NARRATIVE & THE BRAIN: USING FICTION AND DANCE TO COPE WITH CRISIS

by
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DEDICATION

This work is dedicated to my father and mother, Gustavo E. Ordóñez and Adriana J. Ferrer, to my aunt, Ana Amelia Ordóñez, and to my late grandparents, Joaquín Segundo Ordóñez Villalobos and María Lourdes Nava de Ordóñez.

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Contributors

This thesis was supervised by a committee consisting of Dr. Ann Christensen, Chair of Committee, Dr. Steven Aubery Long, Committee Member, and Dr. José Luis Conteras-Vidal, Committee Member. Dr. Ann Christensen is Chair of the English Department, Dr. Steven Aubery Long is a lecturer in the English Department, and Dr. José Luis Contreras-Vidal is Director of the Brain-Machine Lab in the Cullen College of Engineering.

Dr. Steven Aubery Long served as my faculty advisor during my initial Mellon Scholars research project during the summer of 2020, a project which laid the groundwork for this thesis. He also co-authored an early version of this work with me during the 2020-2021 school year. That version has since been separated such that the content of this thesis reflects the student's sole and independent work. Additional consulting was provided by Teresa Chapman, Associate Professor of Dance in the Dance Department.

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ABSTRACT

The purpose of this thesis is to explore how written and oral narrative can be paired with the embodied practice of dance to cope with times of crisis and more clearly transmit one's trauma narrative. I begin by analyzing how engaging fictional texts can create ideal conditions for aesthetic reading and flow state, creating optimal reader engagement. I break down the rhetorical devices and figurative language of one of the bestselling fictional works in the world, the *Harry Potter* series by J. K. Rowling, explaining how its literary devices manifest themselves on a neurological level. I then draw a comparison between how the brain pieces together the sensory details within a fiction text and how it processes motor imagery when viewing a complex physical activity like dance. Based on this comparison, I hypothesize that a group of brain cells called mirror neurons may play an integral role in successfully pairing written and oral literature and the embodied practice of dance.

My second section places my hypothesis within the context of trauma therapy, in which I highlight the existing holes in traditional psychological practices and make a case for embodied narrative as a way to more clearly transmit one's trauma narrative. Although one's trauma narrative is the telling of a *non-fiction* experience, I propose that pairing an oral or written version of said narrative with the embodied practice of dance can mimic the abstraction of fictional work and heighten audience reception. I begin by introducing the existing gaps in traditional trauma therapies through the example of the contemporary fiction novel *Room* by Emma Donoghue, highlighting the risks of social abjection and misunderstanding that many trauma victims feel when sharing their experiences with others. Turning again to the neurological processes of how the brain processes

narrative devices, I put forth that dance and oral or written narrative used *together* create a deep connection between the languages of the mind and body. This connection can heighten audiences' affective and cognitive empathies, which can facilitate a more accurate and accepting understanding of a person's trauma.

Lastly, I return to the concept of flow state, characterized by Mihaly Csikzentmihalyi as a human cognitive state arising from participation in a pleasurable, autotelic or intrinsically-motivated activity, to share how aesthetic reading of fiction literature can have further applications and benefits on reading competence. Taking a look at the fallacies in Accelerated Reader programs (reading comprehension programs that aim to quantify student reading competence through calculations and formulas rather than engagement and enthusiasm toward literature) in American public schools, I offer that teaching children from a young age to read fiction for pleasure will motivate students to seek increasingly challenging and complex literature, thus developing strong reading habits from an early age. In this way too, reading fiction literature can act as a gateway to lifelong engagement in other self-reinforcing and self-rewarding activities.

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INTRODUCTION

As a lifelong writer and dancer, I have found that narrative and movement have always been a part of my schooling. Even if I did not realize it, I have always had multiple outlets for emotional expression. But it was not until I was forced to turn to them for self-preservation that I understood just how much I could integrate them into each other, into my life, and into the lives of others.

When the COVID-19 pandemic began at the end of my junior year of college, I faced a rude awakening that I had been ignoring my anxious tendencies and overthinking for years. I was six months into a new relationship and suddenly found myself back at home quarantining with my parents and not knowing how long before I could see my friends and partner again. The first few weeks brought out some of my deepest insecurities, separation anxiety, and need for control. And I was not alone. The mental health crisis in quarantine quickly became coined the "hidden epidemic" among news outlets.

While video-call technologies like Zoom offered people new ways of socializing and conducting their daily lives, and countless people turned to Netflix and Amazon Prime for a distraction from this uncertain new reality, I found that one of my few consolations was the fact that I had extra time at home to read for pleasure again, a beloved habit that I had lost touch with for years as I completed my high school and college studies. I also returned to my embodied practices of yoga and improvisational dance as a way to nurture my body through the stress and uncertainty of the pandemic. I began thinking about how a) escaping into a fictional literary world and b) nurturing my relationship with my body had become coping mechanisms for me during the pandemic, and this led me to the two guiding questions for what would eventually become my research focus: 1) Why

do we often find comfort in escaping into narrative during times of crisis? and 2) How can we use narrative and dance *together* to better communicate our own traumatic experiences?

BREAKING DOWN THE BESTSELLER

The book industry has seen a revival just when digital technologies were starting to make the future of publishing look bleak. In an article from *Publisher's Weekly*, analyst Kristen McLean from the NPD market research group reported that "between March 1 and April 4, demand [for books] spiked in such categories as outdoor skills … medical history … and literary fiction (up 10%)" (Milliot, https://www.publishersweekly.com), and *The Wired* states that "people are also gravitating toward well-regarded novels, both contemporary favorites and canonical books." NPD CEO James Daunt even said the increase has been in "those books that everybody is supposed to have read but perhaps hasn't" (Knibbs, https://www.wired.com). So what are the qualities of a piece of literature that entrance a mass of readers? And why are so many fiction books amongst the bestselling in the world? Marie Pierre-Pouly offers just one explanation in reference to the literary bestseller *White Teeth* by Zadie Smith, attributing the novel's broad success in a short span of time to a few key characteristics, namely that

> it quotes canonical authors, questions the mimetic function of the narrative by exhibiting the fictional dimension of the text, plays with the narrative devices it uses, includes a metafiction … mixes genres, borrows from magic realism… (25).

