

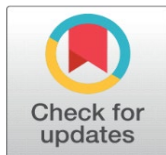


NEURO-TAXONOMY-BASED STRATEGY DESIGN FOR EMPLOYEE ENGAGEMENT

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ABSTRACT

Employee engagement is a crucial element in the triumph of any organization. It encompasses the degree of emotional commitment and devotion that employees possess towards their work and the organization. Enthusiastic employees exhibit higher levels of motivation, productivity, and job satisfaction. Additionally, they are more inclined Hussainy & Wahaibi (2022) to remain with the company and contribute to its development and achievement. To attain a more profound comprehension of employee engagement, it is imperative to delve into the role of the brain in this process. The brain, being a multifaceted organ, governs our thoughts, emotions, and actions. It assumes a significant position in shaping our encounters and perspectives within the workplace Coffey (2021). By comprehending the neuro-scientific aspects of employee engagement, organizations can construct strategies and interventions that effectively captivate their employees. From a behavioural and psychological perspective, employee engagement is an issue connected to the deep neuro-psychological thread of analysis and interpretation which is rare. Considering the backdrop designing a taxonomy of the word connecting to engagement is a need of hour. The paper meticulously designs taxonomies of components of neuro-behaviour and brain-connecting employee engagement to interpret brain-based engagement. The study forwarded a host of neuro-based strategies for employee engagement to management practitioners, academia, and researchers for future research.

Keywords: Neuro-Strategy, Neuro-Chemicals, Behavior, Job Design, Neuro Plasticity

1. INTRODUCTION

Neuro-taxonomy-based strategies for employee engagement have not been specifically addressed in the abstracts provided. However, the abstracts do provide insights into the factors influencing employee engagement and the importance of taking a strategic approach. Employee engagement is defined as a positive, work-related state of mind characterized by enthusiasm, dedication, and absorption Chawla et al. (2022). It is influenced by factors such as an organization's commitment, job safety and security, employee satisfaction, opinions, and stability, and set goals and objectives Paul (2020). The limitations of current employee engagement activities are highlighted, and proposals for a more effective approach are suggested Geoffrey (2018). Employee engagement strategies are seen as a major competitive edge for organizations in the current global competitive environment

Jae et al. (2020). Resources are also identified as significant in fostering employee engagement Whittington & Galpin (2010). While the abstracts do not specifically address neuro-taxonomy-based strategies, they provide valuable insights into the factors and approaches related to employee engagement. The work entitled "Job Design, HR Systems, CEO Leadership and Firm Performance: A Strategic Theory of Engagement Thurgood et al. (2013) has not mentioned a neuro taxonomy-based design perspective of employee engagement.

Research on the neuro taxonomy of employee engagement is limited. Although there is a growing literature on employee engagement, most studies focus on psychological and organizational variables without considering neurological aspects. However, Pincus (2022) used neuroimaging techniques to investigate the relationship between learning, brain structure, and task engagement. They found that training was associated with increases in measures of brain structure, which in turn was associated with increased work engagement. This study suggests the potential for using brain information to assess training effectiveness and understand the neurobiology underlying employee engagement.

Employee engagement under the umbrella of human resource management is a mature subject, but literature on human resource management does not have much evidence on strategy design and practice of engagement based on neuro taxonomy. With the ongoing emergence of neuroscience as well as brain science, their potential applications as Neuro-taxonomy have ample scope in designing a framework for employee engagement considering neuro-connected for employee engagement design. Further research is needed to examine the neural taxonomy of employee engagement and its impact on organizational practices.

2. AIMS AND OBJECTIVES OF THE STUDY

The main aim of the study is to design a taxonomy based on neuro-aspects that connect and work at the drivers of employee engagement. Secondly to design strategies for engagement of employees with the help of the designed neuro-taxonomic map.

3. METHODOLOGY OF THE STUDY

To accomplish the main aim, selected keywords connecting neuro dimensions are explored from the different kinds of literature. From the review of available literature on neuroscience, brain science, and employee engagement, the role of the brain in engagement, and the connections of neuro engagement and neuro-plasticity-related aspects are studied. Articulations of strategies made based on the classified neuro-connected activities for employee management.

