterization of the Field
		Importance of institutional-perspective
		Mapping out cultural references
		Multi-level systemic approach

Source: Elaborated by the author

4.   RESULT AND DISCUSSION

So there's a better understanding of the data obtained, this chapter holds firstly an investigation of the history and context surrounding the case study chosen: the Brasília National Park. Furthermore, a meticulous analysis of the data collected shall be presented, together with discussions involving the theories mentioned in the Theoretical Reference chapter about the Systems Model of Creativity (CSIKSZENTMIHALYI, 1988), and Development (FURTADO, 1978)

4.1.   Characterization of the Park and Research Participants

Founded by Dr. Ezechias Heringer in 1961 (only one year after the inauguration of Brasília, the new planned capital of Brazil), the National Park was built to preserve the rivers that supply drinkable water to the city: the Santa Maria dam, that is responsible for 25% of the water supply Brasilia receives. To prevent soil erosion, and to protect the natural ecosystems, flora and fauna that surround the water springs, an area of 42.389,01 ha (104.745,5 acres) was delimited. The Park counts with three pillars of action: ecological preservation of the Cerrado biome; ecotourism and responsible recreation through nature; and scientific research and education.

The facilities of the park include museums, an auditorium, a public library, a Visitor Center (called the Environmental Education Center), and also two natural pools, with water coming from the springs, for the public to enjoy all year long. Many hiking trails are available as well, with different durations, so visitors can come into close contact with all sorts of species, right next to the big city. The park's area also harbors Brazil's longest mountain bike trail, adding up to 136 km of continuous tracks, together with the Flona and Serrinha do Paranoá circuits.

Parque Nacional is coordinated by the Chico Mendes Institute for the Conservation of Biodiversity (Instituto Chico Mendes de Conservação da Biodiversidade - ICMBio), a federal authority associated with the Ministry of Environment, integrating the National Environment System (Sistema Nacional do Meio Ambiente - Sisnama). The Institute is responsible to execute actions present in the National System of Conservation Units (Sistema Nacional de

Unidades de Conservação - SNUC), being able to propose, deliver, manage, protect, monitor and supervise the Conservation Units (Unidades de Conservação - UC) determined by the Brazilian government. It's the Institute's duty to execute programs of research, protection, preservation and conservation of biodiversity, and exert the power of environmental police for the protection of the federal conservation units.

ICMBio's mission is "to protect the natural patrimony and promote socio-environmental development"[11]. It is carried out by the management of Federal Conservation Units; promotion of socio-environmental development of traditional communities with sustainable practices; through research and knowledge management; environmental education and promotion of ecological managing. It is up for the Conservation Units and Centres of Research and Conservation to produce, through scientific research, ordering and technical analysis of data, the knowledge necessary for the conservation of biodiversity, speleological patrimony, and socio-biodiversity associated to the peoples and traditional communities.

The object of study this research focuses on is the Environmental Education Center (henceforward mentioned as Center), present in the National Park. Its creation was included in the SNUC, which is the legal document that refers to the articles in the Brazilian Constitution that regard the Conservation Units. It is coordinated by the Environmental Education Nucleus (or EEN, from henceforward) a team constituted initially by members of ICMBio, who promote a series of programs to promote awareness about the environment and sustainability.

This year, the EEN's team grew.[12] Two technical cooperation agreements were officialized: one local partnership between ICMBio and the Federal District's Educational Office; and a national partnership with the Environmental Military Police. Now, two teachers from the Office (Interviewees 3 and 4) serve and represent that institution in the Park, and 3 Military Police officers (one of which is Interviewee 5) are also stationed in the National Park. The EEN, who was firstly led only by its director (Interviewee 2) and environmental analyst (Interviewee 1), is now also constituted by those new actors. The process of their arrival in the Park and EEN will be later examined in the content analysis.

The programs they develop include:

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[11] As stated in their website
[12] The source of the information in this section (regarding the expansion of the EEN's team, and projects developed) is the content of interviews 1 to 5, considering it isn't described in detail in any documental data.

1.   Reading in the Park

An initiative where children from public schools engage in a reading project in the Center, doing arts and crafts workshops to expose an exhibition of drawings, books of their own making and collages, and discuss themes regarding environmental education.

2.   Teacher Formation Course

Being EEN's main project, this program consists of training teachers so they become environmental educators, and may bring their students to visit the Park. It will be the main focus of the content analysis. The project is composed by three phases, before, during and after the visits.

Before the visit (described by EEN's staff as "pre-visit"), the EEN's staff receives teachers and educators from both formal education (public and private schools, pre-schools and universities) and informal, but structured education (daycares, NGOs, organizations who care for disabled children). They participate in a two-day course where they learn about the Park, its history and the Center's facilities, and educational spaces. The idea is to put the teacher in the spotlight, where they have all the resources they need to construct their own environmental education class, using the Park's spaces. The teachers have to create a script for their class, and present it to EEN's staff for validation. They receive a certificate of formation from ICMBio.

During the visit the students and their respective teacher arrive in the Park. The EEN offers transportation, and whichever aid the institution needs, through their partnerships, to make the visit happen. The tour they take depends on the teacher's script, but usually consists of: an initial talk with EEN's members, to cover subjects like the Park, and basic sustainability concepts; tours through the Center so they can explore pictures of flora and fauna, as well as a 3D Model of the grounds; and finalizes with the Park's trails and a trip to the natural pools.

And after the visit, the ideal scenario of this program would be to include monitoring of the students, and visits to their schools, in order to measure the impact the visit had on them, and to guarantee a continuity of the project within that school. However this phase is not fully established with all schools and institutions that visit due to lack of resources and staff.

As stated by Interviewee 4 during the interviews, the evolutions for this project include a more structured and "serious" validation of the script presented by the teachers in the "pre" phase. They should present a robust class plan, including the concepts learned, and

constructed thoughts. Plans for 2020 also include a partnership with a few schools who have proven to be committed to environmental education, so the EEN can visit them after the visits and continue developing a long-term project about sustainability, increasing their impact.

3. Socio-environmental Course for Environmental Illicit Acts

This course originated from a partnership between the Federal Prosecution Service and the Park, where environmental offenders can exchange their prison sentence for a combination of financial fine, and this course ministered by the Federal Environmental Police in the Park. People who have committed crimes against nature and public spaces, including bird trafficking and illegal wild-bird owning, criminal graffiti, and other illicit activities, are then confronted in this lecture about the effects of their crimes.

4. Park beyond the pools

This project, depends entirely on volunteers, so it's not performed very often. Volunteers go by the natural pools during weekends inviting the visitors, who mainly came to the Park solely for the pools, to get to know the Center, the trails, and other spaces accessible to visitors. The intention is to spread the knowledge that the Brasilia National Park is bigger than the natural pools area, called Água Mineral, and the pools only exist because of the conservation unit that is the Park.

4.2. Multi-level Systemic Approach

Before we begin the analysis, an essential disclaimer must be made. Before the interviews in the field research began, the intention behind the data collection was to focus the analysis in the EEN, and the Environmental Education Center. This decision was made considering the complexity of the theory developed, and how by defining a concrete and smaller sample, the analysis would be more efficient. However, right on the first interview, Csikszentmihalyi's (1988) foundational concept was recalled: creativity cannot happen in a vaccuum, you have to take into consideration the *systems* perspective.

> [Let´s] talk a little bit about the Park as well, because you can't leave it behind, right? This is all because of the Park. (Interviewee 1, 2019)

Falando um pouquinho do Parque também, porque não pode deixar né. Isso aqui é tudo por causa do Parque.
(Interviewee 1, 2019)

And after analyzing all of the data collected, it was surprising to notice a slightly different phenomenon. The Systems Creative Process (CSIKSZENTMIHALYI, 1988) can be seen on multiple levels depending on the micro universe you're taking into consideration. For instance, within the EEN, the systems approach can be detected when we map the forces of the model (CSIKSZENTMIHALYI, 1988), inside the case study: considering the EEN staff members as *individuals*, the institutions behind them as the *field*, and the culture surrounding their own team as the *domain*. When you take a broader perspective, inserting the EEN within the Park, another system appears, and the same happens when you turn to the projects that collaborate with external actors, like teachers and students from public schools, for example.

A similar phenomenon happens when we turn to the Development theory (FURTADO, 1978). We can examine the accumulation process that happens within the EEN, a necessary process for them to gain resources; or we can address it in society as a whole, by analyzing how the visitors of the Park, and the population of Brasilia in general, perceive it.

This multi-level perspective goes on depending on which actors you're involving in one project or another. Therefore, the analysis in this chapter will refer to all of the analytical categories (domain, field, individuals, accumulation process, development, insufficiency of accumulation process, and building bridges) through different layers, depending on the examples given. This empirical finding confirms, once more, the veracity of the theories chosen, and also their applicability in "real life" case studies.

4.3.   Systems Model in Brasília National Park

In accordance to the analysis grid, the first theory explored shall be the Systems Model of Creativity (CSIKSZENTMIHALYI, 1988), with its three analytical categories examined in sequence, the individual, field and domain. Excerpts from the interviews will be used to illustrate important insights, and the other documental data, and material from the participant observation will also be cited to enrich what was identified in this exploratory

research.

4.3.1.　Mapping out the Field

An important initial step of the analysis consisted in reviewing interviews 1 to 5 to map out what actors constituted the field surrounding the EEN. Based on the interviewee's depositions[13] and SNUC, the ecosystem of actors, public and private institutions around them was described in the diagram below. This diagram also includes the projects developed by them, under the overlapping of actors who also participate. The members who constitute the EEN can be seen inside the lighter green quadrant,: two ICMBio servers (Interviewee 1 and 3), the two teachers from DF's Education Office (Interviewees 2 and 4), and the four Environmental Military Police Officers (one of which is interviewee 5).

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[13] Check the interviews' transcripts annexed for more detail.

DIAGRAM 4 - The field around the EEN
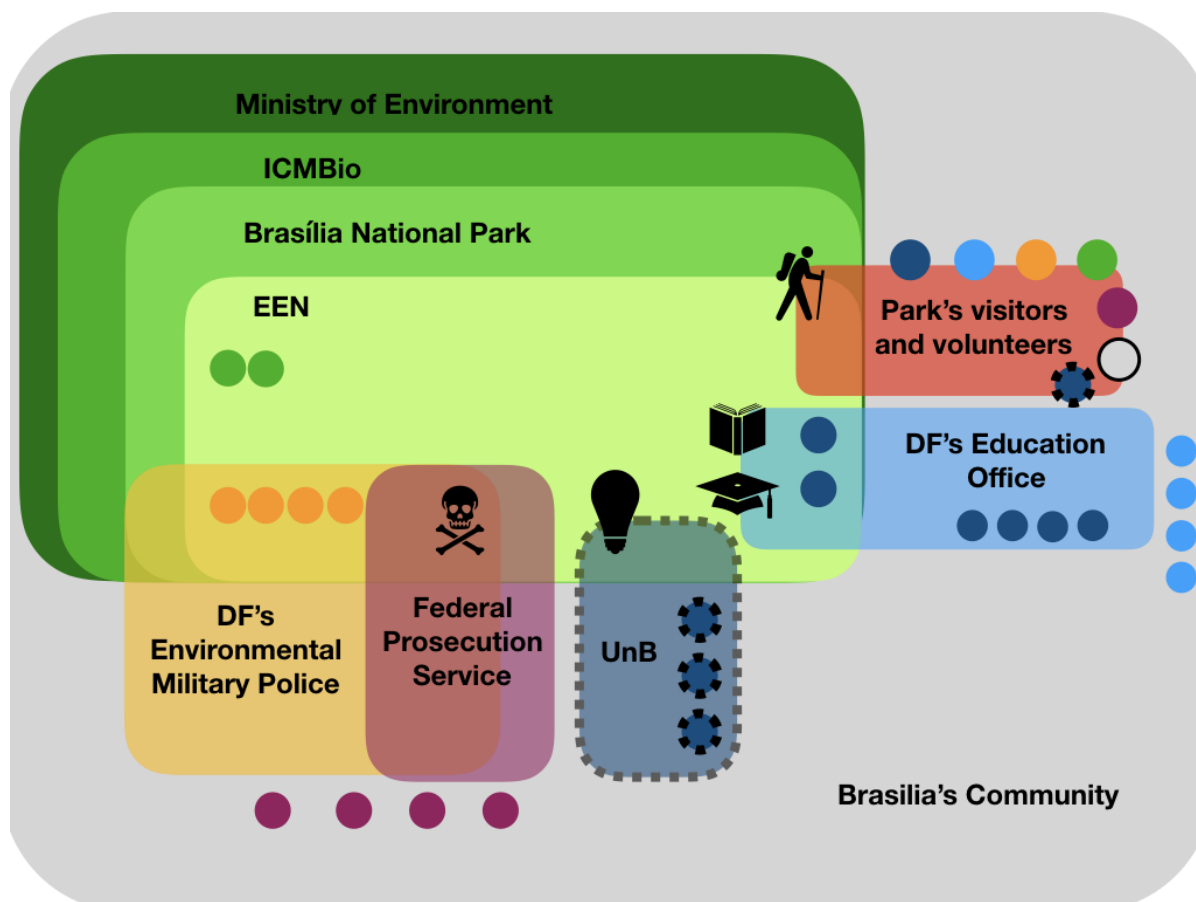
Projects

🚶 Park beyond the pools

📖 Reading in the Park

🎓 Teacher Formation Course

☠ Course for Environmental Illicit Acts

💡 A3M Project delivered by UnB

Actors

🔵 Teacher from Public School system

🔵 Other educators

🔴 Environmental Offender

🟢 ICMBio servers

🟠 Environmental Military Police Officer

⚪ Brasília's Community

⚙ UnB professors, if technical cooperation agreement goes through

Source: Elaborated by the author

4.3.2.   The Domain

It is important to differentiate the domains present in the micro universe explored around the Park. After the interviews 1 to 5, it was concluded empirically that the domain is not a single fabric that holds a society together. There are many levels that alter and shape the culture around a certain country, city, organization, and even team. When we address the domain around the Park, a differentiation must be done regarding what level are we referring to. This section addresses how environmental education, and other values are present in this multi-level perspective of the domain. It begins by analyzing the EEN, and correlated institutions, and fundamental aspects of their domain; then, expands the level of analysis, by inspecting the domain around the Park; and finally continues the broadening of perspective by assessing aspects of Brasília's domain.

