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**How Can Dramatic Expression
Promote Mental Health? The Use of
Drama Therapy in Post-Traumatic
Stress Disorder:
Insights from Neuroscience**

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**How Can Dramatic Expression Promote Mental Health?
The Use of Drama Therapy in Post-Traumatic Stress Disorder: Insights from
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Abstract

Throughout history, dramatic expression has promoted change, the benefits of which are not confined to the stage. Drama therapy, the use of drama for therapeutic purposes, has served various populations, namely those who suffer from post-traumatic stress disorder (PTSD). In order to improve treatment outcomes, scientific knowledge should complement models used in drama therapy. Neuroscience suggests that PTSD treatment should focus on decreasing the intensity of flashbacks as well as increasing the patient's emotional distance from the traumatic memory. Drama therapy's use of executive functioning, movement, and indirect access to emotional responses offers a therapeutic option that is more advantageous to PTSD patients than traditional verbal therapy. In particular, drama therapy may enhance memory extinction, which has been linked to the treatment of PTSD. Although research suggests that drama therapy may be a viable form of treatment for those who suffer from PTSD, further research ought to be conducted to corroborate this hypothesis.

Ao longo da história, a expressão dramática tem promovido mudança muito para além do palco. Drama Terapia, o uso da expressão dramática para fins terapêuticos, tem servido vários grupos, nomeadamente aqueles que sofrem de stress pós-traumático. Dada a natureza deste grupo, é importante que os modelos usados em drama terapia se possam basear nos avanços alcançados na área das neurociências. Os modelos terapêuticos devem concentrar-se em diminuir a intensidade de memórias intrusivas e, ao mesmo tempo, distanciar o paciente da carga emocional associada à memória traumática. Visto que aqueles que sofrem de stress pós-traumático têm dificuldade em verbalizar memórias associadas ao incidente, o uso da expressão dramática permite explorar o episódio traumático indirectamente, sem o narrar. É necessário alargar esta pesquisa para corroborar que o uso de drama pode ajudar a criar uma nova memória para assim suprimir a memória traumática inicial.

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How can dramatic expression promote mental health?

Throughout history, dramatic expression has promoted intra- and inter-personal change, the benefits of which are not confined to the stage. The use of drama for therapeutic purposes gave rise to the field of Drama Therapy (DT) – “the intentional and systematic use of drama/theatre processes to achieve psychological growth and change” (Emunah, 1994:3). DT has been used with a variety of populations, namely with those suffering from trauma. In particular, DT has helped individuals who suffer from post-traumatic stress disorder (PTSD). The causes of this chronic neurological disorder, for which there is no cure, are still unknown. Nonetheless, research in neuroscience recognizes the potential of DT to be an effective and viable therapy option for PTSD (Högberg et al., 2011).

At first, to combine the fields of DT and Neuroscience may seem somewhat impossible. However, when we take a closer look, we find that we cannot talk about any form of therapy without referring to the brain. After all, the goal of psychotherapy is to change brain activity. In the case of DT, drama stimulates that change, hence the need to look at both fields. The scientific knowledge we have of the brain is still very limited. Undeniably, the brain is highly complex and it would be naïve to reduce the causes of any disorder, including PTSD, to a few brain structures. Nevertheless, this paper focuses on the major structures implicated in PTSD to highlight the importance of scientific knowledge in DT. For those involved in drama or DT, this paper may seem too scientific; for those coming from a scientific perspective, this paper may appear to oversimplify research in neurobiology. But bear with me.

This paper suggests that findings in neuroscience may improve treatment methods in DT. Specifically in the context of PTSD, it is vital to consider the risks associated with “playing” with traumatic memories. It might be the case that drama-based therapies may actually detract from treatment. The reliving of traumatic memories could worsen flashbacks and the intensity of exaggerated responses, as opposed to improving the patient's condition (Kellerman, 1999). Therefore, it would seem obsolete to deal with the patient's traumatic memories without learning from research that focuses on the neural underpinnings of emotion and memory.