4. ROLE OF BRAIN IN ENGAGEMENT

The brain plays a crucial role in employee engagement. Research suggests that employees with a growth mindset, who view challenges as opportunities for development, are more likely to be engaged Mead et al. (2010) in their work Chaurasia & Shukla (2014). Additionally, factors such as self-efficacy, hope, optimism, and resilience contribute to higher levels of employee engagement Crawford et al. (2013) The limbic system in the brain also responds to social pain, which can impact employee motivation and performance Hussainy & Wahaibi (2022). Furthermore, the work environment and job design can influence employee engagement by stimulating intrinsic motivation, creativity, and innovation

[Mofoluwaso \(2023\)](#). Understanding these psychological and neurological factors can help organizations develop strategies to enhance employee engagement and create a positive work environment [Mani & Mishra \(2021\)](#).

The responsibility for the processing of information, decision-making, and regulation of emotions is assumed by the brain. Its primary function is to seek rewards and avoid threats to ensure our survival. Within the professional setting, the brain's operation has a notable impact on how individuals perceive their work environment, interact with colleagues, and respond to challenges and opportunities. A crucial element of the brain's contribution to employee engagement lies in the activation of the reward system. When employees encounter positive emotions, such as a sense of accomplishment or recognition, their brain releases neurochemicals like dopamine, which reinforce those positive experiences. This initiation of the reward system creates a cycle of positive feedback, motivating employees to actively pursue similar experiences and engage more deeply in their work. In contrast, negative emotions such as stress or fear result in the release of cortisol, a stress hormone, which can impede cognitive functioning and diminish motivation and engagement. Consequently, organizations must cultivate a work environment that minimizes stress and promotes positive emotions to enhance employee engagement.

5. NEUROCHEMICALS FOR MIND-BODY ENGAGEMENT

Neurotransmitters such as dopamine, oxytocin, serotonin, and endorphins have been observed to enhance the engagement of employees [Boikanyo \(2023\)](#). These neurotransmitters possess a range of beneficial effects on employees, including increasing satisfaction, forming connections, fostering trust, empathy, emotional balance, well-being, self-esteem, and reducing anxiety [Paul \(2020\)](#). By leveraging these neurotransmitters, human resource managers can amplify employee engagement and improve team morale [Enid et al. \(2013\)](#). Employee engagement is of great importance to organizations as it leads to benefits such as retaining top talent, increasing productivity, enhancing customer satisfaction, and achieving superior financial outcomes [Boikanyo \(2023\)](#). Factors such as organizational support, advancement opportunities, meaningful work, and a sense of psychological security have been found to influence employee engagement [Mani & Mishra \(2021\)](#). Increasing levels of employee engagement can lead to heightened levels of productivity and overall performance. Employee engagement is a constructive and proactive demeanour in the workplace that is influenced by driven and emotionally connected employees, effective human resource management practices, and empathetic supervisors. It is of utmost importance for employers to address the challenge of consistently maintaining high levels of employee engagement throughout their tenure. Neurochemicals play a pivotal role in shaping employee engagement, as they are responsible for regulating our emotions, motivation, and overall well-being. A comprehensive understanding of how various neurochemicals impact engagement can assist organizations in formulating strategies to augment employee motivation and contentment.

Dopamine, frequently denoted as the "neurotransmitter of positive affect," is discharged in response to employees' encounters with a perception of attainment, acknowledgement, or recompense. It strengthens constructive conduct and stimulates employees to actively pursue analogous encounters. To maintain employees' involvement and motivation, organizations can exploit this phenomenon by consistently furnishing feedback, acknowledgement, and prospects for advancement and enhancement.

Figure 1

← Effects of Decrease	Neuro-Chemical	Effects of Increase →
Lack of drive, lack of focus, irresponsible to reward & and achievement, distasteful experience to all positives	Dopamine (D) (Motivation Molecule)	Instigate Drive, Focus, Reward-seeking behaviour, release pleasurable experience and re-enforcement
Confuse and unclear Goals, Non-Significant Work, Indifferent attitude toward employees' achievements, not giving positive and constructive feedback	(- D) (+D) ↙ ↘ Actions for Motivation	Setting clear goals, Providing meaningful work, Recognizing achievements, experiencing a sense of accomplishment, receiving positive feedback

Figure 1 Dopamine-Based Strategies for Employee Engagement
Source Author- Barman. A, (23, Dec 2023)

