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Master's Degree in International Public Administration

Aspects of the Impact of Neuroscience on Human Resources Development

**A Dissertation Defense in the Field of
Human Resources Management**

by

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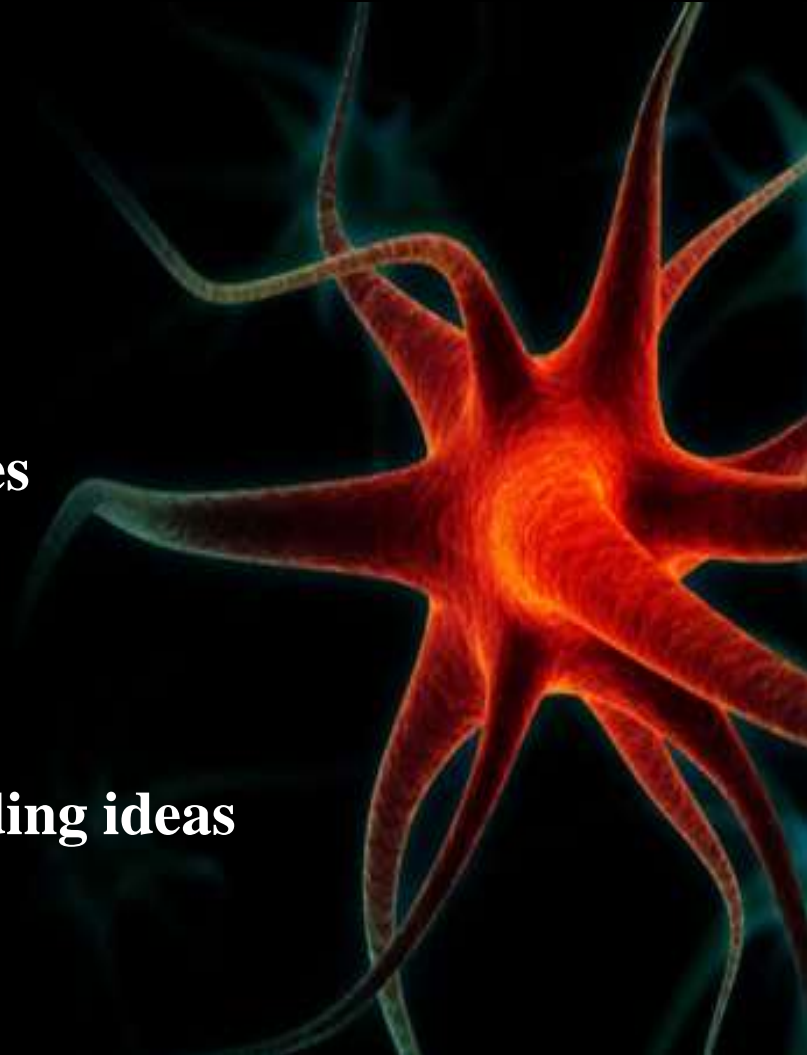
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Introduction

Neuroscience is an interdisciplinary field of research that is interested in the structure and function of the brain and its relation to behaviour. It is a unique analytical framework for terminologies linked to social, psychological or philosophical cases. It has multiple branches but the present study elaborates social cognitive neuroscience, a field dedicated to the revealing of the biological processes that influence and regulate the human cognition in particular circumstances and conditions.

Knowledge from this field is researched extensively in order for a linkage to be created between social cognitive neuroscience and human resources development. Once harvested it may aid in the construction of an evidence-based HR system which would be enrooted in the cerebral functions, working with them rather than against them, aiming in acquiring credibility with stakeholders and driving organizational results. It may offer unique benefits to withhold or even excel exponentially grow in the business community while providing various mechanisms for the preservation of attention, and creating a distraction-free working environment.

This study will attempt to link some of the neuroscientific aspects with the processes of HR development, while essaying some indicative tools and methods from the field. A presentation of the weaknesses of its application is attempted before reaching the final conclusion.



Brain structure

Before revealing the theories of social neuroscience in HR development it is considered crucial to present the anatomical structure of the brain.

It can be roughly separated into three areas: the lizard brain, the mammal brain, and the neocortex (McGurran, 2017).



Lizard brain: Responsible for the surviving mechanisms of the body.
Main functions: respiration, digestion and heart beating.
It is surrounded by the



Mammal brain, also known as limbic system (responsible for safety, loathes change and pushes the person in repetitive actions).
It houses emotions, memories, habits and attachments.