Many of these same characteristics of success, such as familiar references to canonical authors, magical realism, and genre-mixing, are also present among the top-selling books in the world. I will examine the roles that literary devices like those described by Pierre-Pouly play in one of the bestselling books of all time, the

Harry Potter series by J. K. Rowling, and then I will dive into the specifics of how they affect our minds to propose why they are so entrancing to readers.

Harry Potter **by J.K. Rowling**

With over 375 million copies sold worldwide in a span of ten years, and translations across sixty languages, the *Harry Potter* series has become one of the top selling book series of all time (Granger). The first novel, *Harry Potter and the Philosopher's Stone (*or *Sorcerer's Stone* in the U.S.), alone clocks in at around 107 million sales, making it second best-selling individual book of the 20th century, second only to J.R.R. Tolkien's *The Lord of the Rings*. What distinguishes *Harry Potter*, however, is that the remaining six novels in the *Harry Potter* series are also within the top 20 bestselling books of all time, each breaking 50 million copies sold (Grabianowski, https://entertainment); not only did Rowling's magical story manage to entrance a massive audience at the start, but the series has also managed to *maintain* enormous audience engagement from book to book. So what has kept audiences coming back for more?

Although many have opposed the series with arguments of its anti-Christian content, the novel's "magic" is in the very spirituality it invokes. According to John Granger, author of *How Harry Cast His Spell: The Meaning Behind the Mania of J.K. Rowling's Bestselling Books*, the *Harry Potter* series targets human beings' innately spiritual nature, arguing that we are hardwired to take meaning from myths and stories, even if we do not adhere to them as religion beliefs in our lives. Reading fiction in that sense thus

> includes a mythological function … because, through reading, the modern man succeeds in obtaining an 'escape from time' comparable to the 'emergence from time' effected by myths. Whether modern man

> ‘kills’ time with a detective story or enters such a foreign temporal universe as is represented by any novel, reading projects him out of his personal duration and incorporates him into other rhythms, makes him live in another ‘history.’” (Eliade, qtd. in Granger)

Harry Potter is an ideal myth through which to seek meaning and understanding, especially during times of crisis, because it strikes a balance between the familiar and the fantastical, making the experience challenging yet approachable. In the midst of sorcerers, spells, and winged creatures, the reader is still able to pick out common themes in the human experience, such as fear, loss, isolation, friendship, loyalty, and coming of age.

One of the most prominent examples of this balance between the familiar and the fantastical is the series’ setting. Rather than placing Hogwarts and the Ministry of Magic far away in a distant magical land, Rowling weaves the wizard world in and among the streets of London and the UK, creating an underground community that exists right alongside our own. Although the entrances to the wizard communities are charmed to be inaccessible to Muggles (non-magical persons), they are more often than not hidden in plain sight (i.e. Platform 9 ¾ in King’s Cross Station, a major transit center and landmark familiar to most citizens of the UK and many people around the world).

Secondly, “the various symbols J.K. Rowling uses, the themes she develops, and the many traditional devices and structures she borrows from English ‘greats,” (Granger) make things like wizard names and spells ring a familiar bell for readers. Many readers who were brought up in a Western education system will be familiar with the Greco-Roman classic works, or at least the major themes present in those myths, as well as the Latin roots that make up

the most prominent languages of the Western Hemisphere: Spanish, English, French, and Italian. Rowling utilizes Latin roots in her spells and character names such that a reader can decipher the meaning of even the most fantastical-sounding fictional phrase. For example, “Lumos” is a short spell used for lighting up the end of a wizard’s ward. Although the word is not used in the English language, a reader can infer that the spell has something to do with light because the Latin root “lum” means “light”. Similarly, Severus Snape’s stern demeanor is revealed by the Latin root “sever” which means “serious” (like in the English word “severe”), and Voldemort is set apart early on as the Dark Lord and bringer of death due to the Latin root “mort,” meaning “death.” And even though the books were written originally in English, they have been adapted and translated into countless languages such that anyone around the world that is not familiar with the Western canon and languages can find a copy with names, locations, and allusions that make sense in their cultural and regional contexts.

Perhaps more important, however, is how Rowling makes her wizard characters intensely human. Despite their magical blood and extraordinary abilities, her characters go through the trials and triumphs that are universal to the human experience, including isolation, loss, fear, love, friendship, and pride. Within the context of the COVID-19 pandemic, reading about Harry’s imprisonment in the cupboard under the stairs during the first novel hits very close to home for those experiencing isolation and confinement in their own homes during quarantine. And for those dealing with financial strain during the pandemic, they can likely identify to a certain extent with the feelings of embarrassment and shame that Ron expresses toward his family’s lower-income financial struggles.

