LIBERTY UNIVERSITY

NEXUS: The Liberty Journal of Interdisciplinary Studies

Volume 1
Issue 1 *Fall 2023*

Article 3

2024

The Intersection of Theatre and Cognitive Neuroscience

Mary Katherine Flage
INDS '26

The Intersection of Theatre and Cognitive Neuroscience

Mary Katherine Flage

School of Communication and the Arts, Liberty University

The Intersection of Theatre and Cognitive Neuroscience

Theatre neuroscience research is an emerging interdisciplinary field, crucial for understanding the historical significance of theatre and its future benefits. While the topics seem unrelated at first glance, the two disciplines' complementary nature is refreshing. This essay seeks to interweave cognitive neuroscience and the historical impact of theatre, highlighting perennial pastime, prevalence in war, platform for change, popular field of study, and practical problem solver.

Perennial Pastime: The Draw of Theatre

Undoubtedly, theatre and performing arts have a strong and unmistakable appeal. Humans are allured to partake in this art form, whether as a performer, an audience member, a playwright, a director, a designer, or a crew member. What explains this pull to the theatre?

Studies show that people are drawn to theater for its emotional experiences, educational entertainment that broadens worldviews, especially appealing to thinkers, and the escapism it offers (Walmsley, 2011). Theatre-goers enjoy the ritualistic nature of the theater, a break from daily life, where one can always expect to feel the familiarity arising from the pre-show elements of dressing up for a night out, acquiring tickets, finding your seat, hushed conversation, and flipping through a playbill. Emotion is the “powerful drug which keeps theatre audiences coming back for more” (Walmsley, 2011, p. 15). These elements collectively enable theater companies to craft experiences that deeply engage and expand the perspectives of their audiences.

Several defining recurring characteristics exist in the neuro and social cognition of the actor, whether a student or professional. Actors are distinguished by heightened divergent thinking ability, high emotional intelligence, assertiveness and openness, and volatility (Dumas et al., 2020). Actors also often have a highly active neurological reward system that desires

rewards such as applause and peer recognition. However, whether these qualities are cultivated through the actor's study of theatre or exist as a pre-requisite for success on stage remains unclear. Conclusively, these characteristics are robust in student and professional actors. This knowledge is critically important to cognitive neuroscience because it provides insight into the individuals that best reflect the human experience.

Both performers and audience members have a neurological basis describing their predisposition towards theatre founded in emotions. For the theatre-goer, they are often seeking an emotional experience. Similarly, heightened emotional experience defines the actor's cognitive makeup. This trend bleeds into other facets of the intersection of theatre and cognitive neuroscience, such as the presence of theatre in wartime.

Prevalence in War: Theatre as a Means of Boosting Morale

It is common knowledge that, historically, theatre was used to boost morale during wartime. Popular movies, including *Captain America: The First Avenger,* even pay homage to this occurrence. In history, *Mina Van Barnhelm* (1767), a patriotic play encouraging German nationalism, was performed in Australia by German prisoners of war to boost morale (Brasher, 2023). Historical records show George Washington used theater during the Valley Forge winter to lift his troops' spirits. This included a production of Joseph Addison's 'Cato' and a grand event with jousts, dances, and fireworks, known as 'Meschianza.' These theatrical productions were pivotal in shaping national identity and promoting unity among the mixed populations of the North American colonies (Fuller, 1999).

Neuroscience shows that theatre boosts morale by explaining how stories, through their conflicts and characters, encourage empathy and choosing sides. Stories form the backbone of our understanding of experiences, enabling us to connect past events and adopt various

perspectives (Abrantes & Pascual, 2018). In theatre, this narrative process of shaping and reshaping stories mirrors how our brains function, explaining why theatre has such a profound and lasting impact on our minds (Armstrong, 2020). The power of theatre lies in its ability to continuously shape and reveal our perceptions and emotions (Osborne, 2020). Theatre serves not only as a vital outlet for emotional expression, especially beneficial for soldiers needing to cope during wartime, but also as an effective means to guide thought processes towards a specific viewpoint. This narrative science explains the effectiveness of theatre for public persuasion in politics and as a platform for change.