Neocortex: the most consciously accessed area (responsible for rational thought, learning, decision making, empathy, creativity, reasoning, imagination, language).



When a new experience is pursued by the neocortex, the mammal brain tries to obstruct it by creating anxiety or fear.

All these sectors are covered with neural networks which expand or scale down depending on their use.

Encephalic structure

The encephalon is part of the central nervous system along with the spinal cord. It resides within the cranium and is consisted- among others- with neurons, synapses and glia

Neurons: specialized body cells of the brain, which are interconnected. The special functions of the cells and how they interact specify the functions of the brain (Zhang, 2008, p. 5). It is estimated that the human brain is consisted by approximately 100 billion neurons, interacting through trillions of synaptic connections.

-Neurons do not regenerate like other cells; they can be destroyed due to stroke, disease or accident

- Neurons communicate with one another

Synapses: Specialized points of appositions, the connecting points of the neural map.

Axons: is a long thread of tissue that sends messages to other cells

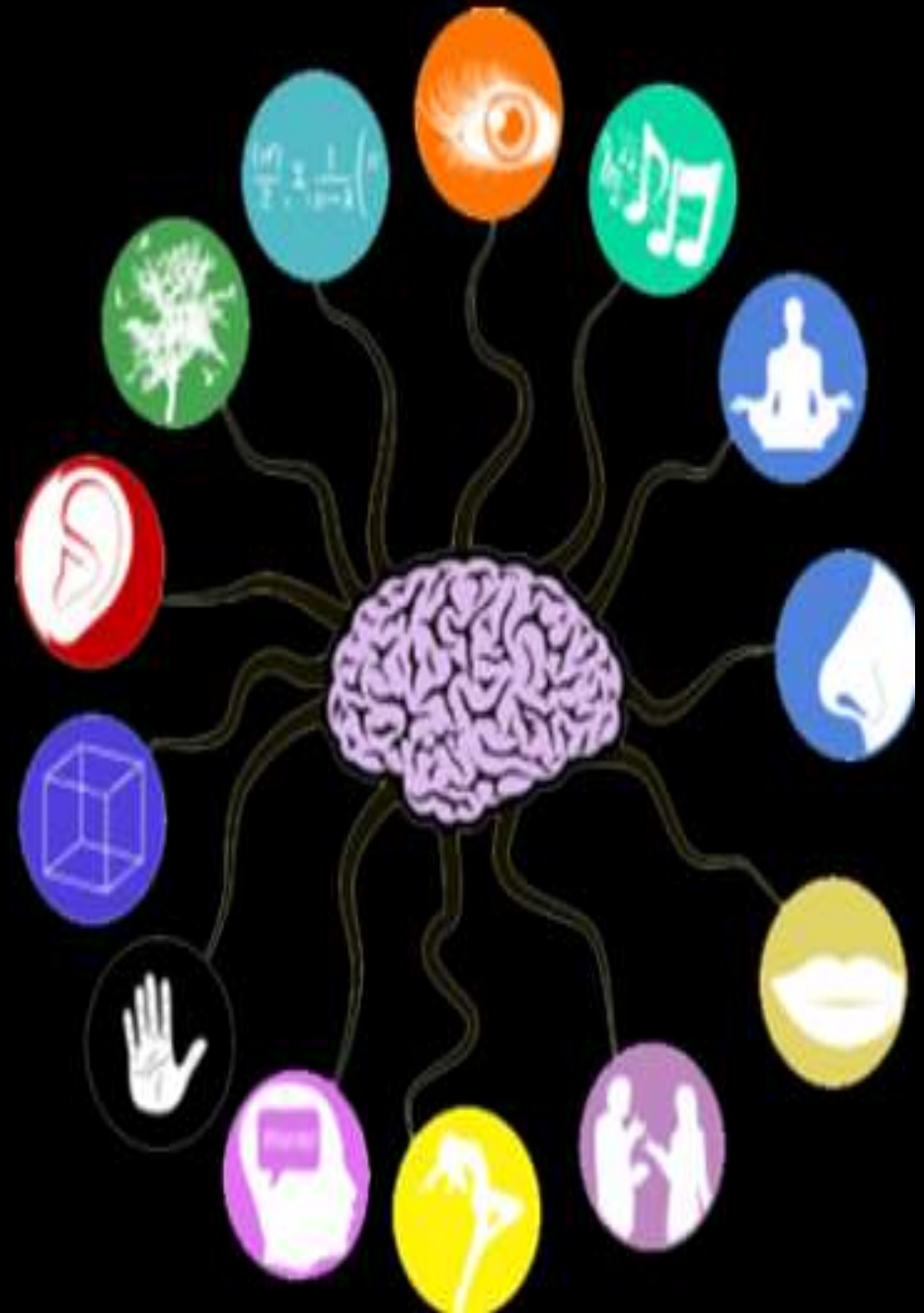
Glial cells: supporting neuronal functions and actively communicating with neurons and with one another (Stevens, 2003, p. R469). New research points toward a critical role for glia also in synapse formation (ibid, p. R471)



