

Exploring the Role of Neuroscience in Talent Management and the Future Research Agenda

ABSTRACT

The purpose of this paper is to explore the role of neuroscience in talent management (TM), discuss and analyze the findings that can have a potential role in the execution of talent strategy in organizations, and bring out the future research agenda. Corporates adopting this science have been found to understand what motivates employees and drives excellence. Neuroscience elucidates how talent strategies can be improved to meet the strategic goals of organizations. This paper suggests that such talent management interventions may improve employee engagement and development, and calls for further research and thinking. Systematic research on past literature published on Neuroscience, Psychology, Talent Management, L&D was conducted. By applying ideas from the paper, TM professionals can improve talent strategies to meet business objectives. It will also help to comprehend and cement the connection between neuroscience and TM. The challenges associated with combining neuroscience and TM have not been covered in this research. The findings are theoretical and are not supported by quantitative results via primary research.

Keywords: Engagement, Neurodiversity, Neuroscience, Performance Management, Talent Management

1. INTRODUCTION

Neuroscience is all about our organising, creativity, processing complicated ideas, regulating our stress responses, interacting, learning and developing. With the brain being the lynchpin of all that we do, we can see that neuroscience provides a new method of understanding how individuals and organizations approach work, thereby giving rise to Neuro-Talent Management. If we can understand the myriad processes of our brains – how stimuli, thoughts and emotions affect and alter our behaviour, we will be able to better see the impact of the same on others – something which can be of great advantage at workplaces.

The first MRI scan was conducted on a machine created by Dr. Raymond Damadian and his team in a facility in Brooklyn, New York, on July 3rd, 1977 [1]. In an innovative method, they were able to view the working brain, using the least hazardous manner conceivable that does not include any harmful material or radiation. Modern neuroscience was born when this happened.

Many studies and conferences, such as the Association for Talent Development, have investigated the role of neuroscience in the field of Human Resources since the early 2000s. Despite this, there has been minimal investigation on how the application of neuroscience in HRD relates to organisations and learning. Accordingly, the link between neuroscience and Talent Management warrants an integrated analysis, which is the goal of this paper. The paper may provide organizations, academics and practitioners with alternative and feasible implications.

The most significant contribution of this study would be to highlight the current state of literature on Neuroscience and Talent Management, as well as to provide a reference for future prospects in this field.

Neuroscience is discussed in the first section of the paper. Concepts such as the anatomy of the brain and key brain regions are discussed as well as various results concerning memory and cognition. Sharp emphasis is placed on the role Neuroscience plays in Performance Management, Learning and Development, Leadership Development, Neurodiversity and Neuroleadership. Neuroleadership, a subset of neuroeconomics, incorporates knowledge from several fields of neuroscience to deal with leadership matters [2].

The Neuroscientific factors affecting Talent Management haven't been explored in extant researches as observed via the Literature Review conducted, thus such factors and frameworks will be proposed. Further analysis is done on the future studies as found from the Literature Review.

Using a combination of rigorous research and a narrative synthesis of the existing literature, this study provides an innovative understanding of the issue. Businesses and practitioners will benefit from the conceptual clarity since the paper provides clear directions in implementing some of the

proposed Neuroscience-based Talent Management practices, which have largely been academical in nature till now.

2. THEORETICAL BACKGROUND

Neuroscience, often known as neural science, is the study of the nervous system (brain, spinal cord, and nerves) in a scientific way. Nerve cells, known as neurons, are the fundamental cellular components of the nervous system. Neurons in the nervous system are linked through synaptic junctions that exchange information and electrochemical signals with other cells inside and outside of the nervous system. Everywhere throughout the body, the signals are sent via the long filaments (axons) that neurons possess. This process involves chemical messengers called neurotransmitters, which carry these messages from neurons to other neurons and cells (example, Dopamine, Endorphins). Dopamine is the brain's main neurotransmitter, which controls brain reward and pleasure regions along with emotional and motivated actions. [3]. Magnetic resonance imaging (MRI) was able to shed light on the complexities of the neurological system because of scientific and technical progress in the form of it.