Although the *Harry Potter* books represent only one example within the inconceivable mass of global literature available in today's time, their great popularity across cultures and geographical regions makes them an excellent case study in which to view the effect of their rhetorical devices on an extremely large scale; in effect, *Harry Potter* is one of the few books in the world through which one can test the effects of written narrative on a global sample size of *millions.*

READING FICTION IN FLOW STATE

The delicate balance of familiar (UK setting, Latin language roots, universal themes) and unfamiliar (fantastical creatures, magical powers and abilities) elements through which the reader must navigate is what *Harry Potter* manages to do incredibly well. This balance is crucial factor in why fictional narratives are highly effective at maintaining reader engagement. Additionally, as Granger notes, *Harry Potter* enables a sense of escapism which "projects [the reader] out of his personal duration and incorporates him into other rhythms." Two characteristics stand out in particular, which I will refer to as 1) challenge-skill balance, and 2) spatio-temporal displacement. By challenge-skill balance, I refer to the balance between a text's difficulty or "challenge" and the reader's reading competence or "skill." By spatio-temporal displacement, I describe the disorientation and losing track of time and surroundings that a reader might experience when reading a book. These two characteristics are two of the important conditions of a phenomenon called flow state, which just might be key to understanding why we find solace in fictional narrative during times of crisis.

Flow State

"When a person can organize his or her consciousness so as to experience flow as often as possible, the quality of life starts to improve."

-Mihaly Csikszentmihalyi, 1990

Chances are you have experienced a flow state at least once in your lifetime. Flow is often colloquially referred to as "being in the zone," and it can occur during a wide range of activities like reading, sports, meditation, artistic creation, and pretty much any other activity that requires focus and has the

potential to yield pleasure. For most people, flow is an unexpected and welcome state that comes and goes, largely unquestioned save for the brief satisfaction and curiosity as to the cause of such pinpointed focus and productivity. It was not until the late 20th century, however, that scientists and philosophers began to delve into the cognitive conditions of flow to understand and tap into its potential benefits for human mental health, productivity, and learning.

In his foundational 1990 work, *Flow: The Psychology of Optimal Experience,* Mihaly Csikszentmihalyi defined flow state as a human cognitive state that arises from participating in an activity that fulfills some or all of seven situational conditions. The first is that the activity must contain "tasks with a reasonable chance of completion." The activity must also have "clear goals" and provide "immediate feedback." Additionally, it must create a "deep but effortless involvement that removes from awareness the frustrations and worries of everyday life." It must also provide a "sense of control over our actions" and diminish "concern for the self. Lastly, the activity must alter "the concept of time such that hours can pass in minutes and minutes can look like hours" (2-3).

In *Flow*, Csikszentmihalyi speaks on the benefits of approaching flow state not as a random occurrence but rather as a lifestyle built upon autotelic, or intrinsically motivated activity, to boost our emotional health and longevity. He identifies "autotelic" activities as the activities we engage in purely for their own sakes and are motivated by nothing beyond the satisfaction the activity itself provides us. He distinguishes "autotelic" activities from "externally motivated" ones. Our externally motivated activities are motivated by the promise of some future reward or payoff. For example, most of us work at jobs because we are motivated by the promise that we will receive a paycheck at the end of the week or

month. We engage in "autotelic" activities because the activity itself gives us some degree of satisfaction in the moment we are engaged in it. These activities include playing games, solving puzzles, and those involving high levels of physical dexterity like skiing or rock climbing.

One particular study on the conditions of flow state while reading revealed that fictional works of literature were more highly conducive to achieving flow state than nonfiction and other genres of literature (Mcquillan & Conde). The study utilized self-report methods including interviews and surveys to narrow down the types of literary texts and motives for reading created subject responses that aligned with Csikszentmihalyi's characteristics of flow state. In their results, Mcquillan and Conde report that "the large majority of the texts which provided the informants with flow were those which they had read for pleasure," that "texts which provided flow were perceived as giving the reader personal or intellectual benefits," and that "fiction was significantly more likely to produce flow than non-fiction texts" (109). Based on the results and subject testimony in this study, I deduce that engaging with fiction narratives lends itself more easily to aesthetic reading. Aesthetic reading, according to Louise Rosenblatt's definition, is a mode of reading during which one "pays attention to the associations, feelings, attitudes, and ideas that these words and their referents arouse within him. "Listening" to himself, he synthesizes these elements into a meaningful structure." (25).

Similar to Csikszentmihalyi's definition of autotelic activity, aesthetic reading is an activity during which a "reader's attention is centered on what he is living through his relationship with that particular text" (Rosenblatt 25). Aesthetic reading is thus a form of autotelic activity based on intrinsic motivation, and as such, has the potential to engage the mind and body in flow state. I hypothesize

that the balance between familiar and unfamiliar elements in a fictional narrative creates a continually increasing challenge-skill balance for the reader that keeps them continually engaged. This act of finding pleasure in challenge is what makes fictional narratives a self-reinforcing and self-rewarding experiences, one that offers escape and solace to those in crisis. If we can engage with fiction narratives as a regular and frequent autotelic activity, it can serve as a gateway toward a life filled with more pleasurable and fulfilling flow-state-inducing experiences.

The Science of Flow State

Although we may be easily aware with how fictional narratives make us *feel*, how do these rhetorical devices affect our brain on a neurological level? How does our brain process language and manifest it into emotions? And how do these emotions keep us intrinsically motivated to keep seeking fictional narratives?

While ventures into detecting and studying flow state are not new, few have tackled the phenomenon by looking at the cognitive processes; by and large, studies have been based on qualitative, experiential data. Harris et al. offer one of the few comprehensive reviews of research done on the cognitive processes that occur in flow state, grouping Csikszentmihalyi's conditions of flow based on how significant they are in achieving flow in a given activity. They mention the concept of automaticity, or "an absence of controlled attention," as central to achieving flow state; automaticity is what we may commonly experience as being in "auto-pilot" mode while doing an activity. Automaticity is associated with reduced activity in the prefrontal area of the brain (Harris et al. 224) which "are often activated during tasks requiring cognitive empathy … cognitive control, and decision making" (Ferrari et al. 68). This reduced activity in the prefrontal area

forms part of Arne Dietrich's Transient Hypofrontality Theory ("Functional Neuroanatomy"), but it has come into question when examining flow state in activities that require less physical exertion, such as playing games. In brain imaging conducted on subjects playing "Tetris," "there was found to be no reduction in frontal activity, suggesting that … support for hypofrontality comes mainly from studies finding reductions in cognitive function as a result of prolonged exercise" (Harris et al. 225).

