

Can Images—As a Result of Processing Metaphorical Brain—Be Processed by Quantitative Metrics?

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Received 21 February 2016; accepted 19 March 2016; published 22 March 2016

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Abstract

This paper discusses the spatial and visual constraints of the prison as a military space. In an original design, we examine mental processes involved in images of the prison in general and of the Jilava prison as a concrete space. The qualitative approach develops an innovative methodology as scientific studies on brain are focused on the quantitative paradigm. The paper aims to examine the prison-in general-in terms of spatial cognition and to analyze the images of Jilava described by the students from the vantage point of quantitative metrics. A metaphoric description of the Romanian Jilava prison according to Ana Blandiana becomes the stimulus for the research based on interviews. Approximately, 130 students from the University of Bucharest were asked questions about the prison. The data collected were processed in terms of current neurosciences. The findings demonstrate that the results of content analysis of narratives are similar with quantitative investigations: the semantic network of judging images is involved in the visual and spatial representation of an object. To conclude, the results do not contradict the previous inferences concerning the paradox of the brain functioning (analogue and propositional code); spatial cognition is interrelated with social and moral cognition of the prison as a military space; images of Jilava confirm the role of implicit memory in visual and spatial representation.

Keywords

Spatial Cognition, Image, Representation of Military Space, Qualitative Research, Social Cognition

1. Introduction

The theoretical framework concerning spatial cognition offers the image of going round and round in circles

because of the paradoxes [1] about how the brain works. Related to quantitative measurement, literature in the field can be considered as a system of hypotheses and methods sometimes opposite about the problem statement. In this case, the assumptions and the questions research that emerge from the academic literature do not constitute the condition sine qua non for anticipating the effects of our design of the research. We consider the information and the materials from the fieldwork as possible models about the cognitive architecture of the brain. In these circumstances, the complexity of the approach is very high and the theoretical guidelines of the investigation are based on some usual rules that scientists accept as academic conventions.

The other issue is about how to correctly place the methods and techniques to be used to collect data. When famous studies on spatial cognition are full of quantitative paradigm, it is difficult to impose a qualitative manner to solve the problem. To persuade someone that could consider our exercise like a luxury poetics, we assume to adopt a line, taking into account the following arguments: both quantitative and qualitative methods have their limits, the expected results of comparing factors involved in internal and external validity produce similar effects, the danger of jeopardizing ethics is analogous. In order to achieve this, qualitative research can be considered as an alternative to quantitative approach.

2. Research Methodology

From the whole research we chose to examine two hypotheses:

- 1) Spatial cognition is related to the social cognition of space.
- 2) The images of military space depend on implicit memory.

The conversion of these hypotheses into research questions appears as follows:

- Is spatial cognition of the prison separate from the social and moral cognition of space?
- Can images-as a result of processing metaphorical brain-be measured by quantitative metrics?

This paper aims: to analyze the inter-linkage between social cognition and cognition of space (despite the fact that there are findings adding to this the moral cognition of space) and to examine the narrative images of the prison in terms of military space corresponding to implicit memory.