Researchers were able to see all of the events in the brains of those doing pleasurable activities, including completing arithmetic puzzles, picturing dreams, giving speeches, and working on spreadsheets. Activation was seen in the various areas within the brain; pathways and communications were evident; and memories were created. We've learned much about the brain with these sophisticated testing techniques and technology, but there is still more to discover. 2% of our total weight, this tiny organ works like a powerhouse. This stuff takes up 20% of our energy and blood and oxygen [4]. It has more than eleven times the number of the entire world's neurons.

The fact that even involuntary bodily processes, such as breathing, blood circulation, digestion, and eye reflexes, occur through neurons is a remarkable fact. Neurons are responsible for keeping us on track each and every day.

"A specific weight, balance, or amount of money" is the root of the English word "talent". The first thing discovered about the historical meaning of "Talent" is that it was originally defined as a weight measurement, which was initially employed by the Greeks, Romans, Babylonians, and other early human civilizations [5]. Because it had the same monetary value as one ounce of silver, it was rapidly adopted as a standard monetary unit. The English term entered the Bible through its translations of "talent" and "capital." Human resources managers now use the term "human capital," which in many places is also known as "Talent" [6]. Talent is essential to creating a successful human resources department for a company.

The phrase "battle for talent" was first used by McKinsey & Company's Steven Hankin in 1997. In 1994, a book titled "It's Not What You Know, It's Who You Know" was written by Ed Michaels, Helen Handfield-Jones, and Beth Axelrod, and in 1998, the term "Talent Management" was invented by American consulting companies [7]. Talent management began to be used by many other researchers, academics, and professionals, and this became the topic of human resources for the early 21st century [8]. Talent Management is becoming an increasingly important objective for businesses nowadays.

The important point of personnel management is to discover and attract the appropriate people, to maximise productivity and retention, and to be more successful than your competitors. It is a comprehensive approach to the optimization of human resources and an organization's deliberate effort to engage employees, foster capabilities, and foster company culture via hiring, training, and retention to meet business objectives now and in the future [9]. In the 1998 article "The War for Talent," the phrase "talent management" was used. In 1998, David Watkins of Softscape established the phrase "Talent Management" as a formal term.

Neuroscience has the capacity to inform talent planning around managers. The research, which is done by Matt Lieberman from the University of California, Los Angeles, showed that understanding others is related to understanding oneself. It is in fact the same neural circuitry that allows us to accomplish this. Our ability to control oneself and focus on others is reduced, however, when we think about ourselves or others and activate the mentalizing circuits. Analysing corporate strategy, for example, is impossible since it impacts others. The brain is naturally inclined to seek for straightforward ways to operate, such as methods that minimise the amount of energy and effort that's required. Even what we do every day has a high level of regularity or habit. If leaders find it difficult to transition between analytic and strategic thinking modes, that is because their brains are used to thinking about the ways those modes affect others. Encouraging individuals with strong technical abilities to use their full potential, while neglecting the needs of others in the process, worsens this individual's tendency to prefer one half of the brain.

3. LITERATURE REVIEW

It has taken many decades to gain a thorough understanding of human behaviour and behaviourism. As articulated in the book "Drive", via decades of rigorous psychological research, the concept of motivation focuses on the features of bias and choices [10]. We've given insufficient attention to the science and insights on which good management is founded, and instead have followed management thinking that is mostly based on processes and policies and the constant control of assets, as the standard approach to manage human resources [11].

Neuroscience is bringing even more weight to the knowledge of humans. We may describe a study of neuroscience and the brain's functionality as an exploration of the workings of the nervous system and the brain [12]. The use of functional magnetic resonance imaging (fMRI) has allowed us to get a better knowledge of the brain's processes, including learning and memory, human being's reaction to stress, our sources and processes of motivations, among other things. New developments are questioning some of our long-held ideas in the realm of research. It is used and quoted in a wide range of areas, including marketing, and HR.

Despite the field of Neuroscience being very new to Human Resources, Neuroscientific results have already been used to improve employee performance in some businesses [13]. Though neuroscience began influencing human resources development (i.e., training and development, as well as organisation development) more than a decade ago, a great deal of the literature on the subject comes from events like the Association for Talent Development.