6. SEROTONIN-BASED ENGAGEMENT STRATEGY

Serotonin, a neurotransmitter, serves the purpose of maintaining emotional equilibrium and augmenting overall well-being. This particular neurochemical stands as one of the primary elements that can amplify employee engagement [Enid et al. \(2013\)](#). Employee engagement, in turn, correlates with favourable work results, such as productivity, job contentment, and dedication [Sebastiaan \(2013\)](#). Engaged employees display a decreased tendency to depart from their employing entity [Kokkina et al. \(2018\)](#). The notion of employee engagement possesses unique characteristics when compared to other associated constructs, for instance, job satisfaction and organizational commitment [Emma \(2014\)](#). The optimization of employee engagement is of utmost importance for organizational triumph and optimal performance [Mani & Mishra \(2021\)](#). Hence, serotonin actively contributes to employee engagement by fostering emotional equilibrium and well-being, thereby leading to positive work outcomes and a decline in the intention to leave. Serotonin assumes a vital role as a neurochemical that contributes to employee engagement. It is closely linked with emotions of pride, self-assurance, and social bonding. As employees perceive themselves as valued and supported by their peers and superiors, serotonin levels elevate, resulting in heightened engagement and satisfaction. By cultivating a constructive and inclusive work culture that nurtures strong connections and teamwork, serotonin levels can be boosted, thereby enhancing employee engagement.

Figure 2

← Effects of Decrease of Serotonin	Neuro-Chemical	Effects of Increase of Serotonin →
Feel disengaged, Dissatisfied, and Demotivated in their work.	Serotonin (Social Bonding Chemical)	Feelings of well-being, Happiness, Social connection, building trust, collaboration, and positive relationships
Un-supportive and autocratic work environment, Discouraging Teamwork, Individualism, Closed Communication, Lack of belongingness, De-recognition, Demeaning, De-Valuing the work, Negative Work Environment, Lack of Social Interaction	(- S) (+S) ↙ ↘ Social Bonding Actions	Fostering a supportive and inclusive work environment. Encouraging teamwork, open communication, and collaboration, a sense of belongingness, Recognising, Valuing, Positive work-life balance, opportunities for social interaction

Figure 2 Serotonin-Based Strategies for Employee Engagement
Source Author, Barman. A, (23rd Dec 2023)

7. OXYTOCIN-BASED ENGAGEMENT STRATEGY

Oxytocin, often referred to as the "trust hormone" or "bonding hormone," plays a significant role in fostering trust and positive social interactions, which can contribute to enhanced work engagement. Oxytocin release has been found to have potential benefits for employee engagement. Research suggests that oxytocin, a neurochemical known for enhancing bonding, trust, and empathy, can also enhance productivity, collaboration, and overall well-being of employees [Mani & Mishra \(2021\)](#). Oxytocin release stimulation devices have been developed to stimulate the release of oxytocin, which can support milk extraction, reduce the risk of postpartum depression, and facilitate the induction of labour [Vittner et al. \(2019\)](#). Additionally, parental touch, especially during skin-to-skin contact, has been shown to activate oxytocin release in mothers, fathers, and infants, leading to increased physiological stability and affective closeness [Mani & Mishra \(2021\)](#). It has also been observed that oxytocin cells in the neurohypophysical system are responsive to the osmotic pressure of the blood plasma, suggesting a link between oxytocin release and plasma osmotic pressure [Bach & Yaksh \(1995\)](#). These findings provide insights into the potential use of oxytocin release for enhancing employee engagement and highlight the importance of creating environments that promote oxytocin release. Here's how oxytocin functions as a trust hormone in the context of work engagement:

Figure 3

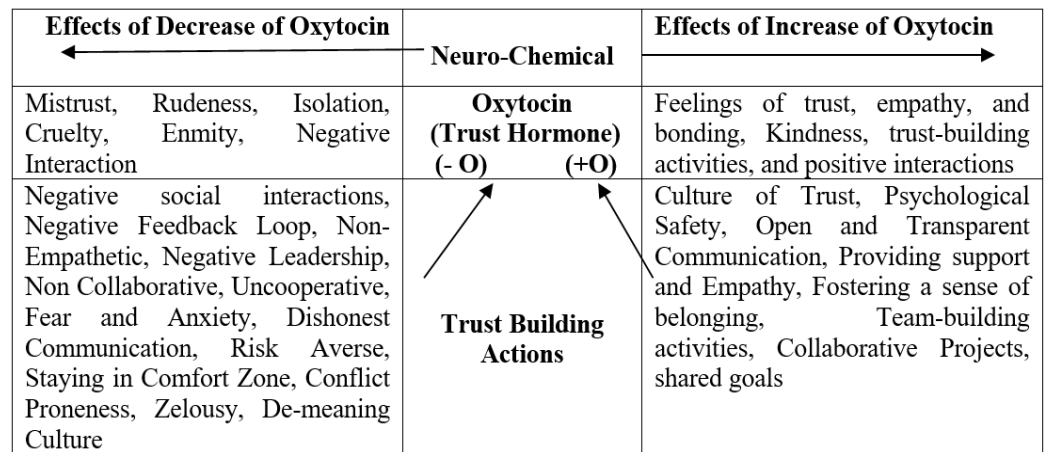


Figure 3 Oxytocin-Based Strategies for Employee Engagement

Source Author, Barman. A, (23rd Dec 2023)