Taking into account the domain involving the EEN's level, the interviewees were asked about how the historical references present in the Park still affect the Center's present - considering that the Park already has in its domain this scientific exploration, and expedition profile. Interviewee 1 brought back the concepts of how strongly memory defines us, and how it is also the foundation for the construction of present and future. Interviewee 3 also stated that what they're doing is aimed for the community, for the future, and not for the "right here, right now". This description reflects once more the movement of cultural reference points from the domain who become inputs for future generations.

> It's a huge step forward. So we're always thinking organically, [with] a future's vision. [It's] systemic, because you don't stop in time. [It doesn't] stay there, and from that point doesn't proceed. Even our planning is systemic. (Interviewee 3, 2019)

> *"É um salto à frente. Então pensando sempre orgânico, visão de futuro. E sistêmico, porque você para no tempo. Fica ali e dali não vai. Até o nosso planejamento ele é sistêmico. (Interviewee 3, 2019)*

Still within the EEN's level, the idea that environmental education is directly linked to the Park's purpose - of how variations made years ago, when the Park was created, present in its historical context - is completely included in the EEN's domain and also in the Environmental Military Police, serving as a foundation for variations made today by the team.

> And it's the Park's function too. It was one of Ezechias Heringer's ideas, to make the Park focused exactly on environmental education, he already spoke about it in 61. *(Interviewee 5, 2019)*

E é a função do Parque também. Foi uma das ideias do Ezechias Heringer de fazer o Parque exatamente focado na educação ambiental, e ele já falava isso em 61. (Interviewee 5, 2019)

One of the most amazing things, that demonstrates how Ezechias Heringer was ahead of his time, is that in the exposition of motives [to build the Park], he already states that besides the protection of fauna and flora of the *Cerrado,* of the water bodies, he mentions it's supposed to be a laboratory for experimentation and conservationist teaching. This is fantastic. Who is able to think in 1960, that a conservation unit has the goal of being a conservation space. It's unbelievable [...]. Right in the unit's creation you already have this fingerprint, stating the need for education - that at that time wasn't called environmental education, but conservationist. But you had to have it. (Interviewee 1, 2019)

Uma das coisas que é mais fantástica, que demonstra como o Ezechias Heringer estava à frente do tempo dele, é que na exposição de motivos ele já coloca, que além da proteção da fauna, do cerrado, da flora do cerrado, [...] do manancial de águas, ele coloca que é pra ser um laboratório para experimentação e o ensino conservacionista. Isso é fantástico. Quem pensa em 1960 que uma unidade de conservação tenha a finalidade de ser um espaço de conservação. É inacreditável [...]. Já na criação da unidade você já tem essa digital dizendo que tem que ter educação - que na época não chamava de educação ambiental, chamavam educação conservacionista. Mas tinha que ter. (Interviewee 1, 2019)

He [interviewee 3] joins people and says "you are from the Education Office, right? There are some guys here with more than 20 years in the Education Office. Does any of your schools have a nucleus for environmental education? Any program?". The teachers only lower their heads. "Well, the Military Police already has one for over 16 years. Interviewee 5, 2019)

Ele [interviewee 3] junta as pessoas e fala "vocês aí são da secretaria, né? Tem um pessoal aqui que tá com mais de 20 anos de Secretaria. Algum colégio aqui de vocês tem algum núcleo de educação ambiental? Tem algum programa de educação ambiental?". Os professores só baixam a cabeça. "Pois é, a PM tem e o núcleo já tem 16 anos. (Interviewee 5, 2019)

When we broaden our point of view, and regard the domain around the Park's level, things start to change. The Park may have this exploratory nature already incorporated in its domain, however, the same can't be said about environmental education. It was clear that the EEN, and other institutions (like the Environmental Military Police) have a very well established domain that already incorporated environmental education as part of its DNA. But when we examine the field surrounding the Park, it's not obvious among the Park's servers of how important environmental education is - even though it was present as a vital value in the Park's creation.

> The EEN is super involved with this subject, [and] the Park even has some involvement in it [environmental education], but we don't yet notice from them a big interest to work with this. Us, from the EEN, have already incorporated it, we even go out with Wilson and the researchers, to do those explorations, and see *in loco* what he found. His thesis is at the UnB's files. He shows us a bunch of stuff, and we think "oh my God, look at all of this material that the Park doesn't make use of". Some older people even knew about them, but the big majority doesn't. So we try to value all this history. (Interviewee 1, 2019)

> *O Núcleo de Educação Ambiental está super envolvido com essa história, mas o Parque até tem algum envolvimento nisso [educação ambiental], mas a gente ainda não percebe deles o maior interesse em trabalhar com isso. A gente aqui já incorporou, tanto que a gente sai com o Wilson e os pesquisadores, e vai fazer essas explorações e ver in loco o que ele descobriu. A tese dele está no repositório da UnB. E ele mostra um bando de coisa e a gente fica "meu Deus, olha o tanto de coisa que o próprio Parque não aproveitou". Algumas pessoas mais antigas até conheciam algumas coisas, mas a grande maioria também não conhece. Então a gente aqui tenta valorizar essa história toda. (Interviewee 1, 2019)*

If it's not clear for the Park's domain, that environmental education is an important reference point, imagine when we take into account a broader level - all of Brasilia's population, for example. It is definitely not yet incorporated in the cultural domain of the city. For the Park's visitors it is also not well Incorporated in their citizenship's domain, considering some even commit environmental offenses inside the Park's borders. The essential role that the Conservation Units represent - in preserving water supply, flora, fauna and climatic control - is not yet present in Brasília's domain, as cited by all of the interviewees.

Still within the city-level of the domain, it was brought up by interviewee 2, that the Pools, on the other hand, are already incorporated in Brasília's domain, considering they have been in service since the city's foundation, and also due to the dry weather that favours this recreational activity.

> The pools, (I think that from the very climate of the Federal District, and for the story of its pools, that were made even before the city was inaugurated) ended up becoming a reference for the Park. [...] People don't have the exact notion, and they don't come to the Brasília National Park - they come to the Mineral Water Pools. [...] This is a historical issue, because the pools, indeed, get more attention, and exist for a very long time. And people ended up limiting themselves to this universe of the Pools, that is in fact less than 1%. Not just the Pools, but the public usage area fo the Park is less than 1% of the Park's total area. And people are unaware of the 99% of the rest, which is a shame. (Interviewee 2, 2019)

As Piscinas, (acho que pelo próprio clima do Distrito Federal, e pela própria história das piscinas do Distrito Federal, que surgiram antes mesmo da inauguração da cidade) acabou se transformando numa referência para o Parque. [...] As pessoas não têm a exata noção, e eles não vêm ao Parque Nacional de Brasília - eles vêm às Piscinas da Água Mineral. [...] Isso é uma questão histórica, porque as piscinas de fato, chamam mais atenção, e existem há muito tempo. E as pessoas acabaram se limitando a esse universo das piscinas que na verdade, [...] é menos de 1%. Não só as piscinas, mas a área de uso público do Parque é menos de 1% da área total do Parque. E as pessoas desconhecem esses outros 99%, que é uma pena. (Interviewee 2, 2019)

The pools are described as already being part of the domain of the District's citizens, but is slightly criticized by the interviewee's, for "stealing" the focus of the Park. In reality, after analysing all the data collected, it can be concluded that they are a powerful tool that can be used to attract visitors and put them in direct contact with the nature the Park preserves. The Park Beyond the Pools project embodies the struggle the EEN faces in trying to spread the word among the general public about all the preservation initiatives and environmental education that the Park also embodies.

This is what we intend: to sensitize the students, so they understand that the Brasília National Park goes way beyond the Pools. It is strategic, fundamental for the Federal District in general. Not just for the preservation of flora and fauna, but as a water producer, responsible for the supply of more than 30% of the population. And people don't yet have this dimension. (Interviewee 2, 2019)

É isso que a gente pretende: sensibilizar os estudantes, para que eles compreendam que o Parque Nacional de Brasília vai muito além das piscinas. E que ele é estratégico, é fundamental, para o Distrito Federal de uma forma geral. Não só pela preservação de fauna e flora, mas enquanto produtor de água responsável pelo abastecimento de mais de 30% da população. E as pessoas não têm ainda essa dimensão. (Interviewee 2, 2019)

And all this to show that the Park, in the end, isn't just about the Pools. And we always mention that the demand to come here, is for the teacher to do the course, and apply environmental education, and not just come to the Pools for free. Our thing here is environmental education, to put that in the mindsets of public and private schools. (Interviewee 5, 2019)

E tudo isso para mostrar que o Parque, no final, não é só a piscina. E a gente sempre fala que a exigência para vir aqui é o professor fazer um curso para aplicar a educação ambiental e não só vir para as piscinas de graça. A nossa parada aqui é educação ambiental, botar na cabeça da escola particular e da escola pública. (Interviewee 5, 2019)

In fact, not only the Park Beyond the Pools, but all projects developed by the EEN are powerful tools when it comes to incorporating Environmental Education in the city's domain. The individuals of the EEN created the variation of the Teacher Formation Course, and this variation's goal, is to incorporate in the schools domain the importance of environmental education. We can see here a loop, where the lines that separate the forces in the system's model are not so clear[14]. Where actors who are supposedly in the field are the ones creating the variations, and the individuals, who get in touch with those variations, are the ones who validate whether they'll be a part of their own domain or not. The fact that the Teacher Formation Course, for example, contains important steps before and after the students visit, proves the EEN's efforts in establishing environmental education as a part of the school's culture.

And I give little examples to touch the wound. I think that our primary role is environmental education. We use environmental education and art to change minds. If 300 people come here, and I'm able to change 1... Maybe 1 child that comes here will become Minister our President of Brazil. All of a sudden you'll spend the rest of your life thinking about what you can do to change the planet. [...] We're making allies for us. *(Interviewee 5, 2019)*

E eu vou dando exemplos pequenos, tocando na ferida. Acho que nosso papel primordial é a educação ambiental. Usamos educação ambiental e arte pra mudar a cabeça. Se vier 300 pessoas aqui, e eu mudar a cabeça de 1... Talvez 1 criança que vier aqui, saia como Ministro ou Presidente do Brasil. De repente você vai passar o resto da sua vida pensando o que pode fazer pra mudar o planeta. [...] A gente está fazendo aliados para a gente. (Interviewee 5, 2019)

We have that understanding - actually, not ours, but Paulo Freire's - that it's education. And it doesn't transform the world, it transforms people, and people change the world - or at least we expect them to. That's why we use education as an instrument of social transformaiton. And this is where we invest. The EEN, its importance is this, [...] and from this consciousness from people, we expect that it can reflect in society somehow. *(Interviewee 2, 2019)*

A gente tem aquele entendimento - na verdade nosso entendimento, não, entendimento do Paulo Freire - que é a educação. E ela não transforma o mundo, ela transforma as pessoas, e as pessoas transformam o mundo - ou espera-se que elas façam isso. Então por isso que usamos esse viés da educação enquanto instrumento de transformação social. E é nisso que nós investimos. O Núcleo de Educação Ambiental, a importância dele é essa, [...] e a partir dessa consciência das pessoas, nós esperamos que isso possa refletir de alguma forma na sociedade. (Interviewee 2, 2019)

Do you know what's the big goal of all this? Sensitize the teacher to encompass environmental education in their units. To cover environmental

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[14] Another evidence of the multi-level perspective noticed after the data collection.

education, that is not a main theme. And if possible, include it in the Pedagogical Plan of the school. Then, it's institutionalized. [...] It's not from the headmaster, or headmistress, it's the school's. *Interviewee 3, 2019)*

Sabe qual o grande objetivo de tudo isso? Sensibilizar o professor pra pautar a educação ambiental na unidade. Pautar a educação ambiental, que não é pauta. E se possível, incluir no PPP da escola. Aí institucionalizou. [...] Não é do diretor, da diretora, é da escola. (Interviewee 3, 2019)

This characteristic of the projects will be further analyzed in the following sections, but to illustrate this dynamic, we can refer to the group discussion made by the A3M Project's students. As described previously, the A3M Project *Use of Art through Digital Interactive Media to Promote Learning in Business Administration* included 13 visits to the Park with UnB students, who are part of the participant observation method used in this research. During a group discussion in the night-time visit to the Park, they were asked about the impact the visits had on them. Many students, for instance, go to know the rest of the Park after the A3M project was conducted, and confirmed how their mentality has changed since then.