To help CEOs deal with stress, Rachel Jackson, head of the consultancy Changing Dialogues, draws on Neuroscientific research. SCARF (Status, Certainty, Autonomy, Relatedness, and Fairness) is a theory put out by the NeuroLeadership Institute that illustrates how emotional states affect action [14].

Experimental investigations have shown that those with a growth mindset have a better work satisfaction and higher job performance [15]. HP Inc. for example, reported a 22% increase in employee engagement after the introduction of its growth-mindset programme.

In the area of Talent acquisition, extant research has shown how the goal of personality neuroscience's developing disciplines like "personality neuroscience" is to link all of the key behavioural characteristics to brain-based indicators to enable accurate selection, without mentioning the factors that might affect the same [16]. There has been considerable literary and organizational progress made on neurodiversity. Sociologist Judy Singer christened the term "Neurodiversity" [17]. Neurodiversity emphasises the fact that people who are neurotypical possess unique and sometimes superior abilities, traits, and interests. While neurodiversity employment programmes may lead to improved managerial abilities, managers at times assert that participation in them "improves their abilities as managers" [18].

Neurodiversity understands previously dismissed neurological patterns, such as autism or dyslexia, as normal human variety. SAP, Microsoft, DXC Technology, EY, JP Morgan Chase, and other notable corporations are all confirming the reality of neurodiversity. SAP's autism at work initiative was launched in 2013, and it's part of the company's efforts to employ people on the autism spectrum while creating a more inclusive working environment for them. Neurodiverse populations' influence on the workplace is observable and influential. Numerous studies show that there are above-average individuals with cognitive impairments who possess high levels of intellect and excellent pattern recognition, numerical skills, and short-term memory [19].

The awareness and applicability of neuroscience is limited with few organizations making use of technology to integrate neuroscience with talent management. EMOTIV created a flexible neurotech ecosystem that is designed to meet the unique requirements of each business. The MN8 model is a Bluetooth headset having inconspicuous integrated EEG buds that is a first of its type. This gadget is, simple to use, and lightweight, so it is easy to wear all day long. Using an EEG scanner and machine learning techniques, the organization can monitor and evaluate workers' levels of stress and concentration [20].

The paper "Neuroscientism, the neuroscience of learning" , has underlined the significance of neuro-transmitters in the capacity to retain information, exercise cognitive function, and to organise one's knowledge [21]. Brain based learning theory: Neuroscientism is shown to have remarkable effect on learning outcomes. This presents a shift from traditional learning theories like behaviourism, cognitivism and constructivism.

4. RESEARCH QUESTIONS

Basis the research agenda, a literature review research is carried out to analyse the extant studies on the topic, the arguments presented, the experiments conducted by organizations and to see through the factors which have not been considered by researchers. In this light, the research questions addressed by this paper can be formulated as:

- A. How does Neuroscience connect with, explain and add value to Performance Management, Learning and Development, Leadership Development and Neurodiversity?
- B. How can the theories linking Talent Management with Neuroscience be put into practice in real-world settings?
- C. What are examples of organisations using neuroscience to effectuate their goals and what key takeaways are there for other organizations to follow suit?
- D. What are the missing links in the extant research on this topic and how to bridge these links?

5. RESEARCH METHODOLOGY

An integrative secondary research was carried out to search for specific and relevant work on the topic. The primary search for papers was carried out on Scopus, Emerald Insight and Web of Science.

Prior to conducting a search for relevant literature, established exclusion and inclusion criteria was established to help narrow down the scope of the research. These criteria included subjects and keywords, publication dates, publication types, and research areas. Only Open Access papers were looked at. Only "Final Stage" publications were considered.

The subject areas were restricted to:

- Psychology
- Neuroscience
- Business, Management and Accounting
- Social Sciences

The inclusion criteria included the following keywords:

- Neuroscience and Talent Management
- Organizational Neuroscience
- Neuroscience and Leadership
- Neurodiversity

The keyword "Neuroscience" and "Talent Management" taken together yielded 31 results in Scopus, 46 in Emerald and 6 results in Web of Science.

"Organizational Neuroscience" yielded 101 results in Scopus, 17 in Emerald and 510 results in Web of Science.