If reduced prefrontal activity seems to be characteristic of extended physical exercise, what might the brain conditions of flow state look like in a more cognitively complex and less physically engaging activity like reading? Based on Harris et al.'s conclusions about the limits of hypofrontality, I put forth that a more stationary activity such as reading would require a different kind of cognitive engagement altogether to produce the conditions of flow state in a participant. In fact, it may be quite the opposite of hypofrontality; rather than reducing prefrontal activity, reading fiction narratives may increase stimulation in the prefrontal brain to fill in the gaps in somatosensory input that the body does not receive through physical exertion.

Performing vs. Observing in Flow State

As mentioned above, there is evidence that flow state manifests itself differently in the brain depending on whether the participant is taking a physically engaging, performative role in the activity (i.e. sports, exercise, dance, etc.) or a more passive, observatory role (i.e. reading, sitting, playing board games). To contrast the two forms of engagement, take the example of dancing vs. reading. For this example, I will specifically be speaking about trained dancers with

experience in learning and performing choreography; I will not be referencing improvisational social dancing.

Dancers require the ability to process a large variety of complex motor imagery and agility to move seamlessly through difficult movement combinations. All of their senses are deeply engaged in order to anticipate upcoming movements, fire the correct muscle groups, and simultaneously maintain their stability and proprioception, or sense of their place in space in relation to other people or objects around them. These complex sensory inputs require the brain to use "considerable mental resources" in the premotor region and "divert processing away from noncritical cognitive processing (i.e. higher-order function in the [prefrontal cortex])" (Harris et al. 225). Based on the Transient Hypofrontality Theory, this decrease in prefrontal activity would detract through processes away from the efforts of dance and aid the dancer in achieving a feeling of ease over time in their exercise (224), a state which is consistent with Csikszentimihalyi's conditions of flow. This would explain why "dancers find the activity of dancing to be a positive, intrinsically rewarding experience" (Thomson et al. 485; Hefferon & Ollis).

As for observing dance, studies show that there appears to be an increase in premotor activity as well (Schubotz & von Cramon) due to the large influx of motor information the audience experiences. But there also appears to be engagement in prefrontal regions because of the predictive nature of processing unfamiliar movement patterns (Hagendoorn, "The Dancing Brain," "Some Speculative Hypothesis"). Unlike a dancer executing a rehearsed dance sequence, first-time observers do not know what movement is coming next in a particular

performance, and thus their minds must anticipate the dancers' trajectories and intentions.

Based on the predictive nature of our brains, choreographer and neuroscientist Ivar Hagendoorn offers support for the idea of audience observers as literal sympathetic participants. By sympathetic participant, I indicate a person whose body involuntarily moves in coordinated response to the activity they are witnessing, in this case, dance. The implication is that watching dance could activate in humans "the same muscle groups and motor circuits in the brain as actually executing the movements," such that "when watching dance, the brain dances" ("The Dancing Brain" 6). Hagendoorn attributes this to mirror neurons, or a group of brain cells in both the premotor and prefrontal areas of the brain that "become active both when a movement is perceived and performed," meaning that they "may constitute a neural bridge between action and perception" ("Some Speculative Hypothesis" 80). Originally discovered in the premotor cortex of monkeys in 1996 by Rizzolatti et al., mirror neurons are

> neurons that discharge both when the monkey performs an action and when he observes a similar action made by another monkey or by the experimenter. WE report here some of these "mirror" neurons and we propose that their activity "represents" the observed action. We posit, then, that this motor representation is at the basis of understanding motor events. (131).

A key point is that of mirror neurons and prefrontal activity in the brain increasing when a subject takes on the role of an observer. That is, unlike the dancer onstage whose "higher cognitive processes supported by the prefrontal cortex as selectively impaired *during* [their] exercise" ("Transient Hypofrontality"

82), the audience member in their seat would be experiencing higher prefrontal activity to process the visual and motor imagery they are witnessing.

I hypothesize that similar brain functions and mirror neuron engagement may occur when reading fiction because the reader serves as observer rather than participant; instead of taking the physically active role of a dancer, a reader engages with the story as a sympathetic participant like the audience observer at a dance concert. The difference between observing dance and reading, however, lies in the lack of immediate concrete visual and sensory stimulation. For example, to witness a person dancing or rock climbing provides the observer with live kinesthetic information with which to process the movement. The same goes for watching films, such as the *Harry Potter* movies. What distinguishes the *Harry Potter* novels from their respective films is that the kinesthetic information available to audiences viewing the films is not immediately available, or guaranteed, to a person reading a piece of literature. Literary phenomenologist Roman Ingarden explains in his work, *The Literary Work of Art*, how the virtual worlds of fiction must leave "gaps" or "spaces" that would then be "filled" in our experiences of our extended, lived worlds. In his book, he breaks down fictional text into its most basic parts and analyzes how humans perceive each part of a work of fiction literature, from the simplest syllable sound to the most complex imagery, to experience a literary work of art. In his chapter entitled "The Stratum of Schematized Aspects," Ingarden establishes how, particularly in fiction literature, the world of the narrative is built upon the author's strategic use of figurative language like metaphors, sensory words, and allusions to aid the reader in visualization. But

> imaginationally actualized aspects have for their substructure only quasi-sensory material, which despite its actuality, is essentially different from genuine sensory data. Consequently, an imaginationally actualized aspect can never have… the vividness and vitality of a perceptual one. (Ingarden 269).