8. ENDORPHINS-BASED ENGAGEMENT STRATEGY

Endorphins, often referred to as the brain's natural painkillers, are released during physical activity, laughter, and positive social interactions. These neurochemicals promote a sense of well-being and can help reduce stress and increase engagement. Encouraging employees to take regular breaks, engage in physical activities, and create opportunities for social interactions can stimulate the release of endorphins and improve overall engagement levels.

Endorphin release plays a role in employee engagement. The neurotransmitter dopamine, which enhances happiness and productivity, is associated with employee motivation and

Figure 4

Effects of Decrease of Endorphins ←	Neuro-Chemical	Effects of Increase of Endorphins →
Feeling of Unhappiness, Feeling of Sickness, Illness	Endorphins (Feel Good Chemical) (- E) (+E)	Feelings of Pleasure, Happiness, and Well-being
Forced Work, Serious Work Environment, Sensitive Culture, Continuous Breathless Work, Idle Sitting, Presenteeism, stressful job, No Fun, No Game.	Trust Building Actions	Wellness programs, Team-building Exercises, and Creating a positive and fun work environment. encouraging regular breaks, physical activity, stress-reducing techniques, team outings, games, or hobbies

Figure 4 Endorphine-Based Strategies for Employee Engagement

Source Author, Barman. A, (21st Dec 2023)

engagement [Backon \(1989\)](#). Beta-endorphin, another neurochemical, is released in response to intense noxious stimulation and may contribute to pain perception inhibition [Peng et al. \(1978\)](#), [Bach & Yaksh \(1995\)](#). The release of beta-endorphin can be regulated by N-methyl-d-aspartate receptors in the brain [Harter & Stone \(2012\)](#). Physostigmine, a drug used in alcohol withdrawal management, may induce beta-endorphin release [Juan & Claudia \(2009\)](#). Acupuncture stimulation has been shown to increase the release of endorphins, leading to analgesic effects. These findings suggest that endorphin release can impact employee engagement by influencing mood, pain perception, and overall well-being.

9. CORTISOL-BASED ENGAGEMENT STRATEGIES

While the previous neurochemicals are associated with positive emotions and engagement, cortisol, often referred to as the "stress hormone," has the opposite effect. High levels of cortisol can lead to stress, anxiety, and decreased engagement. In a high-stress work environment, employees may experience burnout, reduced productivity, and disengagement.

Cortisol levels and work engagement have been examined regarding employee well-being and organizational outcomes. Findings from previous research indicate that work, particularly in disengaging work environments, is linked to heightened stress and diminished momentary happiness and interest [Piia \(2013\)](#). Studies have discovered that lower levels of cortisol are associated with greater levels of work engagement and reduced levels of professional burnout [Torp et al. \(2013\)](#). Furthermore, research has demonstrated that work engagement remains stable over time and can be cultivated through psychosocial job resources [Al Halyan et al. \(2019\)](#). Moreover, work engagement has been observed to serve as a mediator between job demands and resources, and the level of depression experienced. In a longitudinal study, it was revealed that a diminished cortisol response was connected to increased school engagement in kindergartners. However, by spring, highly reactive, subordinate children exhibited growth in school engagement, while highly reactive, dominant children experienced declines [Paul \(2020\)](#).

Figure 5

Effects of Decrease of Cortisol ←(-)	Neuro-Chemical	Effects of Increase of Cortisol →
Burnout, Reduced Productivity, and Disengagement.	Cortisol (Stress Hormone) (- C) (+C)	Stress, anxiety Workplace Negativity, Accident, Diseases, Absenteeism
Minimize Stress, Promoting well-being, adequate resources and support, promoting work-life balance, encouraging stress-management techniques	Stress Reduction Actions	Workload, Job Demands, Job Insecurity, Lack of control, Poor Work-Life Balance, Unclear Expectations, Poor Management & Leadership, Interpersonal conflict, Job Dis-satisfaction, Workplace Bullying Harassment, Unplanned Organizational Changes

Figure 5 Cortisol-Based Engagement Strategies

Source Author, Barman. A, (20th Dec 2023)

Understanding the significance of neurochemicals in the context of employee engagement yields valuable insights into the methods by which leaders can cultivate a positive work environment that fosters motivation, trust, collaboration, and well-being. By harnessing the power of dopamine, serotonin, oxytocin, and endorphins, while simultaneously mitigating the effects of cortisol, organizations can cultivate a culture of active participation that drives productivity, satisfaction, and accomplishment. Leaders must be mindful of establishing a work environment that mitigates stress and advocates for holistic well-being. Approaches such as providing ample resources and support, endorsing a harmonious equilibrium between work and personal life, and promoting stress-management techniques possess the potential to reduce cortisol levels and foster a workforce that is more committed and resilient.