I find very interesting that the [A3M Project] is able to strike students so deeply. Being here is not something the students do for grades. It's not a knowledge you get from "copying" from you classmates, engagement and stimuli are necessary, and from that comes the student's development. If you only consider grades, this evolution wouldn't happen, and you won't take in everything an experience like this can offer. For creativity, it's a repertoire you wouldn't be able to get alone, or in any other way. We're stimulating more and more people to come to the Park. The first time I came here was for the [project]. *(A3M project monitor and scholarship student 2, Group Discussion, 2019)*

Eu acho muito interessante a disciplina [projeto A3M] conseguir atingir os alunos com tanta profundidade. Estar aqui não é algo que os alunos façam por nota. Não é um conhecimento que se consegue "colando" do colega, é necessário engajamento e estímulos e a partir disso o aluno se desenvolve. Apenas por nota não há essa evolução, e não se aproveita tudo de uma experiência como essa que é muito expressiva. Para a criatividade, é um repertório que não se conseguiria de qualquer forma ou sozinho. Estamos estimulando cada vez mais gente a vir ao Parque. A primeira vez que vim ao Parque foi pela matéria. (A3M project monitor and scholarship student 2, Group Discussion, 2019)

A similar thing happened with me, I'm also from Brasília and never came. Being here for me is much more than getting to know the Park. Being here changes our world view. Whenever I come, I try to look through multiple perspectives, of how I can apply this sustainable vision in my life, with anything - whether it's in choosing my profession, or in day-to-day life. I remember that ever since I started coming, I began to restrain myself way

more. *(A3M project monitor and scholarship student 1, Group Discussion, 2019)*

Comigo foi parecido, também sou de Brasília e nunca vim. Estar aqui para mim é muito mais do que conhecer o Parque. Estar aqui muda a nossa visão de mundo.Sempre que venho tento olhar por várias perspectivas como posso aplicar na minha vida essa visão mais sustentável, para qualquer coisa, seja na escolha de profissão ou no dia-a-dia. Lembro que desde que comecei a vir comecei a me policiar bem mais. (A3M project monitor and scholarship student 1, Group Discussion, 2019)

The visits provided everyone with the creation of repertoire, new experiences. What I liked most about the visits was the environmental character, the awareness brought about nature and what's changing about it. [...] I say we live in a little box called Brasília, and the surroundings have completely different realities, and we dont know about it, we think that the problems are distant, in favelas and the Northeast of Brazil. The world is begging for help and we're doing nothing. *(Student Z, Group discussion, 2019)*

A saída proporcionou a todos a criação de repertório, experiências novas. O que mais gostei da vinda ao Parque foi a índole ambiental, a conscientização trazida quanto a natureza e o que está mudando nela. [...] Eu falo que moramos em uma caixinha chamada Brasília, o entorno tem realidades completamente diferentes e não sabemos, pensamos que os problemas estão distantes em favelas e no Nordeste. O mundo está pedindo socorro e não fazemos nada. (Student Z, Group discussion, 2019)

4.3.3.   The Field

There are so many different institutions that collaborate to deliver the creative projects, that a single thesis could be made for each one just to explore their particularities more thoroughly. However, only the concrete examples cited during the interviews shall be mentioned in this paper.

There is a complex network of Institutions and individuals surrounding the EEN. The fact that they are linked to very well respected and established institutions, like the Ministry of Environment, protects and also potentialises the actions of the Park and ICMBio. They have a direct link to important Gatekeepers of this field, and being in the capital of Brazil also favors the close relationship to the government. However it is undeniable that the bureaucracy and politics present in those institutions prevents them from reaching an ideal partnership point.

The EEN, to strengthen their actions, began making partnerships with actors with similar sizes as them. If the Federal Government, and other bigger institutions weren't

cooperating as expected, they could build up their field by making local partnerships[15] of their own. This decision resulted in the union between the Education Office and Environmental Military Police that occurred during 2019.

Interviewee 3, as the EEN's director, presented the project of joining forces with the Education Office over 10 years ago, but unfortunately many setbacks[16] happened before it was finally approved. He pointed out the importance of members within the field to have a minimum understanding of their projects and challenges in order to become interested to support them: it was only when the director of the office (who approved the technical cooperation agreement) was formerly a teacher who understood their efforts, that it was able to the approved. Bringing actors from other institutions like the Education Office was an attempt to strengthen the field around the EEN, and as a return of all the work they were already doing involving the public schools of the District.

> I presented it 10 years ago, for the DF's Education Office. Then I spent about 3 years going back and forth, until they lost the process. They sent it to EAP ([...] a department there), and then they lost it, it was gone. Then another Secretary entered . Because they keep changing Secretaries. I began the process in Erastro's time, who was formerly the Director of the Education Faculty of UnB. But he left, they don't stay long. And then I was left without one [contact]. And then this Gregório came in, I introduced myself to him, brought him a portfolio, and he liked it. Because, by the way, his office sent the process to the sub-secretaries. And so it moved from one to the other, some middle ground shelves it, and you have to go there, literally every week. [But] he used to be a teacher, look at the advantage. Then he said "no, you can bring it, I settled it". (Interviewee 3, 2019)

> *Apresentei à 10 anos atrás, pra Secretaria de Educação do DF. Aí fiquei mais ou menos uns 3 anos indo e voltando, até que eles perderam o processo. Mandaram pra EAP ([...]um departamento lá) aí perdeu, sumiu. Aí entrou outro Secretário. Porque vai trocando de Secretário. Porque dei entrada na época do Erastro, que foi diretor da Faculdade de Educação da UnB. Só que aí ele saiu, o pessoal não pára muito tempo. Aí fiquei sem [interlocutor]. Aí chegou esse Gregório, apresentei pra ele, levei um portfólio, e ele gostou. Porque outra coisa: o gabinete dele encaminhou pras subsecretarias. Aí ficava indo de uma pra outra, algum meio que engaveta, e você tem que ir lá semanalmente, literalmente. [Mas] ele é professor, olha a vantagem. Aí ele falou "não, pode trazer, que eu cavei".* (Interviewee 3, 2019)

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[15] Of course this simplification of motivations behind the partnership reduces the complexity of the network around the EEN. In the following sections, these partnership agreements will be examined more thoroughly, appointing other motivations and outcomes.

[16] The outcomes of the setbacks, and their relation to the theories will also be explored in the next sections.

When asked about the motivation behind bringing these other actors from the Environmental Police and Education Office to the EEN, Interviewee 3 surprised us by stating that it was because of the *need of a systemic thought*. It was clear for him, that to gain the power and traction necessary to accomplish all of their goals, they must work with a network of engaged, systemic actors[17], otherwise their actions won't last long.

> It's a systemic thinking. Because we have to think like this: if you don't institutionalize a purpose (anywhere), [if] it's a personalist project or program, [they] take it away and it dies. (Interviewee 3, 2019)

> *É um pensamento assim sistêmico. Porque a gente tem que pensar assim: se você não institucionalizar um propósito (em qualquer lugar), [se] é um projeto ou um programa personalista, o cara leva e carrega, e [morre]. (Interviewee 3, 2019)*

Having a multi-disciplinary team surely favours the field, strengthening the variations proposed by its individuals, and providing different perspectives and resources needed. However, it is not a automatic recipe for success. Interviewee 5 mentioned how he participated in a DF's government attempt of working with environmental education, that joined 25 different organs from the city, who all had independent initiatives on the theme. It turned out to be too much effort with little results in the end, so we can conclude that the number of actors in a field is not a synonym of consistent variations approved.

> I participated in the Environmental Education Work Group during Rollemberg´s term as governor [in Brasília]. It assembled 25 organs, (including UnB, I think), just to deal with environmental education. I thought it was the coolest thing. But here's the deal: It was a reunion for people to talk about environmental education, to plan an event that would last three days: the *Virada do Cerrado.* I think it was too much energy for only a few days. Because I, personally, work with environmental education everyday. It was a lot of energy for little results. And I noticed that today, in the DF, the pinnacle of Environmental Education is here, at the Center. I can't see anywhere else. (Interviewee 5, 2019)

> *Participei do Grupo de Trabalho Educação Ambiental (GTEA) durante o governo Rollemberg. Reuniu 25 órgãos, inclusive acho que a UnB estava envolvida também, só pra tratar de educação ambiental. Achava do caramba. Mas era o seguinte: era um encontro pras pessoas falarem de educação ambiental, pra planejar um evento que duraria três dias: a Virada do Cerrado. Eu acho que era muita energia pra poucos dias. Porque eu particularmente, trabalho com educação ambiental todos os dias. Muita energia pra pouca*

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[17] This institutional view of the field appeared to have such a big importance in their work that it became its own analytical units which will be explored later on in this chapter.

coisa. E notei que hoje, no DF, o ponto máximo da educação ambiental é aqui no Centro. Não vejo outro lugar. (Interviewee 5, 2019)

Given the need, not only to know but also to combine biodiversity conservation and development, i 2005, Decree 5.577 created the National Program for the Conservation and Sustainable Use of the *Cerrado* - Sustainable Cerrado Program, and the National Committee for the Sustainable *Cerrado* Program - CONACER, with the participation of members of government, productive sector, academia, organized civil society, indigenous peoples, and *quilombolas*. The program aims to promote conservation, recovery and sustainable management of natural ecosystems, along with valuing and acknowledging local populations, seeking out conditions to reverse the negative socio-environmental impacts in the *Cerrado.*
(Bráulio Dias, Forest Biodiversity Secretary at the Ministry of the Environment, 2012)

The generative force of the field (CSIKSZENTMIHALYI, 1988) is an aspect of the system's model that can be widely explored in the case study. The foundation behind their main project, the Teacher Formation Course, is that the teachers are encouraged and prepared to create variations of their own[18], so in this situation the field (the EEN) encourages the teachers (individuals) to create new variations. Another example given by interviewee 3, was how in one of the schools, the students (the individuals) had the idea of creating an agroforestry system, and presenting the Park for their community using this agroforest as a background to represent the nature the Brasília National Park (the field) protects.

This generative force of the field (CSIKSZENTMIHALYI, 1988) is very strategic, considering it amplifies the Park's reach. It's in their best interest that other people start engaging in Environmental Education so they can fulfill their purpose of creating awareness about conservation of nature and more responsible consumption. It is clear to them that only through this generative force will they be able to join efforts, to incorporate in the city's domain those values of Environmental Education.

Another interesting point that was brought up during the interviews, was not only the generative force that the field has (in promoting variations by individuals that are in touch with it), but also how important is the field's role in creating themselves the reference points that will be incorporated in the domain[19]. Through the Environmental Education initiatives, their goal is to insert the importance of protecting the environment in the students' and teachers'

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[18] This dynamic will be more explored in the *Individual* section of this chapter
[19] A topic already covered in the domain section

minds, hoping that they will in turn be the individuals who create variations in those areas in the future.

After analyzing the networks that constitute the field, let's dissect the movements that happen within the Systems Model of Creativity (CSIKSZENTMIHALYI, 1988): how are the variations proposed by individuals approved and validated by the field. The EEN, as Gatekeepers within the field of the Center, are the ones who approve variations and validate them to become a part of the domain. Their selection of variations and approval process is very flexible. They review schools and projects both informally, in hallway conversations, and also during structured team meetings. The criteria used to approve certain schools is by looking at its history, of how committed to Environmental Education they have been over the years, to guarantee that this will be an ongoing project for them. Another criterium used is a more practical evaluation, assessing whether the school has the resources necessary to make the project possible, or if they will have to turn to their partners for sponsorship.

As stated by interviewee 4, they plan to evolve this selection process in 2020. The Center is very sought by schools from all over the city, and cannot attend all of the requests they are made.

> Everyone who subscribes has a preference. If you subscribed first, you come. We're thinking about a ranking, it was even a teacher's idea, a ranking for next year. A ranking to effectively know if what is planned happens, if the school has an organization. Because what is happening this year? Until now, it seems to me they had a tranquility with the agendas. [...] From the moment the Education Office came in, the Office publicized it. So we had several appointments. I don't have anywhere to put more appointments. So it grew a lot, [...] and implied in differentiated logistical questions. [...] And we're coming up with this ranking system, because then, [...] the schools who are really good, incorporate the project. We will offer more appointments. So we can develop more differentiated projects. We'll offer in one day the bus from our budget, if we have the conditions. [...] There's lots of demand" So I can afford to choose. But today I can say: "school, I don't have a project to offer you, because I have several schools that have a strong project, and for them I'm offering more appointments, while for you I'll only offer one. (Interviewee 4, 2019)

> *Todo mundo que se inscreve, tem preferência. Se inscreveu primeiro, vem. A gente está pensando num rankeamento, foi até a ideia do professor, um rankeamento para o ano que vem. Um rankeamento [para saber] se efetivamente o que se planeja acontece, se a escola tem uma organização [...]. Porque o que que está acontecendo esse ano? Até então, me parece que eles tinham uma certa tranquilidade com as agendas. [...] No momento que a Secretaria veio, a Secretaria divulgou. Então nós tivemos [...] vários agendamentos. Eu não tenho*

onde colocar agendamento mais. Então isso cresceu muito [...] e isso implicou em questões de logística diferenciadas. [...] E a gente está bolando esse sistema de rankeamento porque aí, [...] as escolas que são realmente [boas] incorporaram o projeto. A gente vai oferecer mais agendamentos. Inclusive na perspectiva de fazer projetos diferenciados. Vamos oferecer um dia em que a gente mesmo fornece o ônibus, se a gente tiver condições. [...] Tem demanda à vontade! Então eu posso me dar ao luxo de selecionar. Mas hoje posso dizer: "escola, nao tenho projeto para oferecer porque tenho cinco, seis escolas que tem um trabalho forte e para elas eu estou oferecendo mais agendas, e para você eu vou te oferecer uma.
(Interviewee 4, 2019)

They've reached a point of maturity and bargain power, where they get to prioritize a few schools to develop more elaborate projects with. They intend to create a ranking of schools based on their commitment to Environmental Education, so they can develop more projects together, after the school visits the Park. This represents how the Center is increasing its respectability among the field, and can now choose their own selection criteria, instead of adapting to fit everyone's needs. It's an example of how, sometimes, slightly increasing the level of rigidity can be beneficial to an institution's public relations and brand.

4.3.4.   The Individual

Even though we're talking about big, respectable institutions, let's not forget that they are made up by individuals. The Park itself, and the EEN's projects, were once variations conceived by individuals in the past, and are carried out by individuals and teams in the present as well. There are several actors who take up the "individual" role in the Systems Model (CSIKSZENTMIHALYI, 1988), depending on the project developed and point of view.

The interviewees who make up the EEN's staff are the most immediate individuals that come to mind when it addressing the Systemic Creative Process (CSIKSZENTMIHALYI, 1988) that happens inside the Center. Interviewee 3, who is the director, is responsible for most of the variations introduced, adapting previous projects, or creating new ones from scratch. They coordinate among the team each one's responsibilities during structured meetings, but the process is very fluid, also taking on tasks as they show up. Some variations concluded by the field (like the partnership of the Environmental Military Police Force, and Education Office) were also initially introduced by individuals from the EEN.