The target population consists in students of the University of Bucharest, males and females, 20 - 24 years old, involved in service teachers training. From 160 participants were coded 130 answers. A text selected from the novel "Thunderous Applause in A Drawer (Sertarul cu aplauze)" by Ana Blandiana becomes the pre-text for the research [2]. We consider the text a comfortable interview situation. Ana Blandiana is a famous Romanian writer having the capacity to produce great intellectual images about the ways that communist regime manipulates the Romanian midset. This ability to learn and understand the society-from the past and from contemporary times-is smartly integrated into the novel: each reader of her writing is intellectually engaged into the atmosphere because of the substantial qualities of the literary. The author intends to accomplish the characteristics of Jilava as a place, to connect people to the characteristics of the symbol-Jilava has become a symbol of social fight- and to mentally warn about the danger that extreme situations might reappear in the Romanian society. From the vantage point of literature we recognize in this text a Romanian example of mastery knowledge because it conforms to the rules of an electronic circuit where electrons are replaced by lemmas: each sentence is an assumption and the entire text has become a demonstration. On the other hand, the themes of the poetic composition allow to analyse the problem statement, especially political and laws issues, from all over the world. Perhaps the imprisonment with or without a trial communicates an universal message and implies transparent mechanisms concerning the restricted and unrestricted freedom. To conclude, the whole text is a metaphor. From the vantage point of the methodology of research this text reveals a problem solving [3] and a case study [4]. The intellectual content is ethic and points to the Christian idea of liberty: the philosophy of the author is based on the belief that each person is spiritually free. As a result of the professional architecture of the writing, the moral reasoning is involved in topological space reasoning; the neural mechanisms of the respondents consist in recombining qualitative (metaphors, moral and social meanings etc.) and qualitative stimuli (metrics, visuo-spatial delineations, and so on). Privileges, despotic control, rights, freedom, distortions of facts, violations of rules, moral limits of law, duty, risk, morality, pressure, psychic energy are the most important key terms that prove the merits of the text be considered "culturally fair" in terms of intelligence studies (visuo-spatial testing). Deliberately, according to, past-past' tendencies in the methodology of research [5], the investigation is a narrative research by interview, a problem solving and a case study [4]. The entire fragment is a metaphor that gives the possibility to measure the data collected [5].

3. Findings

The first item predicts the topic of the interview and offers interesting defined meanings related to the term prison. In formulating their answer, from the vocabulary point of view there are many general and specific terms offering inferences about knowledge, ideas and concepts related to prison notions. Words like “bars”, “chains”, “hand-cuffs”, “cell”, “walls”, “building” relate to prison seen as a concrete space; this important part of the vocabulary enhances the potential of the interview [6]. The target population will understand the author’s discourse [7]; the semiotic and linguistic criteria are registered. A concise and technical exegesis of the data collected demonstrates that another critical problem of the issue to be explored is validated because a part of the vocabulary reveals feelings, emotions, social involvement. “Terrible fright”, “sadness”, “violence”, “sacrifice”, “fear”, “crying”, “despair”, “isolation”, “suffering”, “extreme torture”, “turmoil” and so on consistently refer to social semiotics [1]. It is a scientific explanation about the language of the prison in terms of language in a social context. As a result of these empirical data the criterion of social cognition is clearly stated. The stylistic analysis of the answers proves that it is about a natural talk or writing about prison: the structure of adding words is very simple, sometimes creative, applying typical or non-typical rules, in a literary or realistic way-through poetical or practical languages.

Most of these words could be examined as visual cortex elements representing the prison in absence of a visual stimulus. A synoptic view of the findings show that these are still problematic, but that two branches of visual and spatial abilities can be delineated-unexpected images of the prison and conventional images of the prison.

Conventional pictures of the prison are considered all the mirror images that indicate the routinized characteristics of the prison as in the following examples: “police, mistake, guardian, bars, spotlights, bail, security, lock-up, imprisonment” (12); “cold, fear, hungry/starving, illness/sickness, alienation, crying, chains, death, dirty, blood, lack of sleep, moisture” (2).

Unexpected images are suggested by transformations of spatial visualization of the prison as a result of extending the rigid or algorithmic view on the prison; terms like, “courage”, “saint or saints”, “friends”, “martyr or martyrs”, “the Lord/God”, “personalities”, “purify” are symbols. The martyrs’ image is opposed to portrayal of criminals. We consider the unexpected images as explicit communications about implicit attitudes that express interferences between cultural content of the cognitive representation about the prison as military space. Despite the controversies in the literature in the field, the findings argue consistently for the difficulty to dissociate between social cognition, moral cognition and cognition of the prison. The answers activate automatically the social inventory of mistakes from Romanian history: “inner turmoil, criminal putting to jail, cage, degradation, freedom deprivation, death, fortress, enclosed space, being lonely, sadness, suffering, fear” (11); “prison-cell, yard, uniform, bucket, guardian, violence, martyrdom, grey, punishment, board/plank, isolation” (7); “starved, cold, terrible fright, time, abuse, constraint, punishment, rectifying, purify, exchange, illness, experience” (18).