This paper will address concepts borrowed from neuroscience and DT that are relevant to the treatment of PTSD. Firstly, I will start by exploring how drama has encouraged change at a social and individual level; secondly, I will highlight the importance of the concept of dramatic/ordinary reality in DT (Pendzik, 2006); thirdly, I will give an overview of the neurological mechanisms behind PTSD; and lastly, I will compare findings in neuroscience and DT to suggest that dramatic expression has the capacity to treat PTSD by impairing memory re-consolidation, overcoming difficulties in accessing declarative memories, and improving emotional and working memory.

Drama as change

When applied to theatre, dramatic expression is a tool for social change. For example, Bertolt Brecht used his epic theatre to combat capitalism (Brecht and Mueller, 1961), John McGrath used dramatic expression to fight for Scottish independence (McGrath, 1981), and Eve Ensler used verbatim theatre to fight for women's rights (Ensler, 2001). In each of these instances, dramatic expression promoted discussion, provoked sociocultural traditions, and made the stage available

for neglected or marginalized groups of individuals and ideas. However, the fourth wall has always been a challenge for those involved in theatre – the wall that separates the actors from the spectators. The actors often become deliverers of a revolutionary message that is supposed to instigate change. Catharsis allows the actors to inspire the audience, who, by extension, passively observe and slowly become agents of change.

But, what if we eliminated the dichotomous concepts of actor and spectator? Augusto Boal, Brazilian practitioner and founder of the Theatre of the Oppressed, did. Boal saw in dramatic expression the potential to “rehearse revolution” (Boal, 2000:141). He created the concept of “spect-actor” to turn theatre into an interactive process, in which the participant is both the actor and the spectator. In Theatre of the Oppressed, the point is not to produce a play, but rather to use dramatic expression in a round-the-circle group setting. This method aims to address the oppressive forces that control the participants' lives – be they psychological, political, or social. This form of theatre merges the individual's political and personal spheres of action. In other words, dramatic expression offers the possibility to overcome oppression by allowing the individual to explore different perspectives, actions, interactions, words, and ideas. Although initially Boal himself was reluctant to see Theatre of the Oppressed as a form of DT, he acknowledged that this form of theatre *was* therapy (Boal, 1995).

Today, Theatre of the Oppressed is considered a branch of DT. Practitioners primarily use it in social contexts to deal with issues of xenophobia, racism, or homophobia (see for example Sajjani, 2009:461). Theatre of the Oppressed, as well as other approaches in DT, stem from the same foundation: the idea that there is a play-space, within the ordinary world, to act and rehearse in a hypothetical world, a world of make-believe. That space, inserted in the ordinary reality, is known as the dramatic reality.

Drama as Therapy

The principle of dramatic versus ordinary reality is the basis for the practice of DT. Pendzik defines dramatic reality as “imagination manifested” (Pendzik, 2006). We have all experienced this in theatres, in classrooms, or even in movies. The concept of dramatic reality, for example, explains why Harrison Ford is able to become Indiana Jones. He does not stop being himself when he plays this character. Instead, the property of dramatic reality, placed within the ordinary world, allows him to be both himself and his character simultaneously. In terms of DT, the dramatic reality is a realm of *as if* -- a fantastic and hypothetical world inside the ordinary world. Therefore, the stage allows the individual to experience the distance between the quotidian life and the dramatic reality, between the what-is and the what-if-it-was.

The cathartic and therapeutic effect of drama lies in this dual reality. As Pendzik argues, “dramatic reality allows for the inner world to be expressed, in such a way that it validates subjective experiences” (2006). This means that we can use dramatic reality to express that which cannot be expressed in the ordinary reality. This concept is not restricted to the field of drama and DT – it has also been addressed in neuroscience. Neuroscientist António Damásio has defined the *as if* world as the process involving “the generation of a somatosensory image” that evokes both emotional and bodily responses (Damásio, 1994). Dramatherapists have taken advantage of the dual ordinary/dramatic reality in order to treat several disorders, such

as personality disorders (Goodrich and Goodrich, 1986), schizophrenia (Bielanska et al. 1991; Yotis, 2006), neuro-trauma (McKenna and Haste, 1999), major depressive disorder (Costa et al., 2005), and PTSD (Gray, 2011; Landy, 2009; James and Johnson, 1996; Winn, 1994).