It was interesting to notice during the interviews that the target audience of most projects developed by the EEN weren't the students who came to visit the Park - but the

teachers. They are the individuals who have the spotlight on the Teacher Formation Course. It is understood that they are individuals powerful enough to create variations that can be incorporated in a school's domain - so Environmental Education becomes part of the school's culture. During the Formation Course, they receive all the resources necessary to create their own class: this independence is vital for understanding their importance in creating long-term projects about sustainability. Interviewee 3 even reinforces the importance of the teachers to become the protagonists, and not observers, otherwise it won't continue in the school after they're gone.

So when it comes to this project, the teachers are the individuals who introduce the variations in three moments: first, by taking the initiative to enroll their school to participate in the Visits, or Reading in the Park project; second, by creating the class' script they wish to execute during the visit; and third by creating long-term projects of their own, when they return to the school.

> This is an integrated work: the teacher only comes here and delivers their students to us in this initial moment. [...] We prepare them for the elaboration of a class plan for this guided visit. [...] We understand that it's not up to us to do that for the teacher. Especially considering it's an integrated job, and we prepared the teacher for this. They are here today, and we have the hope, desire and need that this project continues at the school So it's not a punctual work. [...] Our idea is to sensitize the teachers since their formation, sensitize the students so that the environmental education work continues in fact in the school. And that's where the debate about sustainability will happen. (Interviewee 2, 2019)

> *Esse é um trabalho integrado: o professor só chega aqui e nos entrega os seus estudantes nesse primeiro momento. [...] Nós preparamos eles também para a elaboração de um plano de aula para essa visita guiada. [...] Nós entendemos que não cabe a nós fazer isso pelo professor. Até mesmo porque é um trabalho integrado, e nós preparamos o professor para isso. Ele está aqui hoje, e nós temos a esperança, e o desejo e a necessidade de que esse trabalho continue na escola. Então não é um trabalho estanque. [...] A nossa ideia é sensibilizar os professores desde a sua formação, sensibilizar os estudantes para que o trabalho de educação ambiental aconteça de fato na escola. E aí é onde vai acontecer o debate sobre sustentabilidade. (Interviewee 2, 2019)*

> So you have continuity, because education is a process. And of course: we don't have the conditions to go to every school. That's why we focus on the multiplier, who is the teacher, the educator. So they'll have a larger amount of students to work with. So we focus a lot on the teacher, give resources to them, so they'll do the visit and also try to develop an activity in the school. (Interviewee 1, 2019)

> *Pra você ter uma continuidade, porque educação é processo. E lógico: a gente não tem condição de ir em todas as escolas. Então por isso a gente*

foca no multiplicador, que é o professor, o educador. Então ele vai ter uma quantidade muito maior de alunos pra trabalhar. Então a gente foca muito no professor, dê subsídio pra o professor, pra que ele faça visita e também tente desenvolver uma atividade na escola. (Interviewee 1, 2019)

4.4. Development in the Brasília National Park

This section examines how Development (FURTADO, 1978) is inserted in the EEN's context, and can be seen in their different activities. It is divided between the three pillars that compose its theory: Development, the accumulation process and the insufficiency of the accumulation process. The analysis will be made using excerpts from all data collected.

4.4.1. Development

The Park's creation in the past, and also its activities in the present, are a clear example of the development process' lenses: of having enough surplus of resources, that a process of liberation of energy is made possible (FURTADO, 1978). So let's go back in time, to 1961, when the Park was founded by Ezechias Heringer, to examine this phenomenon.

> He came here with the objective of setting up, exploring and knowing a bit more about the *Cerrado,* to do botanical researches about it. And when he noticed the the potential of this area, he made an exposition of reasons for the creation of a park. Also to protect the water springs, who would become the Santa Maria dam, that later supplies the Federal District. (Interviewee 1, 2019)
>
> *Ele veio para cá com a finalidade de montar, de explorar e conhecer um pouco mais sobre o Cerrado, fazer pesquisas botânicas sobre o Cerrado né. E quando ele percebeu o potencial daqui, ele fez uma exposição de motivos para a criação de um parque né. Inclusive para proteger as nascentes né, das águas que vão virar a represa de Santa Maria que depois abastece no Distrito Federal.* - (Interviewee 1, 2019)

As described by interviewee 1, and 2, after being in touch with the wonderful and majestic nature that was present in this area, (and also after receiving support from the institutions behind the construction of the new Capital), Ezechias Heringer presented the Federal Government with the project to create the Park. Heringer had enough surplus of

resources[20] to propose a more complex usage for this area. He saw the potential in the Cerrado area that constitutes the Park today, and it was the ultimate challenge to inventiveness (FURTADO, 1978) This process of liberation of energy was composed of a generative force (FURTADO, 1978), that made possible the creation of the park as we know it; and also the impulse of creating new values (FURTADO, 1978), since he embraced conservation and environmental education when nobody conceived them as valuable principles in society. It was realized by someone who was ahead of their time, and after the accumulation process, had what it takes to bring forth development in society.

Development can also be seen in the present, after more than 50 years of the Park's creation, as a byproduct of the projects executed in the Center - and the impact they have on the participants is evident. From the Calendar of Actions, and interviews, we can see that the EEN realizes impactful projects all over the year: three editions of the Reading in the Park project; six editions of the Environmental Illicits Course; and at least four editions of the Teacher Formation Course, receiving from 7 thousand, to 15 thousand students per year only on that project, and over a thousand teachers. The magnitude of their reach is huge - especially now that the team grew - as well as the effect they have on the actors involved. Those projects represent both a generative force of new surplus, and also of an impulse to create new values.

> It's a lot of people. But obviously, it's hard to measure the result of this, since it's not short-term, it's a result of something that you instill in the kids' minds. Actually, you don't instill it, you make them reason about the environmental issues, and we imagine that all of a sudden they can have different attitudes because of it. (Interviewee 1, 2019)

> *Então é muita gente. Mas é lógico, é difícil você mensurar resultado disso, porque não é a curto prazo, é um resultado daquilo que assim, se incute na cabeça da molecada. Aliás, se incute não, faz com que elas tentem raciocinar a respeito das questões ambientais, e a gente imagina que de repente elas possam ter atitudes diferentes a partir disso.* (Interviewee 1, 2019)

In the Environmental Illicits Course, for instance, interviewee 5 proves the effectiveness of the message they give to the criminal offenders, with qualitative and quantitative evidences. He begins describing the change those participants experience

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[20] The construction of Brasília was an effervescent period economically for our country, and lots of internal and external funds were injected to make Brasília happen.

during the Course. Their posture in the beginning is very negative, they're angry to be there, and not understanding the criminal nature of their offenses (mostly keep wild birds in cages as domestic pets, for example). But the end of the course, after the environmental education message is delivered, they even genuinely cry, and regret their actions. They leave the Center really aware of the destructiveness of their illicit actions, and understanding the entire criminal chain that exists for those birds to reach their home (considering that for 1 bird to be sold in the black market, more than 100 of the same species died in the process). Interviewee 5 points out another key-result that measures the effectiveness of this course: from all the editions that were ministered, they never had a double occurrence. None of the participants were arrested again for environmental crimes, reaffirming the new value that was incorporated by them, after this Course.

From the video footages taken during the two years of the A3M Project, and through the interviews of students made in that period, the impact the visits had on them can be illustrated. Let's consider that the visits to the Park during the A3M project were an energy releasing process, that generated development (FURTADO, 1978). The impulse to create new values, a pillar of Development (FURTADO, 1978), can be perceived in their discourse, considering they are users of the variations brought by the Teacher Formation Course. Likewise, the pillar of the generative force of new surpluses (FURTADO, 1978) can also be seen in the student's discourse, after they experienced the visits to the Park.

I always considered myself a very urban person, I always had a very big aversion to nature, and green things. Not that I didn't like it, but I didn't have much contact with all of this. So this [visit] came as an opportunity to get to know this wonder that is being in touch with nature, plants and this wonderful National Park - that I didn't know about, nor had I came here. But it's such part of my life now, that I already came here even without the classes, brought my family… It was really positive. (Student B, video 2019.1 Transcripts)

Eu me considerava uma pessoa muito urbana, tive sempre uma aversão muito grande à natureza, às coisas verdes. Não que eu não gostasse, mas não tinha contato com tudo isso. Então essa [visita] veio como uma oportunidade de conhecer essa maravilha que é a gente estar em contato com a natureza, as plantas, e esse Parque Nacional maravilhoso - que eu não tinha conhecimento, nem vindo aqui. Mas faz tão parte da minha vida agora, que eu já vim aqui, mesmo sem ter aula, já trouxe minha família... Realmente foi muito positivo. (Student B, video 2019.1 Transcripts)

I think that the main positive aspect I see from this [project], is to be able to leave the University being the first Administrators to value the space of creativity in any person of the company. And I think that our character inside companies will be very focused on that, to open the space needed for people

to be who they are, to take references from unusual places, and really value creativity, value the place it should have in the company. (Student A, video 2019.1 Transcripts)

Acho que o principal que vejo desse [projeto] é poder sair da faculdade, acredito que, sendo os primeiros administradores a darem valor ao espaço da criatividade pra qualquer pessoa da empresa. E acho que a nossa índole dentro das empresas vai ser bem focado nisso, pra poder abrir o espaço pras pessoas serem o que são, tirarem referências de lugares que não são tão comuns, e realmente dar o valor pra criatividade, que ela deveria ter na empresa. (Student A, video 2019.1 Transcripts)

When asked, during the group discussion in the night-time visit of the Park, about the impact of the visits as stimuli to reflect about sustainability and creativity, the students also affirmed the importance of an economical perspective, when addressing creativity - something that dialogues directly to Furtado's (1978) Development theory.

If we want anyone from this world (in the capitalist logic of companies) to get better, we mandatorily need this king of thinking, where people learn how to build companies or how to work being an employee. [...] To come here, and get in touch with nature, from where we came from, how we should preserve and how to take the creativity we learned here to the companies is more than essential - more than a pre-requisite so we can change the world, since to change the world means changing its center (that today means the companies and capitalism). If we don't change the market, we can't change anything. If we're learning how to take these more sustainable ideas inside companies, we'll have a new horizon. Now we can think about possibilities for a better world. (Student X, Group discussions during night-time visit to the Park, 2019)

Se quisermos que alguém neste mundo (na lógica capitalista das empresas) [...] melhore, a gente precisa obrigatoriamente deste tipo de pensamento em que as pessoas aprendam como formar empresas ou trabalhar sendo empregado. [...] Vir para cá e ter contato com o natural, de onde viemos, como devemos preservar e como levar a criatividade que trabalhamos aqui para dentro das empresas é mais do que essencial - mais do que pré requisito para termos uma mudança no mundo (para mudar o centro dele, que no momento são as empresas e o capitalismo). Sem mudar o mercado, não conseguiremos mudar nada. Se estamos aprendendo a levar essas ideias mais sustentáveis para dentro das empresas, conseguiremos ter um novo horizonte. Agora sim conseguimos pensar em possibilidades para um mundo um pouco melhor. (Student X, Group discussions during night-time visit to the Park, 2019)

4.4.2. Accumulation Process

Before we address how the accumulation process (FURTADO, 1978) happens within the different levels of the case study, we must clarify what does the word "resources" mean in the EEN context. Resources are delicate aspects of the EEN's structure as an institution. They're under ICMBio's jurisdiction, but apart from the salaries of the servers, they receive no direct financial budget to realize their projects. Resources are mostly seen as the actual products or services they need, as well as intangible ones like their workforce, and time. There's no financial exchange, all of the resources they receive come in the form of the actual Services needed or the actual products. As stated by interviewee 1 and 3:

> We don't see the colour of this money. [...] So a few unexpected partnerships are made, something that they had interest in and end up collaborating as well. A lot of that comes from these opportunities. [...] It comes up from this opportunity, when someone shows up with resources, whether they are of knowledge, [or] time. (Interviewee 1, 2019)

> *A gente não vê a cor desse dinheiro. [...] Então se faz algumas parcerias inesperadas, algo que eles tinham interesse e acabaram colaborando também. Muito disso surge das oportunidades. [...] Surge dessa oportunidade, quando alguma pessoa aparece com recurso; seja de conhecimento, [ou] tempo. (Interviewee 1, 2019)*

> And everyday, [they] donate a bit here, a bit there, donate a water filter, the gas, watermelons; there´s no size. We just don't take money. (Interviewee 3, 2019)

> *E todo dia doa um tiquinho daqui, um tiquinho dali, um filtro, dá o gás, a melancia; não tem tamanho. A gente só não pega dinheiro. (Interviewee 3, 2019)*

As described by interviewee 3, they plan all of the activities developed in the Center one year ahead, so they have enough time to ask for resources needed. The 2020 Calendar of Actions, also part of the documental research, indeed already establishes all of the Teacher Formation Courses, Environmental Illicits Course, Reading in the Park, and also other important events they're involved in, like the *Cerrado* Week, Water Week, Education for Life Week, and the Park's anniversary. They try to match each project, or school's need, to specific partners in their field. These partners who sponsor them, include a variety of actors, from NGO's and companies, to the Federal Prosecution Service or volunteers.

So when we regard the accumulation process (FURTADO, 1978) as being potential energy - derived from social life, which in turn produces a surplus - this dynamic is particularly real in this case study. All of the surpluses of resources that they need (who in

turn challenge their inventiveness) come from their partners, and actors within the field surrounding them. It is literally from the social life that the resources are accumulated (FURTADO, 1978).

Of course, this new potential energy from the "social life" that grew with the new members of the EEN, wouldn't happen without some challenges, like described by Interviewee 1:

> We still have disagreements. Because we're still structuring everyone's role, what we have to do, how we're molding this whole structure. Previously, it was only me and [Interviewee 3], and all of a sudden we have two other teachers, and from three to four educators from the Environmental Police. But it surely gives us more room to work. (Interviewee 1, 2019)

> *A gente até agora ainda bate cabeça. Porque a gente ainda tá estruturando o papel de cada um, o que temos que fazer, como vamos moldar essa estrutura toda. Antes éramos só eu e o [Interviewee 3], e de repente a gente tem mais os dois professores, e entre três e quatro educadores da Polícia Ambiental. [...] Mas já é mais fôlego. (Interviewee 1, 2019)*

This accumulation process (FURTADO, 1978) is also applicable when it comes to intangible surplus of resources. When the new EEN members became part of the team in 2019, the equation of their combined efforts resulted in a new surplus of time and workforce, which in turn made new projects and challenges possible.