Social cognition of the prisons is an unconventional answer in terms of spatial processing: narratives of the students show verbal meanings, emotional reactions faced to past social Romanian problems, moral reasoning, attitudes and so on.

Beyond the military features of the prison as a space to be represented, the findings indicate that the space is composed differently. The neurological examination of the data found some modes of representation of the prison space according to following written formats.

The personal comments of the students reinforce explicitly the hypothesis of connecting entirely spatial cognition, moral cognition and social cognition of the prison. One of the most often used terms are hard words like: “torture”, “extreme cruelty”, “violence”, “suffering”, etc. For example, the term “torture” and verbal variations of it are used in around 102 answers only according to the first item. That demonstrates no controversies concerning the representation of the prison. Narratives are various: “letter, saint, bar (s), torture, punishment, crime, periode/edge, limitation, in court/trial/tribunal, guardian” (9); “lack of freedom, unfair punishment, extreme terror that is followed by death, torture of mind and body, offences of the person, hope in Lord/God” (25); “torture, cold, starving, bars, police, hand-cuffs” (60); “terror, torture, lack of freedom, fright, belief, prayer, hope, brain wash, new man, courage” (23); “isolation, unlawful/unjustly, lack of affects, violence, criminals, time lost, lack of love, rectifying/correcting, regret, torture, offences” (15); “suffering, alone, starving, fear, cold, beating, boring” (39).

The idea of “death”, of “monstrous regime”, of “despair” is present in discourses about prison: “room, dark, bars, poor bed, rules, reprove, beating, punishment, regret, despair, tears” (16); “isolation, alone, a continuous faith, despair, outrunning of self limits” (3); “fear, despair, beatings, belief, starving, cells, bars” (49); “cell, bars, walls, beatings, starving, monstrous regime, guardians” (46); “suffering, prayer, freedom, life, consequences, power, death” (40).

The pragmatic expectations [8] concerning the mental representation of the prison cover the image of a captivity space often ugly. The constraints during the communications according to the item discussed reveal a monster because of the different aspects of previous memory and learning about the prison: “dark, black, bar, doors, hand-cuffs, cold, starved, torture, despair, cops/police” (21), “guilty, not guilty, criminal, torture, security...” (26); “punishment, terror, lack of freedom, horror, torture, despair, death, pain, missing from home and from family” (27); “deprivation, order, prisoners, police, sport, upset, punishment, crying” (29); “isolation, walls, bars, cell, punishment, black, judgment” (30); “punishment, prisoners, work, worst/difficult life, cold, worst food” (31); “missing of beloved persons, violence, boring, misery, worst food” (32); “suffering, torture, crying, penitence, punishment, criminals, re-education, violence, hope, guardians, revelation” (34). In fact, moral and religious aspects involved in writings speak about the idea that moral is the law but Romanians are disillusioned with the relationship between moral law and legal law: “punishment, dark, cold, law, guardian, cell, bars, security” (48; 61); “detention, lack of freedom, law mistifying, rigid rules, building, ...” (63); “bars, enclosing freedom, alone, detention, law mistifying, prisoner, captivity, worst food, lack of freedom” (64); “cells, suffering, bars, detention/captivity, guardian, cold, misery, hurt, fence, wire” (65); “crime, bars, guardians, security system, correction, law, dark, system, injustice” (66).