Using tools of craft like figurative language and rhetorical devices, written narrative can only create an approximation of a complete experiential world. As we engage with written narrative texts and generate written works, we project the content of these gaps or fill in the information in a process of *gestalt* as we engage cognitively with the text. In other words, the minute details and linguistic decoding are left for the reader's higher cognitive processing to fill in, resulting in increased prefrontal activity.

I have touched on how mirror neurons may play a key role in the higher cognitive processes necessary to derive meaning from movement (in fact, their association with the "Broca's area in the human brain—one of the brain regions associated with language" prompt scientists to wonder if they may be linked to "the evolution of language from gestural communication" ("The Dancing Brain" 6), but their presence in the premotor cortex suggests that they could play a role in predicting and synthesizing the unspecified properties of the world in the text: "Since the lateral premotor cortex is also activated when predicting a colour or pattern transition," mirror neurons in this region are thought to "be involved in the prediction of any kind of sequential event" ("Some Speculative Hypothesis" 85; Schubotz & von Cramon). Since fiction literature builds images through metaphor and figurative language, as discussed above, the reader must constantly decipher the "unfulfilled qualities" of the text, or the clues that "can cause the appearance of

a property of a thing that is not precisely determined, e.g., when I see a colored thing without apprehending the precise shade of color of its hidden side" (Ingarden 259).

Because of mirror neurons' role in predicting visual and motion trajectories, they are constantly at work while reading fiction literature, predicting the "unfulfilled qualities," and seeing without apprehending the details of a text (Ingarden 259). In a sense, the visualization or "mental movie" that plays in a reader's head is a form of motor imagery, which could indeed trigger mirror neurons in the brain.

This decoding of fiction keeps the act of reading continually challenging, especially as a fictional world gets more detailed and complex as the narrative advances; a steady increase in challenge is actually an essential part of achieving flow state. Mcquillan & Conde's 1996 study of Czikszentmihalyi's flow model explains that an activity must be "self-sustaining" in order for it to maintain a participant in flow state, meaning that there must be a constant relationship between the challenge in an activity and the participant's skill level or "automaticity" (Harris et al. 225).

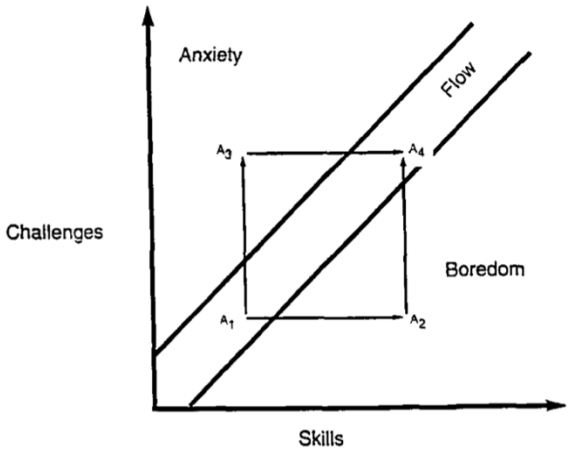

Figure 1.1 The conditions of Flow. (Mcquillan & Conde 113; Csikszentmihalyi, *Optimal Experience*).

However, “as you continue at the activity, it is likely that your ‘skills’ (broadly defined) will improve, leading you to … a state of boredom, where skills exceed challenges” (Mcquillan & Conde 113). Too little challenge can result in boredom, and too great of a challenge can result in anxiety (see Figure 1.1), both of which can distract the participant from the task at hand. The more one reads fiction and becomes adept at visualizing sensory information from a piece of text, the greater their skill level becomes and the lower the challenge; thus, it is more difficult to sustain flow state.

In the case of bestselling fictional narratives like *Harry Potter*, this challenge-skill balance is achieved by creating a world or situation that is far enough removed from the reader’s reality to challenge the imagination, yet explained in terms that are familiar enough to the reader that they can use their reading skills and life experiences to make sense of it. By forcing the reader to continually fill in the sensory gaps in the text, to visualize the fictional world for one’s own, a fictional narrative steadily increases the challenge for the reader while their reading skills simultaneously increase. If a reader is able to hit the “sweet spot” in this challenge-skill balance, then the anxiety melts away, the activity becomes self-rewarding, and they can deeply immerse themselves in the fictional world to escape for a moment from any trauma or crisis that they may be facing in their lives.

EMBODIED NARRATIVE & MENTAL HEALTH: FILLING THE GAPS IN TRAUMA THERAPY

Looking beyond written narrative, I believe my hypothesis can have broader implications for other settings including the mental health and trauma therapy fields. As I have explained, reading fictional written narratives lends itself to the conditions of flow state by offering a continually challenging state of visualization from textual clues. I have then offered that this visualization process may serve the function of motor imagery and offer a potential link to embodiment by triggering mirror neurons in the brain. I put forth, then, that the complex physical and artistic activity of dance could serve as an embodied outlet or manifestation of a written or oral narrative. When paired together, this connection between the languages of the mind and body could serve as a way to heighten audiences' cognitive and affective empathies, which can facilitate a more accurate understanding of a person's trauma. This, in combination with dance's level of artistic abstraction, increases the likelihood of an accepting and comforting audience reaction and therefore cathartic release for the storyteller.

At the start of the COVID-19 pandemic, I found myself immersed in the topic of mental health, posttraumatic stress, and trauma therapies as I navigated through my own emotional responses to the global crisis. It was not until I read chapter 14 of Dr. Bessel van der Kolk's *The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma*, however, that I realized the gaps that exist today in trauma treatment, and how the field of psychology could benefit from more creative outlets involving narrative and the arts.