The accumulation process (FURTADO, 1978) can also be examined in a broader level, assessing how it shapes our relation to society's resources as a whole. How the use of our surpluses is indeed a challenge to inventiveness - but most of the time, we channel this inventiveness to come up with other surpluses, to accumulate more resources. We don't take into consideration the cost this dynamic has to our planet - a theme that introduces the insufficiency of accumulation process, that will be more thoroughly examined in the following section.

> What we do working, or building our own companies will leave a footprint. The decisions that workers do have a huge importance. Think about the Mining companies and dams. There's an inlaid cost that nobody put a value on; the cost in on nature and who ends up paying is society. How much does water from a river cost? The pricing is around the plumbing and water treatment, but we don't pay for the water. When we pollute water, all of society pays that cost. It's not easy, it's a huge amount of knowledge. (Interviewee 1,Group

discussions during night-time visit to the Park, 2019)

Aquilo que fazemos trabalhando ou criando as próprias empresas, tudo que fazemos "vai deixar uma pegada". As decisões que fazem [os trabalhadores] têm importâncias imensas. Pensem nas mineradoras e barragens. Existe um custo embutido que ninguém colocou valor; o custo é da natureza e quem acaba pagando é a sociedade. Quanto custa a água de um rio? A precificação é em torno do encanamento e tratamento da água, mas não pagamos a água. Quando se polui a água toda a sociedade paga o custo. Não é fácil, é um mundo gigante de conhecimento. (Interviewee 1,Group discussions during night-time visit to the Park, 2019)

I'm from Forestry Engineering, and I really appreciated the perspective of empathy, but I´d like to bring a counterpoint. Without the technical knowledge, things get harder. Thinking only about decreasing [production], only on what would be ideal, there's not enough production, we wouldn't be dealing with reality. So empathy towards people with technical knowledge can bring so much more. Afterall, the changes we need are urgent. We can't change without allies from inside the companies, and developing a technical perspective, even though it's in a smaller volume. The development of technologies is important to obtain the data needed for future applications. The variables are so many that we need to focus on technologies to understand what is going on. I thought this more human look, with a more natural, and practical way, was very interesting. (*Student Y Group discussions during night-time visit to the Park, 2019*)

Sou da Engenharia Florestal e achei muito legal a perspectiva da empatia, mas queria trazer um contraponto. Sem conhecimento técnico fica difícil. Pensando apenas em decrescimento [da produção], apenas no que seria ideal, não há produção suficiente, não estaríamos lidando com a realidade. Então o lado da empatia com as pessoas que tem o conhecimento técnico pode trazer muito mais. Afinal as mudanças são para ontem. Não podemos então mudar sem aliados que estão fazendo dentro das empresas e desenvolvendo a perspectiva técnica, por mais que seja em volume pequeno. O desenvolvimento de tecnologias é importante para obtermos os dados para aplicação futura. As variáveis são tantas que temos que ter esse foco nas tecnologias para compreendermos melhor o que está acontecendo. Achei muito interessante esse olhar mais humano mas de forma prática e natural. (Student Y Group discussions during night-time visit to the Park, 2019)

The importance of protected areas, including the Brasília National Park, demonstrates that knowledge, along with conservation, can lead to important benefits to Brazilian society by highlighting the importance these areas have in ensuring the country's capacity to produce wealth due to ecosystem services provided and strategic resources protected, such as water. In addition, natural areas area attractive for tourism, which is a considerable part of the Brazilian economy. (Bráulio Dias, Forest Biodiversity Secretary at the Ministry of the Environment, 2012)

4.4.3.   Insufficiency of Accumulation Process

One of the objectives of this thesis is to assess the interviewee's opinion regarding the insufficiency of the accumulation process (FURTADO, 1978), to prove its presence in our society empirically. It turns out, that process is so clear for the interviewees, that when asked about their opinion regarding this degradation process, that they even refer - not knowingly - to terms cited by Furtado (1978) in his theory.

Interviewee 1 for example, began describing the changes in the economy and human interaction that happened with the Industrial Revolution. He even describes the processes of diffusion and innovation, and how capitalism made life easier, but also generated bigger problems. His description is so rich, and in accordance to Furtado (1978), that it must be cited in full:

> We've reached this point because we started consuming without noticing it could be predatory. Capitalism exists for a long time now. The idea of having something common and changing between other things, was trading. This model was still peaceful. When the Industrial REvolution came, I think us and capitalism itself started having a predatory role. Because you started to have ways of producing goods way faster than before. And the production and degradation process accelerated; starting from the need of more surpluses, that come from natural resources, that brought an even bigger degradation. This also favoured improvements in people's lifestyle and health, so they gathered around cities even more.So the human lifestyle began changing entirely, while still being a natural being. [...] In this moment we have a rupture that started accelerating. And starting from this idea from the Industrial Revolution, many people began to notice that "if I produce goods that are durable, for whom am I going to sell to later?". And right at that moment marketing arises. So these two forces: of realizing i have to make low-quality things; and realizing that people can´t stop buying. These two things were the great forces that make our impact exponential today. So today, we make anything related to consumption based on the value you'll pay, but not on what it's worth effectively. [...] This degradation cost doesn't enter in the calculations. And this cost is from all of society! Not just human society, but planetary society, and all the beings that are harmed. *(Interviewee 1, 2019)*

> *Chegamos nesse ponto porque chegamos na questão do consumo sem perceber que esse consumo poderia ser predatório. O capitalismo já existe há muito tempo. A ideia de você ter uma coisa comum para trocar entre as outras coisas [era] o escambo. [...] Esse modelo ainda estava tranquilo. Quando começou a Revolução Industrial, acho que a gente, e o capitalismo [...] começamos a desenvolver um papel predador. Porque você começou a ter formas de produzir bens mais rápido de uma forma que nunca tinha sido feita antes. [...] E se acelerou o processo de produção e degradação;*

> *[a partir] de mais necessidade de insumos, que vêm dos recursos naturais, [que trouxe] uma degradação maior ainda. Isso também propiciou melhorias no modo de vida e saúde das pessoas, [então] se aglutinaram ainda mais nas cidades. Então começou a mudar totalmente o modo de vida do ser humano enquanto ainda ente natural. [...] Aí nesse momento a gente tem uma ruptura que começou acelerar. E aí, partindo dessa ideia da Revolução Industrial, muita gente começou a perceber que "se eu começar a fazer bens muito duráveis, para quem eu vou vender depois?". E justamente nesse mesmo momento, começa a surgir o marketing. Então essas duas forças: de perceber que eu tenho que fazer coisas "porcaria"; [e perceber que] as pessoas não podem deixar de comprar. Essas duas coisas foram a grande força, que hoje [faz] o nosso impacto ser exponencial. Então hoje, a gente faz qualquer coisa de consumo, com base no valor daquilo que você vai pagar, mas não daquilo que efetivamente vale. [...] Esse custo [de degradação] não entra na conta. E esse custo, ele é da sociedade toda! Não só da sociedade humana, mas da sociedade planetária, de todos os seres que se prejudicam. (Interviewee 1, 2019)*

One of Furtado's (1978) main criticisms around this theme, is how creativity lost its purity and was instead transformed to fit the needs of industrial production. Interviewee 2 mentions how the concept of sustainability is also being absorbed by capitalism, and turned into a consumption logic as well. He also points out how capitalism shows us that the answer to all of our problems is consumption, when in reality, this exaggerated consumption is what is causing our problems. This also relates directly to the negative excess of accumulation, that generates bigger problems (FURTADO, 1978).

> And is the Park a sustainable unit? Yes. But it is very hard to notice that here. Today there are some debates about what is that sustainability. There are understandings that the capital already absorbed the concept of sustainability, and put that concept to its service. [..] Capitalism told us that the solution to our problems is consumption, and our struggle is to show the exact opposite: consumption is what leads us to the problems. (Interviewee 2, 2019)

> *E o Parque é uma unidade que é sustentável? É. Mas é muito difícil perceber isso aqui. Até porque hoje já existem alguns debates sobre o que é essa sustentabilidade. Há entendimentos de que o capital já absorveu o conceito de sustentabilidade, e colocou esse conceito a seu serviço. [...] O capitalismo conseguiu nos dizer que a solução dos nossos problemas é o consumo, e a nossa luta é mostrar que ao contrário: O consumo é que nos leva aos problemas. (Interviewee 2, 2019)*

The A3M Project's coordinator also recognized the insufficiency of accumulation process, while speaking to UnB students, during one of the Park's visits. Her discourse is very similar to Furtado's (1978) theory, when addressing creativity as being inserted in a

capitalist approach, where we'll have to use it for our own survival, due to the insufficiency of accumulation process. This is another evidence of how important the Teacher Formation Course is, in building a critical ideology through teachers, so they can in turn transmit them to their respective students.

> And to think that in our lifetimes, we'll still see the urgency of working to rebuild. So we can't talk about "minimizing the impact, and slowing down the destruction process" anymore. No. We'll have to put our creativity, our brain to work, to rescue, to survive. Remember creativity as a process of human survival? We'll have to work for that. (A3M Project Coordinator, video 2019.1 Transcripts, 2019)

> *E pensar que na nossa vida a gente ainda vai ver a urgência de trabalhar para reconstruir. Então a gente já não pode mais falar de "minimizar o impacto, a gente tem que desacelerar o processo de destruição". Não. A gente vai ter que colocar nossa criatividade, nosso cérebro pra funcionar, pra resgatar, pra poder sobreviver. Lembram da criatividade como processo de sobrevivência humana? A gente vai ter que trabalhar para isso. (A3M Project Coordinator, video 2019.1 Transcripts, 2019)*

Going back to the idea that there are different domains depending on the level of analysis that we're looking into, the notion of insufficiency of accumulation process (FURTADO, 1978) varies depending on who are we referring to. For all of the EEN's staff members, who have been working with Environmental Education for most of their careers, it is extremely clear how we've reached a point of total degradation of the environment. However (even though they are extremely pessimistic about our planet's health), from the interviews, it was understood that this is not accepted entirely by everyone in the field.

From the data collected, it was possible to review how external actors, like the students, and Park's visitors regard this insufficiency of accumulation process. As stated by interviewee 1, during the students Visits, it is possible to notice whether the school is concerned by this exacerbated insufficiency of accumulation, or not. Depending on the level of the discussions brought by the students, it is noticeable whether they understand how dangerous this process is.

> Now, when the teachers work with the kids before visiting, then it's amazing. [...] Then the rainfall of questions begin, something that we find fantastic. We can notice that they're interested. This is our thermometer: the amaount of interest from the students that come here. (Interviewee 1, 2019)

> Agora, quando os professores trabalham essa molecada antes de vir para cá, nossa, aí é um show. [...] Então começa aquela chuva de perguntas que para

gente é fantástico. A gente percebe que eles estão interessados. O nosso termômetro é esse: o tamanho do interesse dos alunos que vêm para cá. (Interviewee 1, 2019)

Unfortunately it is not clear for everyone, and if the schools, (who have some relation to Environmental Education) don't demonstrate enough alarm with this issue, it is not expected that the Park's visitors also understand this menacing process. On the other hand, the interviewees constantly affirm that this process is real and is degrading our environment to a point of no return. Their constant contact with the destruction of nature and environmental crimes made them very pessimistic.

Thankfully, the importance of the role they play, when addressing this issue is very clear amongst the interviewees. They all see education, and mainly the Teacher Formation Course, as their tool to fight against this dangerous process we've started as a society. The role of environmental education is vital in the reversal of insufficiency of accumulation process. It was often described during interviews as something mandatory for the future of humanity, and the survival of the DF's population, and how it was a matter of trying to reach the greater good.

This cause of environmental education, as a strategic point for humankind's survival. (Interviewee 2, 2019)

Essa bandeira da Educação Ambiental, como questão estratégica para a sobrevivência da humanidade. (Interviewee 2, 2019)

The whole point is about education. Starting from the moment you change your own mind. (Interviewee 5, 2019)

A questão toda é a educação. A partir do momento que você muda sua cabeça. (Interviewee 5, 2019)

When asked about their opinion on whether the new generation students visited the center were more conscience about the environment, the interviewees disagreed in some points. interviewee 1 had no faith that all of the buzz that sustainability has been making in the media was actually changing the students' perspective.

In some situations, when we noticed the teacher has worked with then, then we can evaluate what you're saying, that is the media's work, of what they're exposed to. Sometimes we ask certain questions and the students have some familiarity. But it's not something developed. We notice it's not common sense yet, it's not something their all involved in. (Interviewee 1, 2019)

Em algumas situações, quando a gente percebe que o professor trabalhou, aí conseguimos avaliar isso que você tá falando, que é o trabalho da mídia, que aparece para eles. Às vezes a gente faz determinadas perguntas e alguns falam: "Ah, eu já ouvi falar sobre isso". Mas não é uma coisa trabalhada. A gente vê que não é senso comum ainda, não é uma coisa que todos eles estão embutidos naquilo. (Interviewee 1, 2019)

Although it wasn't a consensus opinion, it is important to point out that interviewee 2 mentioned his faith on the new generations, regarding the sustainability discourse. We can conclude that although sustainability is not fully present in society's domain, there is a generational gap that must be taken into account that definitely interferes with how individuals have access to and perceive this theme.