Neurons and synapses are a vital component of the central nervous system, as they are the gateway to the human perception of the external world.

Depending on each person's experiences, it is evident that the synapses differentiate. Thus, continuous reciprocal interconnections between genes and external stimuli alter the structure and function of the encephalon throughout the lifespan of the individual.

Influences from the societal framework may include cultural background, education, past experiences, and interpersonal interactions. **With every interaction a change occurs in the cerebral map and new patterns are created for future use.**



Workplace and Neuroscience

The corporate attempt to enhance their competitiveness has turned their interest towards their backbone the employees. New ways are invented to maximize performance, and new tactics aim to uncover the personnel's true potentials. Techniques from neuroscience are drawn, since this field promises tremendous results such as:



The applications of neuroscience into workplace should not be considered as a checklist implemented automatically. Their use should be based on the judgment of the leadership in order to engender rational, just and balanced results applicable in each particular situation.

Implementation of neuro-techniques

Recruitment:

- Visual portrayal of the organisation , understand the culture and available developmental possibilities -> envisaging their future in the organisation
- Ameliorate the process' ambiance (warm handshake , familiar rituals, comfortable chair, beverages)
- Technology to surpass any biases.

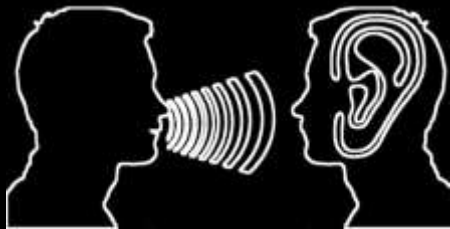
Learning and training:

Target needs, form an educational plan by combining both individual's and corporate's interests.

- Proper ambiance (calm, use of music or color techniques)
- Healthy meal before session to maintain glucose levels and maintain energy
- Right amount of sleep after their session
- Small breaks (small talk/ walk)
- Use the power of imitation and influence (top- and middle-level leaders as role models). Use of Mimicry [take advantage of the person's mirror neurons by subtly mirroring the other person's body language, tone of voice, and words (Hurst, 2020)].
- Address negative/undesired behavior
- Create Anchors (with the collaboration of the trainee). + thought connected to an anchor available for the person's use in times of need.

Communication, NLP, goal setting:

- Use of proper wording. Communicate clearly, simply and in a positive tone.
- Make sure that the personnel understands what is expected, help them envisage the expected results and understand their role. (aims of a corporate project)
- Standard in-person encounters, active listening
- Align verbal and non-verbal communication. Thinking and wording is aligned with actions
- Use pauses, clarifications, examples, repetition or paraphrasing, conclude with the main parts of conversation
- Prioritize according to importance, allow employees to make suggestions (they feel valued).
- Take notice on the attention span (appr .10 to 20 min)
- Ericksonian hypnosis (for trained users)
- Plant the seed in the unconscious by catching the person off guard (indirect suggestions, use of metaphors, antidotes, contradictions).



But how will the interest of the personnel remains triggered and engaged?

Incentives:

Reward strategies based on the person's existing or created needs (acquire assets by achieving goals and demonstrating desired behavior).

These tangible and non-tangible rewards stimulate the reward and pleasure centres of the brain while contribute to the secretion of dopamine.

Another major motivational force could be the creation of an optimal working environment where multiple factors are taken into consideration. It is evident that green-certified working spaces can boost cognition by 26%, reduce sick days by 30% and increase sleep quality by 6% .