The visual [9] and spatial of the prison interconnect awareness, memory, attention, communication functions as in the following examples: “lattice work, black, grey, men, cold, wet/humid, dark, murder, ugliness, pain, punishment” (5); “institution, prisoner, place, hand-cuffs, order (guardians), cops/police, bars” (13); “chains/fetters, hand-cuffs, grades/degrees, brick, cold, police, gun/arm, alarm, key” (17); “guardians, prisoners, key, beatings, suffering, pray, solidarity” (20); “freedom, constraint, punishment, instruction, life, lesson, learning, cell” (35); “punishment, enclosed, captivity” (36); “austere, lack of freedom, despair, missing family and friends, upset, waiting” (37); “hurt, frustration, suffering, ill, worst food, violence, hand-cuffs, small rooms, lack of light and sun” (47).

Washing brains, imprisonment in past communism of the greatest Romanian personalities, moral justice are several aspects that infer about social neuroscience in space cognition; it is not false cognition, it reactivated the implicit memory.

The item regarding the comments of the words, images and notions remained in mind after reading the fragment from the novel by Ana Blandiana fit the immediate memory and the image representation of the prison as a military space. The data collected could be interpreted in terms of: literary analysis and scientific exegesis of the discourse. The literary register is considered the personalized wording of the key terms about the image of prison Jilava. The content analysis proves that some of the respondents re-create the narrative about the space of the prison: “the most important images in my mind are linked to the portrait of this prison. This suggests me that the prison is a place of despair, suffering, torture, ill-will” (6; 46); “the prisoners avoid to evade because the prison from outside is even more horrible comparing to the inner face of the prison” (15; 61). A first example in an optical re-interpretation of the description by the author, the term ‘portrait’ making connections based on visual and spatial descriptions of the prison. The second answer selected is the mental representation about prison containing only social and moral cognition; it is the lack of physical properties or material measurable dimensions of the military space.

From the vantage point of judging the images [10] of the prison in terms of standard vision about the real prison the data collected sustain two distinguished codes engaged in wording: the codes of Ana Blandiana and the codes of the target population. The scientific investigation generates the use of referential material from the fieldwork that proposes the examination of the findings from the vantage point of the third code, the code of neuroscience.

The description of the author defines in a metaphoric way the picture of Jilava giving the impression of an oral presentation. We consider the fragment a “text picture” because of the local details and national meanings of the prison; it illustrates the drawing of the “video” presentation inside literary discourse about the prison. The codes of the respondents are related to the author’s description/statement, provide inter-textuality (are related to other knowledge about the Jilava prison), offer literacy reflections and produce “photographic” understanding of

the military space: “The image of the Jilava prison is dark/sinister but at the same time well known (he have watched several films about camps); this vision becomes special place, a penitence paradise. Man realizes that the prison has no security system and this is unusual for the habitual procedures” (2); “The presidential convoy passing in front of the prison as the chief of the national prison visits the prisoners without meeting their expectations. It was only an exercise of authority from the part of the president. ...wire, fence, high watch towers, unbelievable image, shoven character, striped uniform, penitential paradise, lack of freedom assumed” (20; 37); “The surprise of the engineer that there is no guard, no soldier, no gun because the prisoners guard themselves the prison. The entire country being a prison the prisoners have no way out. This gave him (the engineer) a great mobility taking into account the fact that there were not many differences between inside and outside of wired fence” (22); “an image that rests in my mind is that of the prison without guardians. Re-education, fear; in a metaphoric way the prison has extended outside” (18; 60).

The cognitive task involved into the item is not related only to memory; the enclosed space of Jilava indicates a concrete space, a symbol of moral justice and a pretext for simulating re-experiencing visual and spatial features of military space in a controlled way.

In contrast to the code of the author and to the codes of the target population cognitive studies use standard codes to measure images. The spatial scenes created by the students are analyzed according to Peter Dayan [10] considerations. Despite the fact that our research emphasizes the prison images constructed by the metaphorical brain not in order to comment physical pictures of photos, the content analysis of the data shows evidences of linguistic connections between the abstract space of Jilava and the concrete space of Jilava. The narratives contain explicit references to the “image” of the prison; terms as “image”, “picture”, “drawing”, “portrayal” confirm the success of the neuroimage exercise: “images: prison have high looking power, with wired fence. The German soldier armed...” (16); “an image is the surprise that there are no guardians because the whole country is a prison” (17); “an image that rests in my mind is that of the prison without guardians. Re-education, fear; in a metaphoric way the prison has extended outside” (18; 60); “first image is about the prisoner staring outside of the prison... The second image is that of Romania as a large space of captivity” (65); “If some daily term Jilava denominates the image of a camp today the prison does not need guardians. Why? Because the differences between free life and penitence paradise are lesser to encourage the prisoners to evade” (5; 47); “twofold antithesis images: the image of those who look at the prison from imagination, reading the text; and the real prison” (7).