"Neuroscience and Leadership" yielded 21 results in Scopus, 831 results in Emerald and 276 results in Web of Science.

"Neurodiversity" yielded 448 documents in Scopus, 29 in Emerald and 414 results in Web of Science.

The abstracts of the compiled results were studied to single out the relevant results as per the requirement.

A total of 32 relevant papers were identified which complied with the requirements basis the filter criteria.

6. FINDINGS & DISCUSSIONS

This paper has contributed to the existing research by analyzing and proposing the Neuroscientific factors affecting different areas of Talent Management. Secondly, the research delineates the ways in which a wider spectrum of organizations can practically inculcate neuroscientific findings in the Talent Management process by means of proposed frameworks and finally, detailing out the value addition to businesses drawing upon certain instances where companies have integrated Neuroscience with Talent Management.

After analyzing the extant research in the area of Neuroscience and Talent Management, we see that studies pertaining to comprehend and conceptualize practical connections and influences of

Neuroscience on Talent Management is scant. Moreover, work in this area has been concentrated on a smaller subset of subjects that are often bridged between neuroscience and Human Resources, such as leadership development and activity and job level training interventions, rather than the full employee life cycle.

In the paper “Applying Neuroscience to Talent Management: The Neuro Talent Management” – one of the few papers to exclusively look at Talent Management through the lens of Neuroscience, we find for example that the paper mentions that neuroscience research findings can help organizations overcome low levels of performance without elucidating the factors which might enable organizations to do so.

Factors of low performance may include individual threats at work, extent of uncertainty, the amount of autonomy at work. These factors are explained by David Rock’s SCARF model [22]. The emotions involved in the assessment of the SCARF model of an individual include love, trust, fear and anger and these in turn are regulated by the neurological hormones Oxytocin and Cortisol. Associative factors such as social bonding and stress regulation affect oxytocin levels of people, thereby providing a means to effect a change in performance.

In the academic literature pertaining to neurodiverse talent hiring and management in the paper “An empty review of neurodiversity research”, a paucity of contextualised, applicable guidance for companies and workers was discovered [23]. A framework therefore can be useful for employers to follow while hiring and managing neurodiverse talent. The proposed framework should consider a top-down approach. First, the company’s senior management may implement a neurodiversity plan by first considering the organisational resources and limitations. Once the strategic goals, resources, constraints, and plan of execution have been made clear, they should be distributed to management at middle management levels. A connection exists between HR managers and line managers since middle management combines both teams and empowers neurodiverse employees by implementing the neurodiversity strategy. Each work will be broken down into smaller steps, which will enable team members to assemble job descriptions and requirements.

Once the HR department has identified partnerships with specialists, treatment centres, and other special schools and NGOs focused on disability, they may continue developing these partnerships. When formed in cooperation, these organisations provide people with disabilities with a channel for finding potential employers, as well as a training ground for them and their employers. A mutually beneficial relationship exists as specialists dealing with people with disabilities may choose to explicitly teach those skills in organisations. To conduct a job mapping task with the assistance of experts, the HR department works with the experts, who then guide them through the process of identifying the strengths and weaknesses of applicants as well as selecting the positions that neurodiverse individuals would be given. Person-job fit is thus assured. The new employees will go through training that pertains to their jobs, their interpersonal interactions, and working as a team for an amount of time ranging from three to twelve months. Once the applicants have finished their tasks, they will be assigned to their appropriate work teams. All other workers should be sensitised to neurodiversity, the related difficulties, and particular solutions so that they may assist neurodiverse individuals on a daily basis. As job candidates and workers in the creative and neurodiverse groups, they should be regularly assessed by using the feedback they get from their peers, parents, trainers, and managers, and on the results of the evaluations.

In the paper “Neuroscientism, the neuroscience of learning”, we find the authors placing emphasis on organizations taking an integrated approach for understanding learning via both cognitive and emotional frameworks. Thus, the paper doesn’t attempt to discredit traditional learning theories but aims to complement Neuroscientism with traditional learning theories. We feel in order to create a good learning environment, it is essential to evaluate a learner’s emotional state. Some of the activities which might enable organizations to do so are role plays, Johari-window, mind reading, Subtle Expression Training Tool (eSETT) among others. The authors in the same paper also state that for Neuroscientism learning to be effective, positive emotions are very essential when facilitating a learning environment. This can further be achieved via intentional “happy hours”, experience sharing sessions etc.