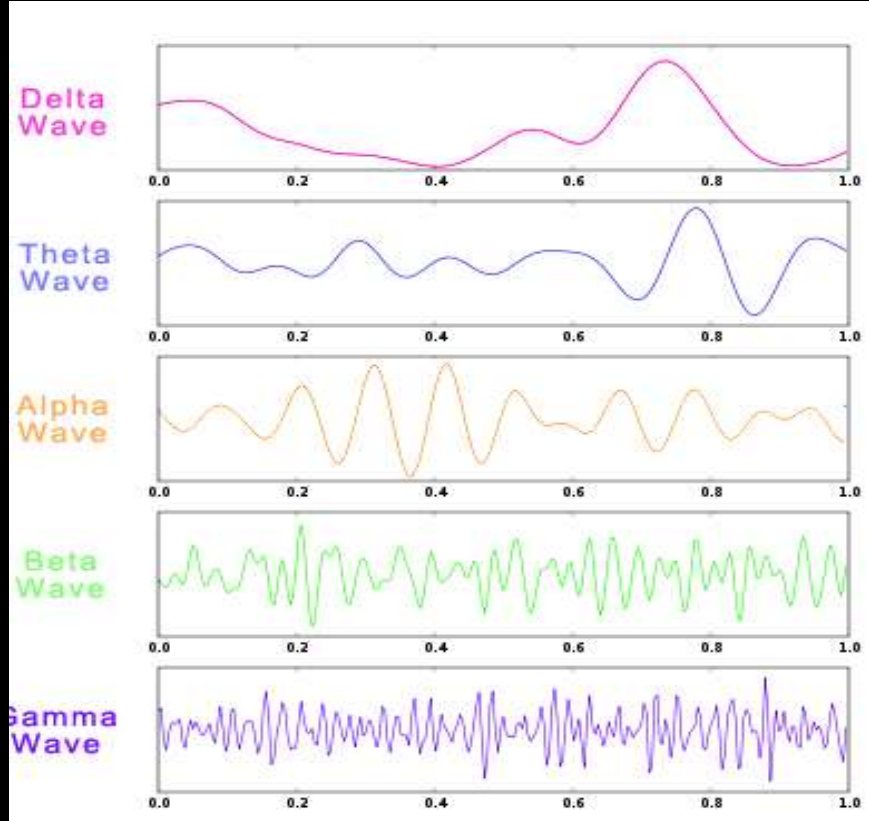
Some parameters which will benefit the employees well-being while promoting their performance include

optimal **natural light**, **indoor air quality**, and **thermal conditions** since they stimulate creativity, job satisfaction, prevent diseases and decrease mental fatigue. **Ergonomic** and easy to handle furniture are opted so that the personnel can stay motivated and healthy.

open-layout structure were face to face collaboration can exist, while **selecting colours** to affect positively the employees' feelings and help them remain calm and concentrated.

Emphasis is also given to adequate physical exercise of the personnel so that stress can be reduced while neurodegeneration is prevented. Furthermore a 30-min workout daily has benefits in the person's health, while group programs can create bonds among the employees.

Finally, the **acoustic environment** with the proper selection of brainwaves can promote a plethora of advantages, such as amplification of cognitive functions and stress-release. The right tunes can support learning capacities of the individual. Brainwave frequencies relate to various levels of consciousness (Berk, 2008, p. 48).



Used for sleep

Meditation. Access to the subconscious. May promote memorization capabilities.

Access to the subconscious. Promotion of a stress-free environment where alertness is still heightened

alertness in processing, concentration and cognition.

Concentration, helps process information, problem-solving



“We care about our employees, and we’re totally committed to their well-being and happiness. We want our people to do great work and fulfil their career growth aspirations while they’re with us, which is why we offer an extensive and leading benefits package to support them”

(<https://careers.sagerx.com/benefits>)

Apart from healthcare, financial benefits and time offs this industry offers programs and resources to support the welfare of the personnel. Some of them include :

- employee assistance program for the amelioration of mental health
- gym memberships,
- free fitness classes
- free chair massages

- personal assistance program designed to aid the personnel when managing priorities,
- regular breaks for employee’s socialization,
- tuition reimbursement for those who pursue to expand their studies (SAGE Therapeutics, 2020b).

<https://tbdnc.com/sage-therapeutics/>

Evaluation and feedback assessment

In order to correct one mistake there is a need to first identify it.

How?

- **Technology**: unanimous and anonymous data collection to be used as an unbiased system of feedback and assessment.
- **360° Feedback system** in order to shed light in all aspects of the corporation (quantitative surveys and computer programs such as 360° Leadership Navigator®)
- **Neuropsychological assessment**. It may pinpoint each employee's particular cognitive and behavioral abilities. The duration of these standardized tests and processes can last from one to two days for one-to-one evaluation, an one hour interview in order to fulfill the questionnaires regarding mood and personality (Owens, 2020).