Synonyms of the term “image” are used in collected data many times-around 90 explicit uses are discovered. Visual representations [11] of Jilava reveal affective cognition of the captivity: “it is an image that hurts” (24); “upsettin, horror images of Jilava, all around with wire fence” (29); “I was very impressed by an image: all the citizens of the country were prisoners” (19). The exegesis of the metaphorical pictures rejects the possible questions regarding distortions of the findings because the discourses of the target population about Jilava are in terms of the current positions of neurosciences: “penitence paradise or imprisonment paradise” (1); “it is not a security system and the prisoners had no reason to escape from inside because all the country was a prison” (3); “high (watch) wooden towers, fence visually extended, the passing of the convoy, a shoven character” (4); “because of the (communist) regime Romania was a prison” (8); “the restrictions of the citizens are expressed in the image of the country as a prison” (9; 37); “I understand that there was no need of guardians because all the country being a prison. The enclosed persons had no ways to evade” (10); “The cold and dark walls of one building, all around wire fence, ... The absolute silence is synonymous with death, means death” (11); “Ana Blandiana suggests the need for more freedom; the need to demonstrate the courage to say the whole truth” (14).

The greatest parts of data collected are distinguished by the moral cognition of Jilava and many questions remain to be debated from the functional point view of the moral brain: “a prison of extreme torture that could not be imagined by a normal mind; the shoven character in his striped uniform; this penitence paradise was watched and lived by the monk father Arsenie Boca. Being enclosed father Arsenie Boca travelled to the funerals of his mother and after that he come back inside the prison” (25); “an image of a virtue ...as the result of the orthodox belief” (40). Diverse answers offer self-projection, reflections about the picture of Jilava, imagery processing: “shoven character in a striped uniform, wire fence, presidential convoy” (21; 39); “the entire country was a prison” (23); “reservation/enclosed/fold, -this is a hard term used in the text for prison; guardians-lost in their proper area; wire fence-place where there is no way out” (26); “an interesting description is that of the author concerning the risk of passing from one part to the other of the world-it doesn’t matter” (27); “lack of freedom self assumed-it is possible to become perfect” (28); “the prisoners guard themselves the prison but there are no differences between inside and outside the prison” (30; 44); “prisoners are guarded themselves; German soldier

armed; high watch towers” (31); “high watch power; wire fence, the prisoner that watch the road; lack of guardians” (32); “the country as a prison” (33, 37); “camp movies; armed soldier; country being a prison, the prisoners have no way to evade. The writer analyses the day by day life” (64); “presidential procession, prison, controlling towers, guardians-prisoners, hair-cut; high walls that do not delineate a space-the prison, does not divide a town (Berlin) into two parts because it is about the borders of a country. The wire (fence) cuts the map of Romania from the geography class” (66). The concrete space of Jilava is connected to moral and social time of the Romanian history.

The content analysis of the data by details of visual images reveals a list of key terms or categorizations of the entities.

4. Discussion

The findings provide that the investigation is in terms of the probabilistic researches from the quantitative areas: Dayan (2006), Kosslyn (2008), Kapur (2011), Matlin and Genesco (2014). In quantitative approaches the images are related to specific visual objects or their photos; we replace the photos with literary images of the prison. The literary image within the text is considered an open space and the real prison Jilava is considered an enclosed, military space. The difficulty of making the visual representation is highest as in laboratory because of the abstract sense of the metaphorical and non-metaphorical images in the brain. The mechanisms of learning images from the writing text are different from the mechanisms of learning visual algorithm of concrete image (it is about the image of an object). The context semantic is important in both cases and we discuss quantitative and qualitative paradigms in terms of similar and reciprocal connections between semantic forms of the cognitive tasks and the inferences or expected results.