10. NEUROPLASTICITY AND EMPLOYEE ENGAGEMENT

Neuroplasticity refers to the brain's ability to reorganize itself by forming new neural connections throughout life in other words neuroplasticity refers to the brain's ability to adapt and change in both physical and functional forms. The brain can reorganize neural pathways and form new connections based on our experiences and learning. Understanding neuroplasticity can help organizations create an environment that promotes continuous learning and development, leading to higher levels of employee engagement.

It has been linked to employee engagement, which is a positive psychological state characterized by energy, satisfaction, and absorption in work. Research suggests that when employees have a positive mindset and are engaged at work, productivity, innovation, and creativity improve Lal (2016). Employee engagement is also connected to positive outcomes such as reduced absenteeism, prevention of burnout, increased productivity, and better financial results Martinez et al. (2022). Understanding neuroplasticity can help managers build effective teams and exceed workplace expectations Backon (1989). Work engagement is a multidimensional construct that has been explored from various perspectives, and engaged employees display positive behaviours in the workplace Naalu (2021). Management approaches that enhance intrinsic motivation, creativity, and innovation can optimize performance and create a workplace environment where engagement and neuroplasticity can flourish Michalopoulos et al. (2023).

Figure 6

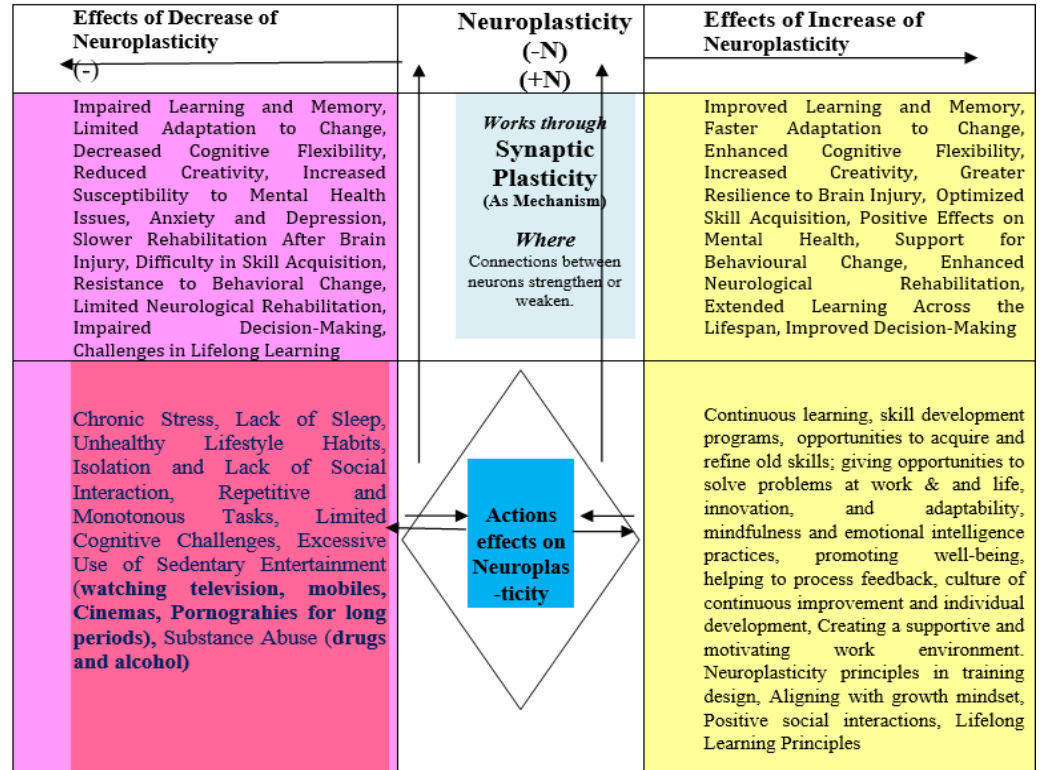


Figure 6 Taxonomies of Activities Affecting Neuroplasticity

Source Author, Barman. A, (20th Dec 2023)