I believe so. I think that new generations are more sensitive to this cause. Considering that there are programs like this, like the National Park. If we examine my generation as students (not just in high school, but university as well), indeed I didn't have this opportunity that the students now have. (Interviewee 2, 2019)

Eu acredito que sim. Acredito que as novas gerações já estão mais sensíveis a essa causa. Até mesmo porque existem programas como esse, como o Parque Nacional. Se eu pegar a minha geração enquanto estudante (não só no ensino básico, mas até mesmo no ensino superior) de fato não tive essa oportunidade que hoje os estudantes têm. (Interviewee 2, 2019)

However, from the interviews and data collected, it is clear that the most powerful tool that we have to change people's perspectives and integrate sustainability in the domain is actually Environmental Education. This phenomenon reaffirms the power that teachers have in this challenge.

So, indeed I believe that there's this previous work that the teachers develop. I can't affirm how it happens before the Teacher Formation Course, but after it, the teachers are really able to sensitize. And we notice that the students arrive here with basic notions and informations. They provoke us, we provoke them, so there's a previous awareness. And we believe they leave the visit even more aware. (Interviewee 2, 2019)

Então de fato acredito que também tem esse trabalho prévio, que os professores desenvolvem. Não posso dizer como isso se dá antes da formação, mas depois da formação realmente os professores conseguem sensibilizar. E a gente percebe que os estudantes chegam aqui com informações básicas, noções básicas. Eles nos provocam, nós provocamos eles, então há sim uma sensibilização prévia. E acreditamos que eles saem daqui mais sensibilizados. (Interviewee 2, 2019)

4.5.   Building Bridges between Theories

The case of the Park's creation by Ezechias Heringer, can fit both in Furtado's (1978) Development theory, and also Csikszentmihalyi's (1988) Systems Model. It can be argued that its immediate creation was fruit of a Development process, followed by a Systemic Creative Process. Or the other way around, being first a fruit of the Systems Model of Creativity, with new creations brought by Development. In this section we'll address the touchpoints between the two theories, and how both can be seen on multiple examples of the case study, like the one mentioned above.

Let's examine the first reflection, where the Park's creation can be analyzed as an example of the Development process being built by both of *generative force* and an *impulse to create new values* (FURTADO, 1978). The Development process (FURTADO, 1978) developed by Heringer propelled the creation of new inventions, and values related to Development. The *potential energy* that was gathered due to the new institutions that were built in the Park, generated a *surplus of resources* that simultaneously constructed *social life* and made the creation of those new inventions possible.

And after its creation, the Systems Creative Process (CSIKSZENTMIHALYI, 1988) can also be seen through the execution of all of the following projects that were made to build its institutional structures and overall projects.

Likewise, the opposite movement can also be noted. It could be argued that the Park's creation is actually more relatable to the System's Model (CSIKSZENTMIHALYI, 1988), considering that it was made possible by a *variation* brought in by an *individual* who was validated by the institutions of the *field* surrounding him. And those institutions were composed of influential *Gatekeepers* who approved the construction of the Park, and this variation was then incorporated in the *domain,* and served as a reference point for the future generations of people who made the park what we know today.

And it was because of this first variation that the potential energy for the accumulation process was formed, therefore initiating the Development (FURTADO, 1988) process, which in turn propelled new values and became a generative force.

The point of exploring the two theoretical perspective is not to determine who came first in the Park's creation: if it was the fruit of Development (FURTADO, 1978) or a fruit of the Systems Model (CSIKSZENTMIHALYI, 1988). In either way, it is undeniable that their

perspectives complement each other, and elements of both can be detected in the Park's history, reaffirming once more how theory and real life can actually coexist.

Another key idea brought by the bridge between the Systems Model (CSIKSZENTMIHALYI, 1988) and Development (FURTADO, 1978) is how environmental education, and the Development process behind it, is able to incorporate new values in the domain, to fight against the insufficiency of accumulation. Besides, the Park is the perfect background for this movement to happen. It is mentioned multiple times by the UnB students who visited the Park, of how the nature in it and the Center's facilities end up providing learning opportunities that they wouldn't be able to experience in a traditional educational space. This reaffirms the importance of choosing the National Park and its ecosystem as the case study, for it embraces practically every aspect of both theories chosen.

> "It is, therefore, important to highlight conservation of a biome as important not only from the economical point o view, but also cultural (since several local communities and traditional populations live there, in addition to dozens of indigenous peoples), and environmental, since it is a region with great potential for the production of commodities and relevant environmental goods that belong to the entire population. Brazilian society and its governments have, therefore, an essential role in defining the priorities in the political agendas so as to promote the valuing of the frat economic potential found in the Cerrado in a more sustainable fashion, especially its biodiversity and water resources. With this commitment in mind we will gave better conditions to defend the Cerrado and preserve it for future and present generations." - Bráulio Dias - Forest Biodiversity Secretary at the Ministry of the Environment (2012)

There are a lot of volunteers, and educators involved with informal learning institutions, that participate in the Teacher Formation Course. One of them is Educator X, participated in the Course, and now brings children from *Estrutural*[21] to visit the Park. During the interview with Interviewee 1, he was present in the Center, and ended up joining the conversation briefly. He reaffirmed the importance of Environmental Education, and how the Park is an amazing space to change people's mentality.

> The boys are the National Park's neighbours, but they don't know about its existence. None of their teachers explained to them that around *Estrutural* there's the National Park, that is one of the world's biggest urban parks. And then what happens? They use this vegetation to hunt, they burn it, to make room for some agriculture… They don't have this love, nor understanding about the National Park. They see the information that they get from the TV, that says

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[21] One of Brasília's most violent neighbourhoods, that housed the biggest landfill in Latin America

Estrutural is Brasília's most violent place. That they are exactly this, they're violent and want to be violent. But when they come to the National Park, and are immersed with nature, the boys arrive here understanding that they are no longer residents of Brasília's most violent city - they are Brasília National Park's neighbours. (Educator X, during interview with Interviewee 1, 2019)

Os meninos eles são vizinhos do Parque Nacional, só que eles não sabem da existência do Parque Nacional. Nenhuma professora deles de ciências, de nada, explicou que em volta da Estrutural tem o Parque Nacional, que é um dos maiores parques urbanos do mundo. E aí o que acontece? Eles usam essa mata para queimar, criar uma rocinha, para caçar... Então eles não têm esse amor e entendimento do Parque Nacional, entendeu? [...] Eles vão ver a informação que eles recebem da televisão, que fala que a Estrutural é o lugar mais violento de Brasília. Eles são isso, são violentos e querem ser violentos. Mas aí quando eles vêm até o Parque Nacional, e toma esse banho de natureza, os moleque chegam aqui com a cabeça entendendo que eles não são mais moradores da cidade mais violenta de Brasília - e sim são vizinhos do Parque Nacional de Brasília. (Educator X, during interview with Interviewee 1, 2019)

The creative variation of the A3M Project, was to provide UnB students with a different class style, in a space that spoke directly to the environmental concepts that were being taught. This movement within the Systems Model (CSIKSZENTMIHALYI, 1988) is also an example of creativity being used in its purest form, like Furtado (1978) intended, before the industrial capital put it under production's service. The fact that it was acknowledged directly by the users of this variation (the students) only reaffirms the empirical veracity behind the bridge between the two theories.

Here is definitely better in terms of environment, and way more appropriate to develop ideology, (and also to have a more natural construction of it), than being stuck inside a classroom. (Student 1, 2018.1 video transcripts, 2018)

Com certeza, aqui é muito melhor em termos de ambiente, muito mais propício pra desenvolver tanto a ideologia, e ter uma construção mais natural, do que ficar preso dentro de uma sala de aula. (Student 1, 2018.1 video transcripts, 2018)

Inside a classroom, you don't have the exact notion of what is this environment that is so full of life - the *Cerrado.* We've talked about scents, texture, when we were incited to look at the leafs and compare them… You can't do that inside a classroom. So it's something completely different, your perception of the environment, - and in our case, the class' object, that is the *Cerrado* - changes

completely. (Student 4, 2018.1 video transcripts, 2018)

Dentro de uma sala de aula, você não tem tanta noção do que que é esse ambiente que é tão vivo, que é o Cerrado. A gente falou de cheiro, de textura, quando a gente foi instigado a olhar pras folhas e comparar... Isso não tem como fazer dentro de uma sala de aula. Então é outra coisa, é completamente diferente, sua percepção do ambiente, e no caso da gente, sobre o objeto da aula que é o Cerrado, ela muda completamente. (Student 4, 2018.1 video transcripts, 2018)

I thought this class was really good and dynamic, because we were able to do many things we couldn't do in a classroom space. This space here ends up creating several opportunities of learning. (Student 3, 2018.1 video transcripts, 2018)

Eu achei muito bom e dinâmico essa aula, porque a gente conseguiu fazer várias coisas que a gente não conseguiria num espaço de aula. Esse espaço aqui ele acaba criando várias possibilidades de aprendizagem. (Student 3, 2018.1 video transcripts, 2018)

4.6. Exploratory Findings

As mentioned previously, the data collected in the field researched turned out to be so rich, new analytical units had to be added to the analysis model, to portray how complex the case study proved to be. In this section, we'll describe and analyze those new units: flexibility of the field, cultural reference points, institutional perspective, and notable historical individuals. It is important to observe that they can all fit under the analytical categories already established in the analysis model (individual, field, domain, accumulation process, development, insufficiency of accumulation process, and building bridges), they are still connected to the theories covered. However, the choice to add them separately, as a new section, is to further clarify the fact that they were surprises found during the field research.

4.6.1. Characterization of the Field

The System's Model of Creativity (CSIKSZENTMIHALYI, 1988) already acknowledges how the field's character can be an important shaper of the creative variations introduced. Csikszentmihalyi (1988) had already mentioned how a certain institution, and field's flexibility to accept new variations was vital for the field's innovative quality. And on the

other hand, if the institutions and Gatekeepers were too flexible, the field as a whole might be disrespected. When constructing the analysis model for this thesis, the field's analysis units didn't include a characterization of the institutions - the initial goal was simply to map out the field around the case study. However, from the discourse of the interviewees, it became clear how a characterization of the field was important to analyze the system as a whole, therefore it was added as another analysis unit.

The Park, for example, is bound by very strict laws, that determine the usage of its area. This is in part, beneficial to it, considering the SNUC, and the laws in it protect the Park from irresponsible decisions made by the ruling Government. However, it demonstrates how rigid the Park is, also being a Conservation Unit, unable to introduce any foreign material, nor able to remove the native materials it possess.

> But the Park ends up being an obstacle, as crazy as it may seem. I would love to show many things, to have them ready to present, but considering it's a Park, an Integral Conservation Unit, we're unable to have lots of things here. [...] But on the other hand, the Park has its role in maintaining the integrity of what already existed before. (Interviewee 1, 2019)

> *Mas que o Parque acaba sendo empecilho, por incrível que pareça. Eu gostaria de mostrar muitas coisas de ter para apresentar, mas por ser um Parque, por ser uma unidade de conservação integral, muitas coisas a gente não pode ter aqui. [...] Mas por outro lado, o Parque ele tem o seu papel de manutenção da integridade daquilo que já existia antes. (Interviewee 1, 2019)*

When we look at the EEN, it's very clear that they are surrounded by many rigid institutions, who added bureaucracy to their processes. It took, for instance, 10 years for the Education Office to approve their technical cooperation agreement. Additionally, all interviews showed that is clear within the EEN, that there are so many external factors trying to sabotage or slow down their projects, that everything in their responsibilities must be made super efficiently and with the minimum barriers possible. They have to be flexible to compensate all the rigidity in the institutions around them.

The notation behind the variation (CSIKSZENTMIHALYI, 1988) is also very adaptable. As mentioned by interviewee 3, for instance, they receive variations from the teachers in any format imaginable. If a teacher wants to develop a project with the Center, there is no formal procedure or protocol. They can reach the EEN's staff very informally, through email, phone, face to face conversations, or any other medium. This characterizes

them again as a very flexible organization, very open to new variations, and who make their approval and validation very quickly.

> In Education, you have to be flexble, fitting in all of the time, adequating yourself according to the possibilities you have. Specially who doesn't have resources. An entity with resources is a luxury. (Interviewee 3, 2019)
>
> *E educação você tem que ser flexível, encaixando o tempo todo, estar se adequando de acordo com as possibilidades que você tem. Principalmente quem não tem recurso. Porque uma entidade que tem recurso é luxo. (Interviewee 3, 2019)*

The bureaucracy around the technical cooperation agreement between the Park and the Education Office was described by interviewees as something reminiscent of our Brazilian culture, and dependent on the individuals and politics. Therefore, we can deduce that this rigidity might be present in Brazil's institutional domain, and isn't just a characteristic present in this case study.

> Brazil is still living the governmental issue, of government politics, instead of State politics. So depending in the interest, this deal advanced or retreated. (Interviewee 2, 2019)
>
> O Brasil ainda vive a questão dos governos, da política de governo e não de Estado. Então dependendo do interesse, esse acordo avançava ou recuava. (Interviewee 2, 2019)

The Gatekeepers within the Education Office, who approved this kind of variation, weren't motivated to sign the cooperation agreement, for a series of reasons, and the whole project took literally a decade to be officialized. This reminds us of the important role the gatekeepers have, in defining the flexibility or rigidity of a field (CSIKSZENTMIHALYI, 1988).

The partnership with the Environmental Military Police, on the other hand, took about 6 months to be fulfilled. The Gatekeepers responsible for approving the partnership were directly involved in the EEN, and on the other side were Police Force members - so both parties had immediate motivations to validate this variation. In fact, as mentioned by interviewee 5, the Environmental Military Police was "born" in the Park, in 1987, when the Park's administration demanded police surveillance to be made within its borders. The Police Cavalry sent twelve officers to be stationed there, so then a unit specialized in environmental crimes could be created in the future. They began to work first within the National Park, and later on in all of Brazil's territory, being divided in three fronts: environmental, rural and

touristic. This previous connection with the Park was also a facilitator to decrease the barriers in the field between the two institutions.