The paper “How Neuroscience Transformed Business: The TCS Story” presents one of the very few practical examples of neuroscience transforming Talent Management [24]. Some of the key findings emerging out of TCS’ research on Neuroscience’s impact on Human Resources is as follows:

- Dopamine, which promotes openness to change is released by the human brain amidst verbal affirmation and positive imagery
- As we participate more in writing exercises the grey matter between the regions linked with fear and those associated with control and empowerment, we may shift neural resources away from these unfavourable locations

- Learning is the patterning of neurons by way of the wiring process. Through regular, brief, practical, and personal learning experiences, done in a social environment, this is more successful
- Positive affirmation and respect gives us the sense of well-being, which in turn increases our endorphins, oxytocin, serotonin, and dopamine, all of which improve learning

As widely believed from the Big 5 Personality Traits personality traits are relatively stable over a person's lifespan, this study by TCS throws light on the possibility of incremental changes in personality traits that happen over a smaller time span as also evidenced in the study "Personality Trait Change in Adulthood" [25]. This implies that with the help of positive affirmations, organizations can control the levels of individuals openness to change.

These findings are of immense value to the world of business which shows the practicality of neuroscience-based Talent Management. Positive imagery can be promoted by organizations through a number of ways, some of which are proposed as follows:

- Cogently defining and repeatedly communicating the higher order purpose of the organization and the steps an organization is taking to achieve the same
- Defining the ultimate value addition of different roles existing in the organization so that employees can relate their efforts and inputs towards achievement of organizational goals

We find in the work by Poornima Sehrawat and Rajasshrie Pillai in "Implications for human resource management practice: using a neuroscientific lens", the pitfalls of providing excessive, unchecked feedback during performance appraisal processes. The prospect of feedback is said to activate the threat response of the human brain [26].

A threat may be activated in performance management in a variety of ways:

- Indecisiveness and indifference shown by the HR and the assessing management in evaluating job performance
- When a Line manager has influence in regards to both employee evaluations and the advancement of employees, it instils an unfair feeling of inequality
- The fear of receiving unfavourable feedback

The same study doesn't go on to explain so as to what factors of the performance management system activate the threat response in individuals. An attempt to analyse the same is made as follows:

- A significant number of performance management systems are based on compliance, placing HR in the position of police to control behaviour. Conformity does not foster interesting discussions. The threat network may be aroused when compliance is seen.
- When remuneration is connected to performance assessments, as it usually is, managers use these evaluations to get rewards. Most managers first formulate a pay goal and then "infuse" their evaluation metric to that target. Creating a link between performance and pay essentially removes the possibility of a wholesome discussion.
- A feeling of urgency should be created so that team members are aligned in their efforts to produce outcomes for the company. For the most part, managers don't have the abilities to coach workers and without danger, they are unable to instil a feeling of urgency.
- Isolated performance evaluations seldom explain an employee's holistic contribution to the organization. By creating these possibilities, organizations significantly risk increasing the likelihood of workers becoming passive and disengaged, making it near impossible for them to absorb and receive valuable input that is not seen as a threat.

Organizations should thus keep the above factors in mind during performance assessments in order to ensure that employees don't view the entire process as a threat and the end goal of the performance management system is not jeopardized.

7. FUTURE RESEARCH AGENDA

The majority of neuroscience and talent management research have mostly relied on empirical findings obtained in laboratory settings that simulate clinical situations. To be able to have practical effect, it is very crucial that the neurodiversity paradigm have a demonstrable impact on the organizational practice. There is a need for workable measures to appear to serve as a guiding light and a source of motivation for a wider spectrum of organizations to follow suit and adopt neuroscientific learnings in the employee life-cycle.

Further, neuroscience is not only restricted to Talent Management as a domain but to the entire field of Human Resources, Organizational Behaviour, Employer Branding and Corporate Leadership. To get insight into this massive area of possible application may provide still unknown improvements in the overall workforce quality and effectiveness. Further research to this extent is warranted.