When employees are exposed to novel experiences, challenges, and learning opportunities, their cerebral cortex establishes novel neural connections and fortifies preexisting ones. This physiological process augments cognitive functioning, creativity, and problem-solving proficiencies. Organizations can promote neuroplasticity through the provision of training programs, skill enhancement endeavours, and ventures involving cross-functional collaboration. By consistently presenting the brain with stimulating and demanding tasks, employees are more likely to maintain their level of engagement and motivation. Implications for the Construction of Strategies Neuro-taxonomy represents a comprehensive framework that systematically categorizes various facets of employee engagement based on cerebral functioning. It offers a potential avenue for comprehending and elevating employee engagement by recognizing the influential role of the brain in shaping future behaviours and experiences.

11. IMPLICATIONS FOR STRATEGY BUILDING

Neuro-taxonomy is a framework that categorizes different aspects of employee engagement based on the brain's functioning. It may provide a systematic approach to understanding and enhancing employee engagement by considering the brain's role in shaping behaviours and experiences in future.

The neuro-taxonomy for employee engagement includes four key dimensions:

- 1) Cognitive Engagement:** The neuro-taxonomy for employee engagement encompasses four principal dimensions. Cognitive Engagement serves as one of these dimensions and focuses on the cognitive processes of the brain,

including attention, memory, and problem-solving. This facet entails the provision of challenging assignments, opportunities for growth and development, and granting autonomy in decision-making. By stimulating the cognitive functions of the brain, organizations can optimize employee engagement.

- 2) **Emotional Engagement:** Emotional engagement pertains to the cognitive responses of the brain concerning work-related encounters. This entails establishing a conducive work milieu, cultivating supportive interconnections, and acknowledging and compensating employees for their contributions. By advancing affirmative sentiments and mitigating stress, organizations can augment emotional engagement and overall job contentment. It is not feasible to ensure emotional engagement through the endeavours of others. To cultivate enhanced emotional engagement, a fusion of self-directed methodologies (as delineated in [Table 2](#) of the appendix) may be implemented.
- 3) **Social Engagement:** Social engagement emphasizes the brain's need for social connection and belongingness. It involves creating a collaborative work environment, promoting teamwork, and encouraging positive social interactions. By fostering strong relationships and a sense of belonging, organizations can enhance social engagement and create a supportive work culture. To ensure social engagement techniques can be selected (from [Table 3](#) in the appendix) with a corporate HR integrated design and programs.
- 4) **Behavioural Engagement:** Behavioral engagement focuses on the brain's role in shaping employees' behaviours and actions. It involves providing clear expectations, feedback, and recognition for performance. By aligning employees' behaviours with organizational goals and values, organizations can enhance behavioural engagement and drive desired outcomes. Without going into much detail, a list of neuro-technical taxonomies (in [Table 4](#) in the appendix) for innovating behavioural engagement.

By understanding and addressing these dimensions of employee engagement, organizations can create targeted interventions and strategies that effectively engage their employees. The neuro-taxonomy framework provides a holistic approach to employee engagement, considering the brain's functioning and its impact on behaviours, emotions, and overall well-being.

To apply Neuro-Taxonomy in practice, organizations can consider the following strategies:

- 1) Designing work environments that minimize distractions and promote focus and attention.
- 2) Providing opportunities for stress reduction and emotional well-being.
- 3) Creating a culture that encourages creativity, critical thinking, and problem-solving.
- 4) Implementing recognition and reward programs to reinforce positive behaviours.
- 5) Fostering a positive and inclusive work environment that promotes social connection and trust.

By incorporating these strategies, organizations can tap into the power of Neuro-Taxonomy to create a work environment that optimizes the brain's natural tendencies and enhances employee engagement. This, in turn, can lead to increased productivity, satisfaction, and overall organizational success.

12. FUTURE RESEARCH IMPLICATIONS

Future research implications of neuro taxonomical studies on employee engagement encompass the investigation of privacy, trust, and ethical concerns that workers harbour regarding employers utilizing neurotechnology to manage their workforces [Anderson et al. \(2004\)](#). Furthermore comprehending the factors that foster employees' job satisfaction, organizational commitment, and suitable work conditions can contribute to the formulation of employee retention strategies [Pekerti \(2019\)](#). Moreover, the development of a ranking model for employee selection based on specific criteria and attributes can augment personnel selection systems within the public sector [Roland \(1996\)](#). Scrutinizing bimodal prediction, multilevel fit, applicant reactions, and decision-making, as well as the tensions between research and practice in employee selection, can propel the field of selection and assessment research forward [Dorothy et al. \(2019\)](#). Lastly, future research should concentrate on quantifying and comprehending the practical implications of being n-cultural in the workplace, which includes assessing the value of multiculturalism as an asset to organizations and exploring the role of mentorship in acculturation [Lal \(2016\)](#). Future research can be conducted on how people are engaged, and whether employees' engagement activities are connected to neuron aspects. From an academic point of view, the researcher could be able to examine whether management educationists care about neuro aspects of people management.