Pharmaceutical approach

Stimulants as a quick solution for reaching the corporate's aims, since they may improve social interactions or even the person's ethical thinking.

However:

- implications on how a person could be judged if their actions are a result of brain intervention
- Dependence. These types of enhancement have not yet been fully tested in healthy brains and the knowledge surrounding the long-term use is narrow.
- Blow to corporate's reputation

Neuroscience in the Public sector

The application of neural practices in the public sector is currently at an infancy level.

Limited amount of public corporations utilize some of the latest techniques from the private industrial setting (e.g., Sage Therapeutics). Even though an adaptation of private sector's practices would result in tremendous positive outcomes in the wellbeing and performance of the civil servants, as the ones in the private sector, the complex and unrushed gears of the public sector should be taken into consideration.

Firstly, thorough analysis must be made to identify the areas which need amelioration, while any decisions must be developed and adjusted gradually so that no contradiction occurs with customary laws. Many difficulties may occur in this process due to:

- The hostility towards innovations and the opposition from **strong unions**
- The potential **absence of political will**
- The **obstruction** from other **political parties**
- The inability of the public sector due to its **strict rules** which often limit the options for hiring, firing, or offering benefits to workers .

Methodology concerns and concluding ideas

The techniques from neuroscience however fascinating and intriguing may seem they still have an obscure side.

Technical restrictions

- Small sample size, not adequately randomized, insufficient for general conclusions
- Researchers test hypotheses in the gene cells of captive that seem relevant to the ones that humans have [a) this comparison is speculative, since there are differences between the species; b) animals in captivity differ from the ones in the wild].

Rely on neuroimaging techniques which present certain restriction such as:

- high cost
- Paradox: researcher wish to study social interactions but the person has to lay still with his head surrounded by the magnet (otherwise a clear image cannot be captured)
- Indirect measurement. Also researcher may focus in certain areas of the brain ignoring others [absence of activity in another brain region does not imply its lack of involvement in the function (Whitten, 2012)].
- False positive results. The case of Atlantic salmon.

Barriers from researcher

- probable imprint of unintentional biases within the study

Ethical and philosophical implications

- By evocating constant amelioration to intervene with an individual's mind.
- Biological reductionism. If a person's mind setting and reactions are a product of past experiences and unconscious biological urges, does it mean that there is no free will? How could someone be held responsible for their actions?
- mental shortcuts will diminish the importance of real effort .

Aggravation of social inequalities

- therapeutic advances are costly and they might lead to attempts to enhance normal function among those who have the means
- Since poverty influences development of cognitive and emotional regulation, people who grew up in low classes would have a considerable disadvantage

Concerns regarding the individual's privacy and autonomy

- coercion into using enhancement techniques
- brain techniques by non-qualified personnel might trigger unintended consequences. (where the constructive components of the self are changed in an extent that might affect the connotation and qualitative characteristics of the most cherished features of the individual's life, and ultimately change the person itself).
- mindful staff member decides to favoring his personal interests over the organizational ones
- A threat to civil liberties and privacy could be made through:
 - creating a reliable distant method of extracting the content of conscience in the near future without the consent of the individual.
 - the potential predictive power of neuroscience for future behavior.

Will the state act preventively by detaining people on the grounds of those predictions and based on the likelihood of them committing a crime? Will they force parts of the population to follow a “corrective” program to modify areas that are perceived as problematic or will it stand by and let the alleged crimes been carried out? Who will make those decisions?

Conclusion



The insights from neuroscience and its applications in the field of HR are still in early stages. However, since many countries are involved in the promotion of its research by arranging funded projects to accumulate scientists into the investigation of cerebral human capacities, the knowledge of the field will be gradually augmented. Already neuroscientific practices are implemented within organizational settings mostly in the private sector, with a few exceptions existing in public corporations, since brain strategies pledge to steer the business into successful paths by boosting the mental capacities of the workforce while maintaining it active. Even though this field promises tremendous benefits it can spawn negative repercussions while certain limitations are still to be resolved. In the end, the knowledge of neuroscience as well as the existing and future methods is just a tool. It is up to the person responsible for their application if they decide to use them for the maximization of wellbeing or the manipulation of the masses. Nevertheless, neuroscience is here to stay and with its progress, humans might evolve for the better or for worse.

Thank
you

A watercolor illustration of the words "Thank you" in a gold cursive font. The text is surrounded by several pink and purple flowers with teal leaves and clusters of small orange berries. The entire composition is set against a white background.