In his chapter entitled "Language: Miracle and Tyranny," van der Kolk highlights what is widely intuitive to us nowadays: we feel better after venting our emotions and experiences to someone we trust. Van der Kolk praises the use of

narrative in trauma treatment for its abilities to help people put their problems into perspective within a larger social community; being able to share our stories with people through oral or written narrative reminds us that there are other people out there that have faced the same or similar circumstances, and it can often offer a glimmer of support. However, even though "being able to articulate a complex feeling, and having our feelings recognized, lights up our limbic brain and creates an 'aha moment,'" the downside of shared narrative is that "being met by silence and incomprehension kills the spirit" (van der Kolk 234).

The contemporary novel, *Room*, by Emma Donoghue, serves as an excellent case study to illustrate the detrimental effects of this kind of social abjection on victims of trauma and crisis.

Room **by Emma Donoghue**

Published in 2010 by Irish author Emma Donoghue, *Room* chronicles Ma and her five-year-old son, Jack, during the last few months of their seven-year imprisonment within an 11x11 shed in the backyard of Ma's kidnapper and abuser, Old Nick. Although Ma has managed to create a lively and safe environment for Jack to develop in Room, his ever-growing curiosity about Old Nick and the world Outside begins to make her realize she can no longer shelter Jack from the truth about her kidnapping, the Outside world, and Old Nick. After revealing these details to Jack, Ma enlists him to help plot and execute their escape, and the first half of the book culminates with the pair's rescue. While most crime novels would end with this sort of climactic escape, Donoghue utilizes the second half of the story to highlight Ma and Jack's alienating struggles to reintegrate into a stigmatizing and intrusive society. Overwhelmed by the incessant attention from

doctors, family members, and the media, as well as thousands of new sights and sounds previously unknown to Jack, he and Ma both grapple with their altered relationships to themselves, to each other, and to the wide world around them until finally regaining a permanent home at the end of the novel. Told from young Jack's innocent and curious perspective, *Room* is a case study in domestic relationships that constantly challenges traditional notions of trauma, healing, and what it means to be truly free.

Reading about Ma's experience in the novel made me rethink how humans can negotiate their relationship to space and to their bodies to create a sense of relative safety even in hostile conditions like abuse and confinement. Seeing how Ma finds purpose and hope in providing for herself and Jack despite Old Nick's abuse, in being able to spin the isolation of Room into a habitable space for both of them, helped me realize that confinement is a lesson in being at peace with what I can and cannot control in my life. While it may seem paradoxical, *Room* in this way helped me find a strange sense of liberation within confinement.

In analyzing this paradox, I read an article entitled "Thinking Borderlessness: Alternative Forms of Embodiment and Reconfiguration of Spatial Realities in Emma Donoghue's *Room,*" in which author Jayana Jain Punamiya addresses the effects of social abjection on trauma victims. As Punamiya explains, "while being confined in Room with his mother … Jack managed to remain free from institutional control. However, … it is when Jack and his mother enter the realities of this society that all the disciplinary mechanisms like the media, the hospital, and the police attempt to mark Jack's body as messy and imperfect" (5). While living in a space of complete privacy, Ma develops an intimate connection with Jack to provide the most nurturing care she can for him without societal

judgement of her parenting methods or inhibitions to typically taboo subjects like bodily fluids and nudity. For example, Jack is accustomed to bathing with his mother despite both of them being nude, and Ma is able to continue breastfeeding Jack throughout the novel even though he is well past the traditionally accepted breastfeeding age. When doctors and media get wind of these facts after their escape, the pair receive pushback from society for not establishing more decent boundaries in their relationship. In a sense, Ma and Jack have a liberty within the privacy of *Room* that they otherwise would not develop in the Outside world because they are free to form safe, organic connections to their bodies for the sake of survival without facing societal scrutiny for doing so. However, once in the relative safety of the Outside world, the "ideological and repressive apparatuses that prescribe norms … with the ultimate goal of suppressing any deviant behavior" make it so that their relationships to their bodies are unorthodox and strange (Punamiya 5). After having developed a nurturing lifestyle with each other for five years in Room, it is easy to see why Ma and Jack feel alienated and bound after their escape when society tells them to break it up.

The dangerous effects of this kind of societal abjection are most clearly seen in the second half of the novel when Ma overdoses on her pain medication in the psychiatric clinic she and Jack reside in after their escape. When Jack returns from his outing with his family to find Ma unconscious, his grandmother explains to him that Ma is "not well because she took too much of the bad medicine" and that "she is not well. In her head" (Donoghue 254). Ma's overdose comes after a series of frustrating meetings with doctors, lawyers, and the press, all of whom appear hellbent on rehabilitating the pair back up to society's standards of normality; this is an isolating experience for Ma and Jack because rather than

understanding their story and validating that their experiences have created a new normal for them, the pair's supposed caretakers focus on aligning their behavior with a society that is now foreign to them. Ann Jurecic, English professor at Rutgers University and author of *Illness as Narrative*, describes illness as "an experience that can break a life in two," much like Ma and Jack's traumatic experiences in *Room* disrupt their life timelines (Jurecic 10). Thus, for Ma to be told by society to disengage with her body and revert back to her worldview from before she was kidnapped completely overlooks the personal identity that she has been forging for the past seven years, leaving her demoralized and questioning her own sanity. With the example of Ma's overdose, Donoghue captures what happens when words fail to convey trauma and a misunderstood narrative meets an unreceptive audience.