13. CONCLUSION

This Neuro-Taxonomy may offer valuable insights into the brain's role in employee engagement. By understanding the neural pathways associated with emotions, cognitive processes, and neurochemicals, organizations can design strategies that align with the brain's natural tendencies and enhance employee engagement. Applying Neuro-Taxonomy in practice can lead to a more engaged and motivated workforce, ultimately driving organizational success.

In conclusion, the brain plays a crucial role in employee engagement. By understanding the neuroscience of employee engagement, organizations can create strategies that leverage the brain's functioning to enhance motivation, satisfaction, and performance. The neuro-taxonomy framework provides a systematic approach to understanding and enhancing employee engagement by considering the brain's role in shaping behaviours and experiences. By addressing cognitive, emotional, social, and behavioural dimensions of engagement, organizations can create a work environment that fosters engagement and drives organizational success.

CONFLICT OF INTERESTS

The explanation and interpretations are based on qualitative research methods from the review of literature and experiences gained by the author through neuro-based observations. The author has not received any fund/research grant for writing this paper.

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APPENDIX

Table 1

Table 1 Taxonomies for Activities Connecting Cognitive Engagement		
S. No.		Action Guides
1	Problem-Solving Exercises	Critical Thinking ability- Engage in puzzles, brainteasers, and problem-solving activities
2	Learning a New Skills	Acquire a new skill- whether language, musical instrument, or a hands-on activity
3	Reading and Literature Exploration	Read a book- including fiction, non-fiction, and genres you may not typically explore
4	Mental Math	Practice mental maths or solve arithmetic problems without the aid of a calculator or any device.
5	Memory Games	Play memory-enhancing games- Such as memorizing lists or playing card games.
6	Mindfulness Meditation	Practice mindfulness meditation to improve focus, attention, and overall cognitive well-being
7	Creative Writing	Engage in creative writing exercises, such as journaling, storytelling, or poetry, to stimulate imagination and linguistic abilities.
8	Art and Creativity	Explore artistic endeavours, such as drawing, painting, or sculpting, to encourage creativity and spatial awareness.
9	Music Appreciation	Listen to diverse genres of music, and if possible, learn to play a musical instrument. Music engages various cognitive functions
10	Crossword Puzzles	Solve crossword puzzles to enhance vocabulary, verbal reasoning, and pattern recognition.
11	Logical Reasoning Games	Play games that require logical reasoning and strategic thinking, such as chess or strategy board games.
12	Attend Lectures and Workshops	Attend lectures, workshops, or seminars on topics outside your expertise to broaden your knowledge base
13	Online Courses	Enroll in online courses to learn new subjects or deepen your understanding of existing ones
14	Discussion Groups	Participate in discussion groups, book clubs, or forums to engage in intellectual conversations and share diverse perspectives.
15	Travel and Cultural Exploration	Travel to new places, experience different cultures and engage in activities that challenge your worldview
16	Coding and Programming	Learn the basics of coding and programming to improve logical thinking and problem-solving skills.
17	Attend Conferences	Attend conferences and events related to your field or areas of interest to stay updated on the latest developments
18	Yoga and Physical Exercise	Engage in physical exercise, including yoga, which has been shown to have positive effects on cognitive function and mental well-being.
19	Virtual Reality (VR) Experiences	Explore virtual reality experiences that provide immersive and interactive cognitive challenges.
20	Critical Reading of News and Media	Read news critically, fact-check information, and engage in discussions about current events to develop analytical thinking skills.