> There was already a technical cooperation agreement between ICMBio and the Environmental Police as a whole. One of the clauses was the environmental education matter, of having this partnership. So we took it. Considering it's already happening, let's make our work plan based on that, claiming it's experimental. Then we set up the work plan, the leaders, to the regional coordinations, and they sent it to their commands. Everyone accepted it, and five months after that first visit, they were already here. (Interviewee 1, 2019)

> *Então ali já existia um termo de cooperação técnica moldado entre o ICMBio e a Polícia Ambiental como um todo. E uma das cláusulas era a questão da educação ambiental, ter essa parceria. Então a gente aproveitou. Bom, já que já tá rolando, vamo fazer nosso plano de trabalho com base nisso, dizendo que é experimental. Ai a gente montou o plano de trabalho, montamos as chefias, pras coordenações regionais, e eles mandaram pros comandos deles. Todo mundo acatou, todo mundo aceitou e 5 meses depois daquela primeira visita eles já estavam aqui. (Interviewee 1, 2019)*

4.6.2.   Mapping Out Cultural Reference Points

Interviewee one mentioned that one of the greatest values of bringing the teachers from the education office to the EEN, was that they brought a fresh perspective regarding the importance of not only Environmental Education but also patrimonial education in preserving the memory of the Park, and of our city as a whole. This conservation of memory and patrimony was mentioned by all interviewees through the same cultural reference points. This thesis didn't plan a priori to map out cultural aspects within the domain of the Park, considering that it was too intangible to be answered in an interview. However, these references have proven themselves to be so present in the EEN's domain, and so vital to the understanding of the importance of the Park, that they constitute a new analytical unit.

> They also mentioned as a counterpart, for us to include something else - that I had already started to do, but without the know-how they have - that is thinking about the space we have not only as a protected, environmental conservation space, but as through conservation of history, and memory. That is right here in the Park's territory, but was hardly explored. (Interviewee 1, 2019)

> *Eles também trouxeram como contrapartida a gente ter que incluir outra coisa - que eu já tinha começado a fazer, mas não com o know-how que eles têm - que é pensar não só o espaço que a gente tem como um espaço*

protegido, como um espaço de conservação ambiental, mas como um espaço de conservação de história, de memória. Que tá aqui dentro do território do Parque, mas era pouquíssimo explorado. (Interviewee 1, 2019)

Interviewee 2 reinforces the importance of memory and an emotional connection with history for us to value what we have in the present. He goes on saying how we can only reach the common good, if we understand the importance of public spaces and the history we share as a people, and therefore, ultimate collective common resource is the environment. As stated by interviewees 1, 2 and 4, they can only reach a common good because they work with patrimonial education in the perspective of the Park as a space that holds memory, linked directly to our existence in Brasília. One of the UnB students interviewed during the participant observation even mentioned the importance of knowledge linked to an emotional connection, so they can contribute to society as a whole - confirming the idea proposed by interviewee 2.

And as we keep getting to know spaces like this, the more are we attached to them, and to this lifestyle. And contributing, for society's common good. [It's all about] connection. (Student 2, 2018.1 Transcripts, 2018)

E quanto mais nós conhecemos espaços assim, mais nos apegamos a eles, mais nos apegamos a esse estilo de vida. E contribuindo, pro bem da sociedade. [É tudo sobre] conexão. (Student 2, 2018.1 Transcripts, 2018)

The challenges in protecting a Conservation Unit such as the Brasília National Park go beyond many political, financial and administrative procedures. Another not less important component is employee personal motivation to make do on the ethical principles that lead to the conservation of natural and cultural resources housed in the Park. [...] Likewise, there is a need for understanding that the National Park materializes the desires and needs of society as a whole, and not a minority. The common good is materialized in the existence of a conservation unit. (Amauri de Sena Motta - Director of the Brasília National Park in the 2012 term, 2012).

Interviewee 2 even asks himself if we can separate environmental education from patrimonial education, if it isn't, in fact, the same thing. He even points out that we only call it "patrimonial" education, and not "cultural" education, because the institution that regulates it is the IPHAN (National Institute of Historical and Artistic Patrimony). He goes on by saying that it would be bold for us to "teach" culture, since you absorb it, instead of learn it - a reference to values incorporated in the domain. Still contemplating on the term "patrimonial", Interviewee 2 says that to disconnect the term "patrimony" from a monetary angle, the public

policies around this theme chose to explore it under three pillars: identity, memory and belonging.

Interviewee 3 and 1 also point out their efforts to involve identity in the Reading in the Park project: the students had to make a collage depicting a drawing of themselves, so they feel included and represented amidst the diversity surrounding them. This reaffirms the importance of regarding everything taking into account a cultural, and historical context - the foundational idea behind Csikszentmihalyi's Systems Model (1988). Similarly, his description of culture being absorbed fits the Model's movement of references being passed from the domain to the individuals.

> This is a new trend, but there are researches that show that if you don't know yourself, and your object of desire, you cannot love it. You only love what you know. You only protect, and establish relations from the moment you get to know it; you give yourself. And that is what we're proposing [...]. So [the student] can establish attachments with their community, in the perspective of preserving public property, and cultural patrimony as a whole. (Interviewee 2, 2019)

> *Essa é uma tendência nova, mas existem pesquisas que mostram que se você não se conhece, não conhece o seu objeto de desejo, você não pode amá-lo. Você só ama aquilo que você conhece. Você só protege e estabelece relações a partir do momento que você conhece; você se entrega. E é isso que a gente está propondo [...]. Para que [o aluno] possa estabelecer vínculos com a sua comunidade, na perspectiva mesmo da preservação do bem público, e do patrimônio cultural como um todo. (Interviewee 2, 2019)*

It is important that we rescue this historical view, to strengthen Brasília's domain. Like mentioned by Interviewee 1 and 2, people tend to think that before president Juscelino Kubitschek moved the capital from Rio de Janeiro to the interior of Brazil, there was nothing in this region. Our domain's memory consists on the fact that history began in 1960 when Brasília was built, when in fact there were plenty of historical sites within the Park that testify to the rich history we guard.

> It has to do with our history, people think that Brasília just emerged. But before that, it was *Goiás,* and there were lots of farms and kettle. And we know that at that time the *capim-gordura* grass was used for pasture, but today it's not used. The places with the largest amount of *capim-gordura* grass are inside environmental reservations. *(Interviewee 1, during group discussion, 2019)*

> *Tem a ver com nossa história, as pessoas acham que Brasília apenas surgiu. Mas antes era Goiás, e havia muitas fazendas e criação de gado. E sabemos*

que na época era muito utilizado o capim-gordura para pastagem, hoje não se usa mais. Os locais com maior quantidade de capim-gordura são dentro de reservas ambientais. (Interviewee 1, during group discussion, 2019)

The same reference points showed up in all of the interviews, proving how well-established they are within the EEN's domain. These are the most important historical reference points as described by Interviewee 2:

- The presence of mankind over 8 thousand years ago in this region

- José Bonifácio and the interiorization of Brazil

- The Cruls Mission

- The royal roads during the colonial period

- The names of the pools

- The names of the rivers

- The Papuda prison

- Chapada da Contagem

- The bridge in the Park's trail

These historical reference points were confirmed by a historian who researches the Park's grounds (he was even mentioned multiple times by Interviewee 1) and whose report is present in the book celebrating the Park's 50 years of creation.

> The borders of the Brasília National Park were set in a territory characterized by human presence during the 18th, 19th and 20th centuries. [...] Some stories occurred here reveal the importance of the Brasília National Park to the memory prior to Brasília's existence. This information contradicts the discourse of the empty space where the Capital was set up. The artifacts, documents, and oral history are elements that strengthen the need for dialogue, rather than rupture from the Goiás territory and old traditions. The conservation unit, in all of its dimension, takes on an essential role, not only as a great environmental heritage, but also as an important cultural landscape. (Wilson Vieira Junior - Historian, 2012)

4.6.3. Institutional Perspective

One of the criticisms around the Systems Model of Creativity (CSIKSZENTMIHALYI, 1988) is how extremely reliant on an institutional perspective it is. Glăveanu (2010) judged Csikszentmihalyi (1988) of being too focused on the structure, hierarchy, and politics that guided the field and Gatekeepers. However, after exploring the data collected, it became

clear that the institutional factor not only is present in this real-life case study, but has proven itself to be vital for the survival of variations and the creative process as a whole.

From all of the interviewed subjects, Interviewee 3 (for being the center's director and having a better macro perspective), was the one who most pointed out the importance of the institutional point of view. The first evidence of this dynamic he mentioned, was about the importance of having a physical space that represented the Environmental Education efforts that they carried out. The advantage of their team, was that they were a Visitor Center of Environmental Education, an organ within the Park that had a building in the grounds. This symbolizes who they are,their connection to the public and their importance in internal politics.

> So around 1961, until the Management Plan, we don't have many informations. But the Management Plan, from 1998, already states the existence of the EEN, and the Center of Environmental Education (that was just called Visitor Center previously), and that the Environmental Education Activities were developed here. The *locus* of Environmental Education was here. (Interviewee 1, 2019)

> *Então na época de 1961, até o plano de manejo, não temos muita informação. Mas no plano de manejo, que é de 98, já tem dizendo que existe o Núcleo de Educação Ambiental, e o Centro de Educação Ambiental, que era só chamado de Centro de visitantes antes, e que as atividades de educação ambiental eram desenvolvidas aqui. O locus da educação ambiental era aqui. (Interviewee 1, 2019)*

This was confirmed by interviewee 5, when he addressed the story about how the Environmental Military Police left the Águas Claras Park they were stationed at, to move to Brasília National Park - reinforcing the importance of having an appropriate physical space to develop environmental education initiatives.

> We were stationed at the *Águas Claras* Park, and the mood wasn't nice, between our team and *IBRAM*. So I talked to my boss, and she wanted to go back to the military headquarters. But I said that if we left, the Environmental Education Nucleus would end, we need to be in a place to receive visitors and do what we do best. There were [already] three fronts in the headquarters, [so] it was very hard to do that [there]. There's weapons, police officers, you couldn't do it. So it would end. (Interviewee 5, 2019)

> *A gente estava no Parque de Águas Claras, e lá não estava legal o clima da nossa equipe e o pessoal do IBRAM. E conversei com minha chefe, ela queria voltar pro quartel. Mas falei que se a gente saísse de lá, ia acabar o núcleo de educação ambiental, porque precisamos estar num lugar, pra*

> *receber a galera e fazer o que a gente faz. [Já] são três frentes dentro do quartel, [então] é bem difícil fazer isso [lá]. Tem armamento, tem policial, não dá pra fazer. Então iria acabar. (Interviewee 5, 2019)*

Another surprising point brought by some interviewees, and also found in the documents examined in the documental research, was the constant pressures and threats that the Park and the EEN suffered in different levels. The Park, for instance, faces threats from outsiders, neighbours and criminals who endanger the flora and fauna preserved in its grounds. Another sophisticated threat is from the Federal Government itself that depending on the ideology present in political terms, they can suffer cuts in budget and other types of menaces. The EEN, on the other hand, Also suffers internal threats from the Park management and the ICMBio themselves, who don't value the Environmental Education efforts that they are responsible for, and from time to time intimidate them by turning the Center, and its physical space, into another public organ.

> It's a rescue. We have the duty to protect the fauna and flora inside the unit and also to rescue the *Cerrado.* It's very complicated, we're in an urban area, the unit is surrounded by people in every side - something that can be good or bad. They can be allies when there's knowledge. (Interviewee 1, during group discussion, 2019)

> *É salvamento. Temos dentro da unidade o dever de proteger a fauna e flora do Cerrado e também o resgate do cerrado. É complicadíssimo, estamos em uma área urbana, a unidade é cercada de gente para todos os lados, o que pode ser bom ou ruim. Podem ser aliados quando tem conhecimento. (Interviewee 1, during group discussion, 2019)*

> The Brasília National Park stands out as the largest protected area adjacent to an urban area in the world. [...] To preserve a sample of the wealth that characterizes the Cerrado is the Brasília National Park's most important and also most encompassing mission. The Park symbolizes the Cerrado's grandeur, whose values are intangible. To overcome the constant challenges within the enormous responsibility of conserving it, the engagement must be multiple, and efforts constant. (Christiane Horowitz, ICMBio Environmental Analyst, Forest Engineer, MSC, Dr, 2012)

> Today, fifty years after its creation, the environmental response of the Brasília National Park, known as priority area for the conservation of biodiversity in the Cerrado, is to continue with its imposing nature, despite so many pressures, waiting for an increasing number of people to embrace and defend it, and fearlessly manifest their love for the most efficient proposal to protect nature, namely, our conservation units. (Amauri de Sena Motta, Director of the Brasília National Park in the 2012 term, 2012)

> So today, the team's struggle, is trying to maintain this as a Nucleus of Environmental Education. We have suffered several threats of this place

simply closing and becoming a public office of anything else. This is constantly. [...] It's from poeple who, firstly, don't know the Park's history, don't know what Ezechias Heringer proposed, what professor Genebaldo also embedded here; they are people who have arised to the power in someway, and suddenly say "I want this, I don't think it's serving a purpose anymore". So this has happened several times, and the team has to prove that this space works, that it attends. (Interviewee 1, 2019)

Então hoje a luta da equipe é tentar manter isso daqui como Núcleo de Educação Ambiental. A gente já sofreu várias ameaças simplesmente de isso aqui fechar e virar repartição de qualquer outra coisa. Isso é uma constante. [...] São pessoas que primeiro, não conhecem a história do Parque, não conhecem o que Ezechias Heringer propôs, o que o professor Genebaldo também incutiu aqui, são pessoas que assim, tomaram poder de alguma forma, e de repente, "ah eu quero, ah eu acho que não tem mais serventia aquilo lá". Então várias vezes isso já aconteceu então a equipe tem que provar que esse espaço funciona, que esse espaço atende. (Interviewee 1, 2019)

The institutionalization it's shown to have two faces. On one hand, the dispute for power and resources by these different institutions are the means of constant threats and conflict. On the other hand, a positive aspect of the institutionalization, also brought up by interviewee 3, was how the partnerships that they built around the field made them stronger to face those same pressures. This is strengthened by the physical documents, or notation (CSIKSZENTMIHALYI, 1988), that testify to those partnerships: the technical cooperation agreements, the Calendar of Actions, or the laws in the Brazilian Constitution that protect the park and the EEN.