Post-Traumatic Stress Disorder

PTSD is a neurological disorder that is associated with the impairment of certain brain functions (Skelton et al., 2011) and is characterized by chronic, intrusive memories that result from a traumatic event (American Psychological Association, 2012). Individuals with PTSD experience flashbacks of the traumatic event, which often lead to heightened fear responses, such as exaggerated aggression (Yehuda and LeDoux, 2007). Although the causes of susceptibility and resilience to PTSD are still unknown (Olson et al., 2011), research suggests that they depend on interactions between the limbic system and the prefrontal cortex, which are modulated by several neurotransmitter systems (Elzinga and Bremner, 2002).

The limbic system plays a role in the development of various mental disorders. This system is involved in emotional behavior and motivational drives, but it does not tell us how emotions are generated (LeDoux, 2003). However, research suggests that the limbic system is associated with an inability to influence emotional responses, which is referred to as the down-regulation of emotions (Ehring and Quack, 2010; Gross et al. 2006). Structures of the limbic system, involved not only in emotion but also memory, may be involved in PTSD (Brohawn et al., 2010; Phelps and LeDoux, 2005). Some of these structures include, but are not limited to, the amygdala and the hippocampus.

The amygdala plays a role in fear conditioning and emotional memory. Upon receiving a sensory stimulus, the individual experiences a subsequent emotional response. In the context of PTSD, the functions of the amygdala are impaired (Tronel and Alberini, 2007). After being received in the amygdala, the information from the stimuli is stored in the hippocampus, a structure involved in memory and contextualization (Nadel and Moscovitch, 1997). In PTSD patients, the hippocampus has been associated with a deficit in declarative memory (Elzinga and Bremner, 2002). Declarative (or explicit) memories are those that we can consciously recall. Individuals with PTSD have difficulty in accessing and verbalizing declarative memories to communicate the traumatic experience (Johnsen and Asbjørnsen, 2008). This suggests that treatment options should not access traumatic memories through verbalization.

Moreover, the interactions between the amygdala and the hippocampus explain why, for example, we are more likely to remember emotionally charged rather than neutral events (Christianson, 1992). Although people with PTSD are said to have exaggerated emotional responses, it is perhaps more accurate to say that their reactions are de-contextualized (Davidson, 2004). For example, if I associate song X with a traumatic memory, I am likely to react in an exaggerated manner the next time I hear song X. The song itself is not life-threatening, but I react as if it were. In light of this disparity, we can conclude that the response is out of context. This inability to contextualize emotional responses, in which the amygdala may be implicated, is associated with the down-regulation of emotions. Evidence suggests that this situation may be reversed, due to the plasticity of the amygdala.

The term plasticity refers to alterations in neural systems, usually through learning and experience. As the term itself suggests, brains are plastic, for they have the ability to adapt. Interactions between neural structures and neurotransmitters, the chemical messengers produced and used by neurons, usually cause these changes (Wheeler et al., 2008:9). Neurons use neurotransmitters to send messages through the synapse, the “gap” between two neurons, to communicate. In addition, neurons have specific sites to receive neurotransmitters, the receptors. When neurotransmitter receptor systems fail to work the neurons cannot communicate, which may translate into the development of a mental disorder. Several neurotransmitter systems have been implicated in the development of PTSD (Olson et al., 2011; Tronel and Alberini, 2007). Research suggests that abnormalities in neurotransmitter systems may be the underlying cause for resilience and susceptibility to developing PTSD (Krishnan et al., 2007).

Finally, the prefrontal cortex, which interacts with the limbic system, may also play a role in the development of PTSD. The prefrontal cortex regulates the intensity with which the amygdala responds to stimuli. It is also necessary to process memories stored in the hippocampus. The prefrontal cortex is responsible for planning, inhibition, and working memory. Vasterling and colleagues (1998) have suggested that malfunctioning in the prefrontal cortex may contribute to down-regulated emotions and the development of stress-related disorders. Moreover, a specific area of the prefrontal cortex, the medial prefrontal cortex, appears to be altered after exposure to stressful situations (Radley et al., 2004). This interferes with memory storage and emotional regulation.