Table 2

Table 2 Taxonomy for Neuro-Techniques Leading to Emotional Engagement		
S. No.	Taxonomy of Techniques	Action and Guidelines
1	Mindfulness Meditation	Practice mindfulness meditation leading to the development of emotional intelligence
2	Journaling	Writing about your experiences can provide clarity and insight into your emotional well-being.
3	Emotion Regulation Strategies	Emotion Regulation Techniques- deep breathing, progressive muscle relaxation, or visualization
4	Expressive Arts Therapy	Engage in expressive arts, such as painting, drawing, or writing, to channel and explore emotions in a creative way
5	Social Support Networks	Build and maintain strong social connections- Share emotions with trusted friends or family members, fostering a sense of connection and understanding.
6	Active Listening	Practice active listening with full focus on what others are saying without judgment, and respond empathetically to their emotions.
7	Empathy Building	Put yourself in others' shoes to understand and share their feelings
8	Participate in Group Activities	Shared experiences can evoke and enhance emotional engagement
9	Therapeutic Approaches	Consider therapy or counselling to explore and address underlying emotions
10	Gratitude Practices	Cultivate gratitude by regularly reflecting on and expressing appreciation for positive aspects of your life
11	Mindful Breathing Exercises	Incorporate mindful breathing exercises into your routine to promote relaxation and centering
12	Engage in Volunteer Work	Volunteering for a cause you're passionate about can evoke a sense of purpose and fulfilment
13	Reflective Practices	Set aside time for self-reflection. Contemplate your values, goals, and emotions, fostering a deeper understanding of yourself.
14	Positive Affirmations	Use positive affirmations to challenge negative self-talk and cultivate a positive mindset
15	Attend Emotional Intelligence Workshops	Participate in workshops or courses focused on emotional intelligence to ideate and acquire practical tools and insights for understanding and managing emotions.

Table 3

Table 3 Taxonomy for Neuro-Techniques Leading to Social Engagement		
S. No.	Taxonomy of Techniques	Action and Guidelines
1	Team Building Activities	Team-building exercises and activities, social bonding exercises, improve communication and build trust among team members.
2	Open Communication Channels	Establish open and transparent communication channels to encourage employees to share ideas, feedback, and concerns. Regular team meetings and forums.
3	Collaborative Workspaces	Design workspaces that facilitate collaboration. Open floor plans, communal areas, and shared project spaces can encourage social interaction and teamwork.
4	Recognition Programs	Implement recognition programs- Acknowledge and celebrate individual and team achievements so that employees are more likely to feel valued and engaged
5	Social Events and Gatherings	Host social events- such as team lunches, happy hours, or holiday parties, to provide opportunities for informal socializing and relationship building.

6	Mentorship Programs	Establish mentorship programs that pair experienced employees with those seeking guidance and support to foster a sense of belonging as a knowledge-sharing community...
7	Cross-Functional Collaboration	Encourage collaboration between different departments or teams to break down silos and promote a sense of interconnectedness within the organization.
8	Social Media Platforms	Utilize internal social media platforms for employees to share updates, and achievements, and engage in online discussions
9	Employee Resource Groups	Support the formation of employee resource groups based on shared interests, backgrounds, or goals.
10	Peer Recognition Programs	Implement peer-to-peer recognition programs, allowing employees to acknowledge and appreciate each other's contributions. This reinforces positive social dynamics.
11	Flexible Work Arrangements	Offer flexible work arrangements, such as remote work or flexible hours, to accommodate diverse lifestyles to enhance work-life balance and create a positive social atmosphere.
12	Training in Social Skills	Provide training programs that focus on developing effective communication, active listening, and conflict resolution skills. This can improve social interactions and collaboration.
13	Wellness Programs	Implement wellness programs that include group activities like yoga classes, fitness challenges, or mindfulness sessions. Physical well-being is closely tied to social engagement
14	Leadership Visibility	Foster a culture where leaders are visible, approachable, and actively engage with employees. This can create a more inclusive and socially connected workplace.
15	Feedback Culture	Promote a culture of constructive feedback and continuous improvement. This encourages open dialogue and collaboration while creating a positive social environment.

Table 4

Table 4 Neuro-Technical Taxonomy for Behavioural Engagement	
S. No.	Taxonomy of Techniques
1	Neurofeedback Training
2	Virtual Reality (VR) Simulations
3	Gamification Techniques
4	Biofeedback Wearables
5	Personalized Learning Platforms
6	Cognitive Training Apps
7	Augmented Reality (AR) for Training
8	Chatbots for Emotional Support
9	Neuro-Informed Design Principles
10	Mobile Apps for Behavior Tracking
11	Social Networking for Learning
12	Digital Well-Being Tools
13	Behavioral Analytics:
14	Mindfulness and Relaxation Apps
15	Neuro-Adaptive Systems
16	Digital Habit Formation Platforms
17	Emotion Recognition Software
18	Behaviour Change Chatbots
19	Serious Games for Training
20	Personalized Feedback Systems