Because people come in here saying that they want this space. But then, what are we going to do with the partnerships? It's common for you to be threatened to lose your space, it's normal. It's the service's needs, or the organ, or institution. There's nowhere to go. You have to have a report, register, everything at hand. "Here it is. What are you going to do? I hand it to you. We have a commitment with the Federal Prosecution Service, we're committed to the students until March of the following year. What will you do with all of this?". It's the best strategy. [...] We have our won law. And this law is an advantage, if we didn't have it, we would be in trouble today, considering the political conditions. It's in the SNUC. It's our bible, our constitution. [...] So when Bolsonaro, when they order to end the Councils, who is in the law is safe. That's why I told you to institutionalize a purpose. So things belong to the State, and not the people. (Interviewee 3, 2019)

Porque aí, por exemplo, aqui chega [alguém falando] "quero esse espaço aqui". Mas aí o que que a gente vai fazer com a parceria? [...] : é comum você ser ameaçado de perder até o espaço, é normal. [...] É a necessidade de serviço, ou do órgão, ou da instituição. Não tem pra onde ir. Você tem que ter relatório, registro, a coisa toda na mão. Tem que estar na mão. "Tá aqui, ó. Que que o senhor vai fazer? Entrego pro senhor. A gente tem um

compromisso com o Ministério Público, estamos inscritos com os alunos até o mês de março do ano que vem. O que que o senhor vai fazer com isso?". É a melhor estratégia. [...] Tem uma Lei própria. E essa lei é uma vantagem, se a gente não tivesse, a gente estaria frito hoje, com as condições políticas. Está no SNUC. É nossa Bíblia, nossa constituição. [...] Então quando o Bolsonaro, quando eles falarem pra acabar com os conselhos, quem tá na Lei [está salvo]. Por isso eu tava te falando de institucionalizar propósito. Que as coisas são do Estado, não são das pessoas. (Interviewee 3, 2019)

The worst part is that we don't have much staff, it used to be just the two of us. And trying to reach the amount of people who live in the surroundings of the Park. It's impossible. We have trouble talking to *Lago Oeste*[22], one of the most appropriate places to dialogue about the Park's priorities.That's why it was really important for us to get the partnerships we have today, like the Environmental Police, and the teachers, so we have more people that can reach the public. This year has brought many experiences. The team has grown, and we have to know the paths we can enter. (Interviewee 1, during group discussion, 2019)

O pior é que não temos muita gente, antes éramos dois. Para tentar falar, imagina, a quantidade de pessoas que moram no entorno do Parque. É impossível. Temos dificuldade de conversar no Lago Oeste, um dos lugares mais propícios para dialogar sobre as prioridades do Parque. Por isso foi muito importante conseguirmos as parcerias que temos hoje, como com a Polícia Ambiental e com os professores, para termos mais gente para conversar. Esse ano está sendo um ano cheio de experiências. A equipe aumentou e temos que saber os caminhos que poderemos trilhar. (Interviewee 1, during group discussion, 2019)

Another positive elements of this institutional perspective is that it makes projects last in the long term. Interviewee 3 points out the difference of projects that are person-centered, versus institution-centered, recalling that the only way a project can be incorporated in the domain, is by becoming part of that organization's culture - and independent on the individuals who constitute it. He calls this movement "institutionalizing a purpose". That's why the technical agreements are so important for the EEN, since they embody the institutionalization of purpose between two organizations, not depending on the good will of its actors.

If you don't institutionalize a purpose (anywhere), [if] it's a personalist project or program, they take it away and sometimes it dies even before it was born. For example, why do Environmental Education projects in schools don't last long? Usually there's a teacher who wants to develop a project, and he carries this project, it's not from the school's organic. If you don't institutionalize, another issue is this: we're an organ that works with non-formal environmental education, with communities and councils. When you put a teacher from the Education Office, you have institutionalized a

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[22] Neighbourhood close to the Brasília National Park.

purpose as well. You gave it some legality, some qualification. Because you're doing something with legitimacy and institutionality. That is the difference. (Interviewee 3, 2019)

Se você não institucionalizar um propósito (em qualquer lugar), [se] é um projeto ou um programa personalista, o cara leva e carrega e as vezes [morre] as vezes até antes de nascer. Por exemplo, porque que os projetos de educação ambiental nas escolas não vão? Geralmente tem um professor, que quer desenvolver um projeto, ele carrega um projeto, não é a orgânica da escola. Se você não institucionalizar, outra questão é a seguinte: aqui é um órgão ambiental que trabalha com educação não-formal, com comunidade, conselho, não é metiê aluno. Quando você coloca um professor da instituição Secretaria da Educação, você institucionalizou também um propósito. Você deu uma legalidade, e deu uma qualificação. Porque você está fazendo algo com legitimidade e institucionalidade. Que é a diferença. (Interviewee 3, 2019)

5.   CONCLUSION AND RECOMMENDATION

This thesis aimed to understand how the Systems Model of Creativity (CSIKSZENTMIHALYI, 1988) functions when we add Development (FURTADO, 1978) to the equation. It considers the Environmental Education Nucleus of the Brasília National Park as an object of study to introduce both theories, and also to use its examples of actions regarding sustainability as a focus point. To collect the data necessary for developing a rich research, a series of interviews were conducted with key-actors mapped in the context of the EEN; also a participant observation was carried out for two years as part of the A3M project; as well as a documental research, analyzing written, contemporary, primary documents linked to the EEN. Another central idea of this paper was to understand how systemic creativity can benefit the studies of Administration, when Development is included.

Considering the problem statement the research aims to address, the general objective was to *comprehend how the dynamic of the Systems Model of Creativity function when development is encircled in the context of the National Park as an environmental education initiative,* some conclusions can be drawn. Firstly, it was evident from the data collected, that the combination of both theories can be detected and validated in this practical case study, where all the analysis units describing both theories were identified in the data collected - and even enhanced, demanding new analytical categories to be added in the analysis model. The complexity of this dynamic was also notable, where each force could be identified with its own, specific movements, but also being very dependent on the others to occur. Environmental education was considered by interviewees as the final link that ties both theories together, considering its double nature as variation and value within a society's lifestyle. In conclusion, the systemic approach proved itself to be very applicable in real-life organizations, considering its broad perspective that accounts for many variables to be analyzed in practice - reaffirming its importance for Business Administration.

As part of the first specific objective of *understanding how the Systems Model of Creativity function in the context of the Environmental Education Nucleus of the Brasília National Park*, the research explored the composition of each force within the Systems Model, considering the context of the EEN. As stated in chapter 4, this analysis is affected by the different levels that appeared during the field research, so the forces also vary depending on the level taken in consideration.

When we consider the force describing the individuals within the model, the members who make up the EEN could be appointed as the primary individuals, considering they are the ones responsible for creating and executing most variations within the Center. When we look at the external actors that interact with the Park, others stand out, being mainly the teachers of the Teacher Formation Course, who are essential for the introduction of variations in their own systems, of their own schools and institutions. The variations they produce regarding sustainability have been shown by the data as depending on how much they were exposed to environmental education, and how incorporated those values already are in their respective domains.

The field is composed by a series of institutions and actors, mainly public ones, that have been mapped out in Diagram 4. As seen by the data, the field is very heterogeneous, containing organizations of different areas, not necessarily connected to environmental initiatives directly. The character of each one also varies a lot, considering they differ in terms of flexibility, and agility to propose and approve variations. They all interact to create novelty, and to approve the ones who are considered worthy of entering their respective domains. There are different Gatekeepers, depending on the level of analysis: the EEN serves as an institutional Gatekeeper, evaluating the projects proposed by the teachers on their class plan during the Teacher Formation Course; within the EEN, Interviewee 3, for being the coordinator, is the most notable, approving projects that will happen within the Center; and through a broader view, the Park also serves as a Gatekeeper, defining what is possible to be created, considering the limitations of the Conservation Unit aspect of it.

The exploration of the domain turned out to be one of the biggest surprises during the field research, considering how sophisticated is understanding a certain society's culture. Different domains were also detected, depending on the level of analysis used. A series of cultural references are present in the Park and EEN, that are mainly historical aspects regarding the creation of Brasília, and the Park, dating back to the 18th Century. Values of environmental education and sustainability vary depending on the level considered, if they have been incorporated in the domain or not. The EEN has such values extremely embedded in their domain, but unfortunately, not the same can be said about the Park, and the Brasília population as a whole.

Another reflection can be made regarding how variations are created by the interaction of each of the forces described above. Individuals create variations (that are mainly projects about sustainability) depending on how much Development is part of their

domain, or not. These variations are evaluated by their respective Gatekeepers. The character of the organizations of the field end up molding how efficiently this process occurs: where especially the EEN has to compensate the rigidity of the other institutions, to be able to create their projects. The criteria for validation of variations varies depending on the level analyzed, but are mainly revolving around how impactful the project will be, and how viable its implementation is. One of the EEN's goals for the next year is to evolve the selection criteria, and if we turn to the theory, it will probably add more respectability to them as Gatekeepers. Once deemed valuable enough, they end up being institutionalized, that in the EEN's language, means it was incorporated in the domain. To incorporate values, means to solidify those variations or cultural aspects through laws, or technical cooperation agreements, that demonstrate they're a stable addition to that organization's culture - being the inputs for the next generation of individuals and teams to create novelty.

The following specific objective was to *understand how the Accumulation and Development processes occur within the Environmental Education Nucleus of the Brasília National Park.* Regarding the Accumulation Process, the EEN gathers resources that appear through the potential energy derived from the union of the different actors of the field. Those resources are mostly intangible, or directly the services and products needed, not financial resources. They make way for the generation of new creative forces, and also propose the impulse of new values that are incorporated in the EEN's culture, and shape society's lifestyle - validating the Development Process within the EEN's context. Therefore, it could be seen by the interviews, that the actions carried out by the EEN propose the creation of new values of sustainability within our society, and also encourage other creations to be made with environmental education - a direct example of the Development Process.

When addressing the third specific objective, of *identifying the role of environmental education in the reversal of the insufficiency of accumulation process*, a point that can be brought up is that environmental education is the main tool that individuals have to introduce values of sustainability in their respective domains. According to the interviewees, it is not only the main tool, but the most effective one in the long-term, considering it proposes changes to be made in a society's mindset, impacting students, teachers, former environmental offenders, and all the visitors who come to the Park. It could be argued that its role is essential in altering society's lifestyle and domain.

Regarding the last specific objective, of *understanding how Business Administration benefits from the study of the Systems Model of Creativity combined with Development*, the

study suggests, initially, the reflection about how creativity is indeed present in Business Administrators reality in different levels. Firstly in the individual level, considering we must be creative beings to stand out among a growing pool of candidate talent; also on the collective level, for teams who combine their creative potentials end up generating even better solutions; and finally on the organizational level, so companies can survive with innovations, in a saturated market. Those levels are all important, but the systemic approach is even more relevant for this profession, considering how it was present in the data analyzed. It can be argued that Business Administration benefits greatly from this holistic and integrated view of creativity, considering it is through this perspective that the Administrator's role is mostly elevated. We may start with the premise that Administrators are responsible for envisioning, designing and executing the actual structure and processes that compose our productive system - so understanding every actor and force within the Systems Model gives leverage in a competitive context. The study posed the reflection of how their responsibility in bringing sustainable development to that perspective is also immense, considering how they're central players when redefining the logic of our capitalist, productive and consumerist system. As constantly reminded by the interviewees, to change this narrative is now not a choice, but an obligation of this profession, considering how resources are becoming scarce, and the need of reverting the Insufficiency of Accumulation Process is urgent. A possible central idea that the research conveys is: understanding how Systemic Creativity and Development theories interact is fundamental to change the production's logic in practice.

Even though this thesis is backed up by theories developed in the 20th Century, it could be concluded how they are contemporary, modern approaches, present in organizations day-to-day, and also in our society in general. Regarding the practical contributions of this research, one of the biggest accomplishments is how it stimulated a technical cooperation agreement between the EEN and the Business Administration Department of UnB, solidifying a partnership between both institutions. This is the first step in a long-term process of educating a generation of Business graduate students, who have a clear vision about sustainability, and environmental education as part of the curriculum. This can be a positive return to the EEN, to UnB, to the students, and finally to society as a whole, considering the impact of each graduation student has in the future, regardless of their area of work. It also hoped to establish Creativity and Sustainability as a central axis of research within the Department of Business Administration, making way for other students to take on this rich thematic.

About the limitations of the research: some implications of the Systems Model of Creativity were not taken into consideration when analyzing the content of the data collected, considering the already intricate complexity of the research without them. One of them is how time affects the model as a whole, and how society's perspective changes through the years, where their view of sustainability also evolved. The analysis didn't expand this chronological perspective, to analyze each variation and analysis unit considering their own, specific *zeitgeist*. Another limitation was not considering *a priori* the different levels when analyzing the data. If it had been made from the beginning, outlining each level right on the analysis model, a deeper analysis about each level could be developed - instead of just mentioning a few of the implications they demonstrated. Furthermore, the interviews were only conducted with EEN members and UnB students as subjects, whereas a deeper research, that interviewed members of each institution present in the field, would be richer in terms of the Systemic approach.

This research didn't mean to exhaust the theory, but on the contrary, gives space to many other explorations to be made around this theme. Recommendations of further researches include applying this theoretical model of the Systemic Creativity and Development in different context and organizations. It could be applied in the other institutions mapped out in the field, exploring how it functions between ICMBio, and the Ministry of Environment, for instance. It could also be explored even in completely unrelated organizations, especially the ones with a private nature, (considering most organizations explored in this paper are public ones) to see if there are any changes in their dynamic. To conclude, the whole theoretical model can be applied in other contexts, but can also be fragmented, to better map out how each force functions, and understand their specific dynamics.

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