On the Lessons and Limitations of Narrative

So how do we bridge the divide between the storyteller and the audience member to aid in the process of healing? The answer is twofold. First off, as Roman Ingarden suggests in *The Literary Work of Art,* audience disconnect with written narrative lies in a lack of sensory information provided by the novel or book. I have revealed how the characteristics of fictional literature lend themselves exceptionally well to visualization for the *reader*, giving them the liberty to "fill in the gaps" of the fictional world themselves in their unique "mental movie"; however, there is little room for interpretation when it comes to sharing one's trauma narrative, especially when clear emotional understanding and empathy is key to a trauma victim's healing. A person's trauma narrative is not a fictional world to be visualized, and it requires that listeners are on the same page as to the

details of the victim's lived experiences. The second missing piece of the puzzle is the difficulty in garnering audience empathy for one's emotions. As van der Kolk reveals in his brief section on mirror neurons in *The Body Keeps the Score*, being deeply in touch with another person's emotional states "make[s] us vulnerable to others' negativity so that we respond to their anger with fury or are dragged down by their depression" (59). Thus, in order for our trauma narratives to be met with an understanding and comforting reaction, they must be conveyed in such a way that they can "resist being hijacked by others' negative emotions" (59). With these two factors in mind, it becomes clear that for a written or verbal trauma narrative to be effectively received by an audience, it needs to provide enough *embodied* sensory information for perceptual accuracy while allowing sufficient emotional distance for the audience to not reject internalized negative emotions that may arise. In this way, although a person's trauma narrative is *non-fiction*, embodying a trauma narrative through dance can re-insert the space for audiences fill in only the most unsettling details for themselves; in a way, dance helps "fictionalize" the narrative again, mimicking the way a fiction narrative engages our brain and enabling a more receptive audience response.

Ann Jurecic's *Illness as Narrative* hints at this fictionalization as she analyzes the effectiveness, or rather, the ineffectiveness, of illness narratives. For the sake of my argument, I will be using the word "trauma" similarly to how Jurecic uses "illness" in her writing; while Jurecic refers strictly to physical ailments, illness is a type of trauma which, like mental distress, exhibit physical and psychological symptoms within the human organism. In her final chapter on reparative reading, she analyses Eve Kosofsky Sedgwick's trauma narrative in *Touching Feeling,* concluding that "[Sedgwick] encourages readers to recognize

her text as a pointing finger" that highlights only a minute and specific part of her life experiences but cannot capture a full "understanding [of] her embodied, affective, and cognitive experience" (Jurecic 126). A narrative, whether written or oral, can only portray a small portion of one's life experiences through imagery, metaphor, and other rhetorical devices; as Jurecic reveals, our life experiences also manifest themselves in a largely physical dimension within in our bodies, one that is deeply personal and impossible to transmit to an audience with words alone.

Jurecic's analysis elucidates that the first limitation of written and oral narrative is that it lacks the sensory information humans require for an accurate and holistic experience of a story. As described previously by Ingarden, written fiction provides "quasi-sensory material" that can only create an approximation or rough mental image in the reader's mind, such that we cannot accurately picture what we have not physically experienced (269). As a result, we fill in the blanks with material from our own past experiences, preferences, and biases, essentially inserting ourselves into the person's narrative and making it (at least partially) our own. Just like *Room* illustrates, this can create frustrating confusion and misunderstanding for storyteller and reader alike, especially if the goal of the shared narrative is to find community support like Ma and Jack.

Knowing now that the gap in narrative lies in a lack of sensory information, then it remains that written and oral narrative would benefit from integrating embodied practices to *concretize* said sensory information. For this, Ingarden offers what he calls "borderline cases", or forms of narrative that share many characteristics with a literary work but offer a more embodied or complete sensory experience than words alone; this category is what we commonly refer to as the performing arts, specifically live theatre, silent films, and pantomime. Beginning

with the stage play, Ingarden poses that while theatre is not to be confused for a complete translation of a literary work from the page to the stage, there is merit in how "metaphysical qualities can be manifested in a stage play, and this manifestation usually has a much greater expressiveness than is possible in a purely literary work" (322). This concretization of our mental images is a large factor in why we are so drawn to the theatre, and today, non-silent films. These performative works offer visual "reproduction and representation" so that the written or verbal imagery on the page is not "merely held in *readiness* by various artistic means" in our minds, "but instead are determined *concretely*" (320). For example, the reason why so many people love (or hate) the *Harry Potter* movies is because once they were released, no one could imagine Harry looking like anyone other than actor Daniel Radcliffe. Whether audiences liked it or not, the films did away with their mental image of him that had formed while reading the books. But whether this phenomenon makes us side with "the books were better" or not, the fact remains that having this sensory realization of the story through images, sound, and movement allows the narrative to be mechanically processed in the brain with far more detail. And although van der Kolk points out that this level of detail "also make[s] us more vulnerable to others' negativity" (59) and additional emotions that we as audience members might prefer to not inhabit, it does produce a clearer picture of the storyteller's experience. While a performance of someone's trauma narrative may not be the most popular or comfortable moment to sit through, it will at least be a more accurate depiction of their experience and a step toward greater understanding.

A Continuum of Embodied Narrative

Moving further into his analysis of borderline cases—namely live theatre, silent film, and pantomime, all of which fall somewhere between the page and the stage—Ingarden's trajectory turns away from the written and verbal to the increasingly physical arts, and I began to think of storytelling as a spectrum, or what I like to call, a continuum of embodied narrative. On the far-left side of the spectrum is written and oral narrative, including novels, poems, short stories, and the like. These forms of storytelling contain no embodiment, meaning they rely on minimal to no bodily movement at all express the narrative in question; they can be told and received while sitting down or standing still.