The approach was feasible: visual and spatial representation of the prison is precise and close to the text of the author; the most important visual inputs are recognized in findings. As in the quantitative research the “associative cortex” solves in individual ways the task: mental imagery (as can be seen in the previous comments and **Tables 1-3**) the representation of the prison inherently becomes part of construction. There are some differences between the original description of captivity and the visual processing of it into the students’ narratives.

The analysis is made in normal conditions and with normal students; the visual and spatial abilities of target population are various. Presumably, we can expect or discover high performances in terms of military applications with persons having remarkably visual and spatial abilities (navigation, air forces and so on). That is, we consider, opening for our next studies because the cognition itself might parameterize the representation of prison.

Table 1. Images of the prison.

Unexpected Images of the Prison	Conventional Images of the Prison
-“punishment, cold, reproving, meekness, prayer, alone, uncertainty, hope, courage, upset” (24) -“saints, bars, Jilava, punishment, the Pitești phenomenon, torture, battles, tribunal/trail, prisoners, limitation, military space” (10) -“I think especially of saints and the greatest Romanian personalities from the Jilava prison. Their suffering, their faith; discovering the Lord/God.” (19) -“fear, terrible fright, despair, prisoner, solidarity, death, torture, cold, alone, starving, prayer, torturers, misery, darkness, cell, blood, chains, isolation, saints, the Lord/God, ...” (22) -“isolation, ill treatment, violence, stress, family, friends, longing (dor), freedom, black days, despair, regret, untruthful, Lord/God” (8)	-“torture, hurting all the persons in a cruel way/extremely, suffering, executions, abominable conditions of life, punishment, guardians, arms, evade” (6) -“extreme regime/power, isolation, criminals, rectifying/correction, disrespect, torture, offences, guardians/armed security, cold” (14) -“bars, guardians, key, criminals, guilty, evade, isolation, walls, cell, alone” (28) -“hand-cuffs, lattice works, chains, custody cell, padlocks, guardians” (4) -“faith, blood, chains, knife, violence, sadness/upset, culpability, suspect, victim” (1) -“lack of freedom, punishment, bad people, worst food, misery” (33; 62)

Table 2. Narratives’ categorization in terms of brain functioning.

Topological Space	Memory	Imagery
Storage of the common information about the physical parameters of the prison	Remembering of words, behaviors, needs, statements about the prison	A great number of the pictures processing particularly visual perceptions about prison

Table 3. Content analysis-details of the images delineated and frequency of occurrence.

Detail	Frequency of Occurrence
Prisoners	40
Guardians	25
Wire fence	20
Tower (s)	15
Soldier	12
Walls	12
Character hair-cut	9
Imprisonment	7

5. Conclusions

- The approach could be considered a methodological innovation because it is a unique investigation that uses metaphor as a stimulus for measuring images by quantitative metrics.
- The findings re-new a paradox [12]: from the vantage point of propositional and analogous code [13] of the target population the research reveals important results because of the limits (visual ability of respondents).
- The presumption that the space cognition is dependent on social and moral cognition [15] is validated, the findings from the first item providing how the brains accomplish language of the prison: the semantic network of the term prison is formed by the social and moral extension of metric space in case of the imprisonment. Comparing to quantitative researches, this feature of the semantic structure defines the conditions of the experiment in the lab: other researchers on the topic in Eastern countries might use this technique and the results.
- The hypothesis about the relationship between the image of the prison in terms of military space and the implicit memory was confirmed. The interconnectedness of all constituent parts of visual and spatial brain [14] is dependent on storage, retrieval and recognition [15] of previous algorithms.

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