It would be fascinating to examine in more detail how neuroscience may be incorporated into conventional workplace learning principles. Furthermore, future study may be further extended to investigate how neuroscience improves performance, prosocial conduct and trust in companies. Although neuroscience-based treatments at industry level have been carried out, the efficacy of such efforts from a performance point of view would be an essential field of study to explore.

There is also a need for experimental research to promote the establishment of evidence-based Neuro-Talent management practices via long-term integration of results into treatment and diagnostic investigations. Including dependent factors such as the role of education, compensation & benefits, working conditions, job happiness, work environment and career paths, will provide actionable insights for organizations.

Neuroscientific interventions in the industry thus far have been run in isolation and have yet to enter the larger policy making in organizations. Thus, there also exists an avenue for organizations to invest in the research and development of Neuroscientific approaches which are not only restricted to Talent Management but also to Diversity and Inclusion, CSR, Organizational Behaviour and Strategic Management. A distinct shift in outlook of organizational executives towards Neuroscience is also needed to be able to bring about a paradigm shift in TM processes by its potential to use it to understand people better at an individual level towards ensuring better management of the workplace [27]. In [28] studied about impulsivity, reward and loss sensitivity in decision making using Iowa Gambling Task and investigate how impulsivity affects decision-making using sing BIS/BAS scale. Along with the classical LBP, features from the completed modeling of LBP are also utilized for the classification using K-Nearest Neighbor (KNN) [29].

8. CONCLUSION

While neuroscientists are only just beginning to study talent management, thus we have little evidence on how companies are successfully using neuroscientific techniques to deal with talent management issues. There is potential to better comprehend the individuals in the workplace as the methods for using neuroscientific findings continue to expand. Neuroscience in HRM is still unclear, and more research on the subject may be done via trials. This was also reflected in the paucity of relevant and credible studies on this topic. Also because of the highly technical and scientific nature of this study, it was not possible to conduct real-life experiments and statistical analyses as part of this paper. An in-depth examination of neuroscientific discoveries is also required to address a wide range of HRM and Talent Management activities.

It also seems as if contemporary neuroscience concepts are currently solely used to provide proof for training and development methods, and/or information in training methods. Based on observable behaviour, this demonstrates how learning and development interventions influence individuals. In general, information on all leadership, team-building, and other similar skills should include neuroscience concepts in order to provide leaders with greater understanding of the variables influencing employee performance.

New neuroscience study has shown nerve patterns potentially related to particular behavioural and functional competencies. This research can help businesses identify, attract, and place the best people. Conversely, the results of the traditional employee survey are often inaccurate, and businesses thus do not get excellent results. Neuroscience research may provide an answer and substantially assist businesses. However, this technology may also be used to better understand our workers, as well as consumers, and therefore assists in self-management for businesses. Genuine contentment, real efficiencies, and managers that don't meet expectations may be found using these methods.

Neuroscience also shows how hiring Neurodiverse talent can be source of key competitive advantage for organizations. Many of the various populations within the neurodiverse community have great potential and may be excellent investment options for businesses. This group of workers boasts a wide range of capabilities like being able to think and operate differently and be innovative. Also, employing various types of people is a first step in developing a sustainable workforce that will address the challenges that arise with topics such as innovation, motivation, social responsibility, and turnover.

COMPETING INTERESTS DISCLAIMER:

AUTHORS HAVE DECLARED THAT NO COMPETING INTERESTS EXIST. THE PRODUCTS USED FOR THIS RESEARCH ARE COMMONLY AND PREDOMINANTLY USE PRODUCTS IN OUR AREA OF RESEARCH AND COUNTRY. THERE IS ABSOLUTELY NO CONFLICT OF INTEREST BETWEEN THE AUTHORS AND PRODUCERS OF THE PRODUCTS BECAUSE WE DO NOT INTEND TO USE THESE PRODUCTS AS AN AVENUE FOR ANY LITIGATION BUT FOR THE ADVANCEMENT OF KNOWLEDGE. ALSO, THE RESEARCH WAS NOT FUNDED BY THE PRODUCING COMPANY RATHER IT WAS FUNDED BY PERSONAL EFFORTS OF THE AUTHORS.

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