Platform for Change: Theatre Used as a Megaphone to Comment on Social Issues

Theatre effectively addresses social issues and elicits emotional responses, as neuroscience reveals. The release of oxytocin, often referred to as the 'love hormone,' occurs when audiences engage with compelling narratives (Zak, 2015). This hormonal response plays a key role in evoking empathy and inspiring actions, highlighting theatre's influential role in social commentary. The power of theatre to emotionally engage and impact audiences is pivotal for artists aiming to explore and reflect on the complexities of human nature and societal issues. However, science cannot replace the creativity fundamental to art and the eliciting of an emotional response. Artists are essential to properly comment on the complexity of human nature through various mediums, particularly theatre.

Thus, the artist is compelling in influencing people and should use this power wisely. Marked throughout Twentieth Century theatre history, the theatre was commonly used as a platform for social issues needing to be addressed, such as that of racism in *A Raisin in the Sun* (Brasher, 2023). As evidenced by neuroscience research, the artist must present the issue through

a captivating story with talented actors capable of narrative transportation to have the most profound effect on the audience.

Popular Field of Study: The Cultural Relevance of Theatre Interpreted Through a Modern Understanding of Cognition.

The study of theatre and cognitive neuroscience reveals similarities between acting principles and neurobiology. The teachings of Stanislavski, the father of modern acting, mirror the findings of neurobiologist Damasio.

Many experts agree that the basic principles of art, nature, and life are interconnected. The connection between Stanislavski's acting principles and Damasio's neurobiological findings highlights an intriguing cross-disciplinary synergy. Both emphasize the concept of 'Sense of Self,' with Stanislavski's acting techniques mirroring Damasio's insights on consciousness (Carnicke, 2018). Stanislavski's method, focusing on sensory experiences and mental imagery, aligns with Damasio's view of consciousness as a collection of mental images, akin to a 'movie in the brain.' This parallel extends to their understanding of the interaction between internal consciousness and the external world, where mental images prompt action (Carnicke, 2018).

The striking parallels between Stanislavski's acting methodologies and Damasio's neuroscientific research demonstrate a remarkable convergence of two distinct fields of study. Exploring Stanislavski's approach through the lens of Damasio's neuroscience, even in a cursory manner, highlights the importance of aligning Stanislavski's System with contemporary scientific understanding (Carnicke, 2018). In fact, this specific example is but a zoomed-in view of a much larger picture of how theatre and cognitive neuroscience overlap. For instance, the cognitive elements of theatre allow it to be an effective tool in the realm of the health sciences.

Practical Problem-Solver: Theatre and the Health Sciences

Most people might not see a connection between theatre and health sciences. However, upon further inspection, the connection points between the two disciplines become much more apparent, namely how theatre is an effective tool to instill empathy in healthcare professionals. Neuroscience depicts this impact by studying mirror neurons, embodied simulation, and applied theatre.

Incorporating theatre in medical education is not just innovative but crucial for nurturing empathy among healthcare professionals, a skill vital for patient care that is often undervalued in medical training. Theatre-based techniques like embodied simulation enable medical students to experience others' perspectives authentically, improving their empathy and communication skills. This is particularly vital as a lack of empathy in patient-doctor relationships has been linked to negative treatment outcomes and increased malpractice claims (Kemp & DeSoto-Jackson, 2018). Through simulated patient exercises, students practice and enhance empathetic interactions, which are key to patient satisfaction, prognosis, and reducing legal risks (Kemp & DeSoto-Jackson, 2018). Clearly, empathy is critical in healthcare; however, it is just as crucial to study modes of teaching empathy.