As noted, researchers have found that learning and memory, as well as emotion, play a key role in PTSD (Brohawn et al., 2010; Van der Kolk, 2006). Particularly, research suggests that the hippocampus, the amygdala, and the prefrontal cortex are involved in the impairment of explicit memory, alterations in emotional memory, and decrease in working memory (Elzinga and Bremner, 2002). Upon experiencing a traumatic event, a memory is consolidated, or stored, and associated with a negative emotion resulting from the trauma. In PTSD patients, that traumatic memory can be re-activated by external triggers. Ultimately, following re-activation, the traumatic memory is re-consolidated. From this, it appears that possible treatment options for PTSD should focus on memory extinction, as well as improvement of emotional and working memory.

Memory and Drama Therapy

Previous research highlights memory extinction as a possible form of treatment for PTSD (Myers and Davis, 2007; Sotres-Bayon et al., 2004). Extinction does not mean the loss of a memory, as we would colloquially perceive it. Instead, extinction refers to “a new second memory [that] is formed without destroying the old one but rather suppressing its expression” (Tronel and Alberini, 2007; Yehuda and LeDoux, 2007). In other words, PTSD treatment involves changing an initially negative emotional memory into a positive new one (Nader et al., 2000). With this in mind, Högberg and colleagues (2011) created a therapeutic model for PTSD based on the idea that positive emotions, those that arise from rewarding experiences, enhance memory extinction. The model aims to decrease the intensity of flashbacks as well as increase the patient's detachment from the traumatic memory. The authors argue that treatment should address the tripartite complex of episodic memory. This complex

includes “perception, reaction, and motor impulse” (Högberg et al., 2011). The authors also suggest that the complex can be explored through play, which by extension, is applicable to dramatic expression.

The Högberg model, which places emphasis on the use of imagination, resembles models used in DT. David Read Johnson's Developmental Transformations method (DvT) addresses the three aspects of emotion and episodic memory in the tripartite complex (Högberg et al., 2011). DvT uses “free play” and improvisation to explore past memories (Johnson, 2009:89). As Johnson puts it, “similar to meditative practice, [the individual] is asked to allow thoughts and feelings to arise, to contemplate them, and then to let them go as others arise” (Johnson, 2009:90). The use of the body is also vital for Johnson's therapeutic model, for improvisation enables the individual to react to inner emotions through dramatic movement. Therefore, declarative and non-declarative memories are explored with distance, given that DT is an indirect approach that does not require the narration of the traumatic event. As previously discussed, PTSD patients have difficulty directly narrating their traumatic experiences. For these reasons, there is evidence to suggest that, in comparison to traditional therapy, DT is more beneficial.

Similarly, Theatre of the Oppressed is suitable for PTSD patients because it attempts to overcome their difficulty in accessing declarative memories. Boal believed that the effectiveness of Theatre of the Oppressed was associated with neuroplasticity and that the ability to change the brain through drama was based on aesthetic communication (Boal, 2005). This aesthetic communication uses dramatic action to access memories. Research suggests that the experience of traumatic memories is preverbal, which makes verbalization difficult (Harris, 2009). Theatre of the Oppressed, as other DT approaches, allows individuals to overcome that obstacle through nonverbal symbolism. This way, dramatic communication replaces verbal communication. The ordinary/dramatic reality dualism enables the individual to turn the sensory experience of their memory into a dramatically expressed metaphor. Despite its reference to the ordinary world, this metaphor is created in the dramatic world. It is a reality within another reality (Sanctum, 2011). Here, the DT setting serves as a laboratory. Imagine that the memory is held in a specific part of the brain, so that the physical representation of that section serves as the metaphor of that memory. The individual can place this section of brain tissue on a glass slide. Then, the slide is observed and analyzed under the microscope. Although the metaphor is still part of the individual, it has become distant, emotionally detached; seen through a different lens. Similarly, through dramatic expression, those who suffer from PTSD may become emotionally detached from their traumatic memory.