It is well-recognized that actors and directors possess a mastery of various aspects of communication such as body language, facial expressions, and voice modulation, all of which are critical in interpersonal communication (Kemp & DeSoto-Jackson, 2018). By consciously practicing these skills, one can enhance one’s ability to perceive and respond to others' emotions, forming the foundation of empathy. This process, known as embodied simulation, involves mirroring others' actions and emotions through a shared neural mechanism related to motor functions and imitation (Kemp & DeSoto-Jackson, 2018).

Another usage of theatre in effective medical education is the employment of Simulated Patients. Medical schools are increasingly adopting a program where actors act as patients for medical students to have a more real-life, hands-on experience while still in a controlled, safe setting for learning and practice. By incorporating techniques used in performing arts training, medical students can enhance their interpersonal and empathetic communication skills. This training often involves Applied Theatre, which is a form of theatre conducted in non-traditional settings and is instrumental in preparing Simulated Patients, a method increasingly used in medical education (Kemp & DeSoto-Jackson, 2018). Students can practice situations they may not commonly encounter to cultivate extensive problem-solving skills.

Implementing theatrical elements to medical health professionals' education allows well-rounded individuals to be better equipped to handle diverse circumstances that make the patient feel seen and heard to foster a positive doctor-patient relationship. This then positively affects the patient's health and the doctor's success.

Conclusion

Theatre is essential to varying fields of study due to the effects on the cognition of both the performer and the audience member. Neuroscience research highlights the physical and neurological components of the draw of theatre, its effectiveness in war to boost morale, its ability to spark change in the individual, its relevancy and validity in modern study, and its significance in the health sciences. As more scientists and artists see the value in combining theatre and neuroscience, we can deepen our understanding of this interdisciplinary field. Therefore, this paper presents a call to action. Skilled artists and neuroscience experts should collaborate to study how theatre and neuroscience work together to enrich and improve our understanding of the human experience.

References

Abrantes, A. M., & Pascual, E. (2018). Talk This Dance. In R. Kemp & B. McConachie (Eds.), *The Routledge Companion to Theatre, Performance and Cognitive Science* (1st ed., pp. 255–263). Routledge.

Armstrong, P. B. (2020). *Stories and the Brain: The Neuroscience of Narrative.* Johns Hopkins University Press.

Brasher, N. (2023). THEA 212: Theatre History II [Class lecture]. Liberty University.

Carnicke, S. M. (2018). Stanislavsky's Presence. In R. Kemp & B. McConachie (Eds.), *The Routledge Companion to Theatre, Performance and Cognitive Science* (1st ed., pp. 15–28). Routledge.

Dumas, D., et al. (2020). The psychology of professional and student actors: Creativity, personality, and motivation. *PloS One*, *15*(10), e0240728. https://doi.org/10.1371/journal.pone.0240728

Fuller, R. (1999). Theaters of the American Revolution: The Valley Forge 'Cato' and the Meschianza in Their Transcultural Contexts. *Early American Literature*, *34*(2), 126–146. http://www.jstor.org/stable/25057158

Kemp, R., & Desoto-Jackson, R. (2018). The Performance of Caring. In R. Kemp & B. McConachie (Eds.), *The Routledge Companion to Theatre, Performance and Cognitive Science* (1st ed., pp. 291–303). Routledge.

Osborne, T. (2020). Stories and the Brain: The Neuroscience of Narrative. *Communication Research Trends, 39*(4), 35-36. https://www.proquest.com/scholarly-journals/stories-brain-neuroscience-narrative/docview/2474294664/se-2

Walmsley, B. (2011). Why People Go to the Theatre: A Qualitative Study of Audience Motivation. *Journal of Customer Behaviour, 10*(4), 335–351. https://doi.org/10.1362/147539211X13210329822545

Zak, P. (2015). Why Inspiring Stories Make Us React: The Neuroscience of Narrative. *Cerebrum: the Dana Forum on Brain Science, 2015*. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4445577/