Emotional and working memory in DT

There is evidence to suggest that drama-based therapies may improve emotional and working memory in PTSD patients. Researchers believe that lack of affection from the primary caregiver during early stages of development may contribute to the development of PTSD (Uchida et al., 2010). For example, in rodent models for PTSD, pups that were licked more often by the dams are less prone to stress later on in life (Prakash et al., 2006) and are able to cope better with adversity (Siegmund et al., 2009). This suggest that treatment for PTSD patients should attempt to build this underdeveloped emotional foundation. To do so, it is vital to engage them in activities, such as drama, that promote positive affects, in order to nurture the sense of belonging, care, and self-confidence (Emunah, 1994:34) that may have lacked

during early development. The creation of new positive memories may additionally produce increased self-esteem and self-confidence, and therefore contribute to memory extinction. Moreover, dramatic expression will allow for improvement in emotional regulation, as well as the release of neurotransmitters associated with feelings of pleasure and reward.

In addition, DT is likely to help overcome working memory impairments and improve executive functioning (EF), associated with activity in the prefrontal cortex. Evidence suggests that engagement in play correlates with improvements in EF and cognition (Diamond, 2011; Sivi and Panksepp, 2011; Bell et al., 2010). EF refers to self-regulation, inhibition, working memory, planning, and reasoning within an individual, all of which are necessary for behavior regulation in different social contexts (Spielberger, 2004: 389). In comparison, DT uses play to explore, not only one's individuality, but also one's interactions with others. Therefore, scholars in DT have suggested a relationship between EF improvement and therapeutic models, such as the role method (Frydman, 2010).

Robert Landy has used the role method with PTSD patients (Landy, 2009:80). The role method is based on the premise that play allows the individual to explore different roles (Landy, 1993). By doing so, “the individual recognizes appropriate, attractive, and/or desirable behavior and possesses the manual capacity to integrate or negate such modes of being” (Landy, 2001). In other words, Landy's method uses play to explore executive functioning by observing different behaviors through imagination, as well as by embodying different perspectives. Overall, improvement in prefrontal cortex activity can increase control over emotional responses, which is highly applicable to those suffering from PTSD.

Playing with PTSD: Final Remarks

Twenty to thirty per cent of people who experience a traumatic event are likely to develop PTSD (Adshad, 2000). Evidence suggests that PTSD is associated with neural systems involved in emotion, cognition, and memory. Moreover, researchers propose that alternative, non-narrative therapies constitute a viable alternative to traditional verbal therapy (Precin, 2011). In fact, the field of DT has already been using drama-based, non-narrative techniques to work with those suffering from PTSD. However, the fields of Neuroscience and DT appear to be reluctant to merge.

Both neuroscience and DT have developed methods to place emotion, memory, and cognition at the basis of PTSD treatment. In neuroscience, research suggests that memory extinction may be one of the steps towards PTSD treatment. As a result, treatment should highlight the rehabilitation of those functions because inhibition and emotional responses are negatively impacted in patients with PTSD. In DT models, dramatic expression enables the individual to explore behavior, emotion, and memory through imagination. Moreover, playfulness within the dramatic reality uses cognition and movement to promote positive emotions and the creation of new memories. This is to say that DT may have the ability to become the stage for a potential PTSD treatment. However, further research must be conducted to strengthen the hypothesis that DT may in fact alleviate PTSD symptoms. Qualitative and quantitative evaluations in DT should be complemented with empirical evidence in order to make this treatment option more accessible to patients. In addition, a long-term evaluation should take place in DT research to assess whether memory extinction, or impairment of memory re-consolidation, is possible through drama.

Lastly, it would be ambitious to suggest that DT alone can treat PTSD. Not only should DT leave room for a potential pharmacological treatment, but also, researchers and practitioners should remind themselves that PTSD is an incurable disorder. Nonetheless, research may reinforce that DT can alleviate the intensity of flashbacks and increase control over emotional responses. In the end, although drama therapy may not be suitable for all individuals suffering from PTSD, it could be a successful form of therapy for many. After all, from Brecht to Ensler, from Boal to Johnson, the aim of drama has always been the same: to change.

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