In the very middle of the continuum there is live theatre and film, which as discussed above, makes significant use of words *and* bodily movement to portray what is usually a previously written narrative. I call this the *zone of representation,* which is to say that the actors' embodiment serves to represent aspects of a previously existing story, namely a book, script, or original screenplay. While there may be room for artistic liberty in the staging and visual aesthetic of the play or film, these choices overall stay close to the descriptive imagery set out in the original narrative, and they serve to enhance the meaning of the story for the audience rather than alter it. Additionally, the actual text of the narrative is still shared with the audience.

And on the far right side of the spectrum is an art form previously unexamined in this paper, and one that is near and dear to my heart, dance. Dance classifies as the most complete form of embodied storytelling as it focuses almost exclusively on the body as the main medium of expression. While dance may be based at times on a previously written narrative and even include text or voice in

its performance, the narrative is not often recited by the dancers themselves and choreographers may choose to use movement to manifest, complement, or even contradict the narrative in question. I call this the *zone of abstraction,* meaning that the body serves to capture an essence of meaning rather than a literal manifestation of it. Whether or not the dance work is based in narrative, this leaves room for audience members to alter or completely change the meaning of the work based on their individual interpretations.

The Case for Dance

While reading Ingarden's argument for the theatrical arts — and here my largely biased background starts to show — I noticed that he had left out one rather prominent method of embodied narrative: dance. The Western tradition of concert dance has been largely influenced by and evolved out of balletic forms, and although I firmly believe that dance pedagogy in today's time should begin to move away from its reverential and exclusive emphasis on ballet as the "foundation" of dance, I would be foolish to ignore that the balletic form has created a large part of mainstream perception of Western dance. Only one look at classic titles like *Sleeping Beauty, Romeo and Juliet, Don Quixote,* and even George Balanchine's *Apollo,* all literary works choreographed and adapted for the dance stage, reveals dance's deep basis in written narrative. But stories like *Romeo and Juliet* were famously staged as plays first and later films. What was the benefit of translating it into dance, of stripping away the text and blocking in favor of bodily movement as the primary method of storytelling?

Here again Ivar Hagendoorn sheds light on the human perception of dance and how mirror neurons play a key factor in developing affective empathy. Since

mirror neurons were found to fire “when observing human movements” and appear to “[activate] the same muscle groups and motor circuits in the brain as actually executing the movements,” they may be crucial in explaining phenomena such as kinesthetic empathy and certain principles of aesthetic theory like the peak shift effect, all of which play a role in making dance a deeply effective way of transmitting narrative (“The Dancing Brain” 6).

To illustrate how these phenomena play out best in the context of trauma narrative, let’s take a look at MacArthur Genius and Tony Award winner Bill T. Jones’ renowned dance work, “Story/Time.” Premiered in 2012 at Monclair State University in New Jersey, “Story/Time” works its way through a series of one-minute stories based on Jones’ own life experiences and narrated live onstage by Jones himself. Although the choreography was intended to be largely abstract and separate from his narration, Jones’ choice to pair it with deeply personal and often disturbing and graphic anecdotes from his childhood “challenges audiences to find meaning and connection” between narrative and movement (“Repertory”).

One of the tools that Jones relies on for his audience to make these connections in “Story/Time” is kinesthetic empathy. Kinesthetic empathy can be described as what happens when, “even while sitting still, [spectators] feel they are participating in the movements they observe and experience related feelings and ideas” (“What is Kinesthetic Empathy”). This phenomenon is particularly prominent in the latter half of the piece when Jones introduces various iterations of a domestic and sexual violence scene involving a cruel landlord. At a little over 52 minutes into the dance, Jones begins narrating a story about how “a woman is sitting alone on a couch distraught because she can’t pay her rent” while a solo dancer sits on a couch onstage dancing in desperation (New York Live Arts,

00:52:21). The story continues with various dancers entering the scene as Jones introduces characters like the woman's father and daughter and the landlord and his goons. By pairing the choreography and narration, the result is such that the dancers appear to be playing out scene onstage. This connection is particularly striking in the more desperate parts when "the mother says 'have mercy, we don't have the money. Please, please give us more time'" (New York Live Arts, 00:52:34) and when "the mother shouts 'no, no, no' as the landlord seizes the daughter and begins ravishing her" (New York Live Arts, 00:52:55). The first phrase is represented by a solo dancer kneeling with a bowed head as if pleading; the second is accompanied by a different dancer lifting and spreading the legs of another, only to stand between them and perform a pelvic thrust to imply sexual assault. Since "affective empathy is associated with activity in premotor parietal, temporal, and subcortical regions classically associated with movement, sensation, and emotion," the dance's embodiment of this explicit domestic violence scenario provides the sensory information necessary to illicit a stronger emotional response from the audience than if it had been told through narration alone (Ferrari et al. 68). In accordance with the function of mirror neurons described above, spectators would experience this scene vividly while sitting in their seats because their brain and body are reacting to the unsettling story onstage almost as if they were experiencing firsthand.

What is most interesting, however, is what happens when the same choreography is stripped of Jones' narration. In the very last moments of "Story/Time," at around an hour and seven minutes into the piece, the same choreography from the "woman sitting alone on a couch" anecdote is repeated, this time without the accompanying voiceover. Instead, the movement is performed to

intense atmospheric music, a recording of a ticking clock, and Jones and the dancers passionately chanting (New York Live Arts, 01:07:21-01:08:20). While the audience is able to recognize the choreography after having seen it already multiple times throughout the evening-length piece, the dancers no longer appear to be characters portraying a scene, and the movement loses its context within the narrator's story. When watching this, Jones' artistic choices reinforced for me the idea that the relationship between text and dance goes both ways; while the meaning of a person's trauma narrative can be enhanced through embodiment, written or oral text puts movement into a person's situational and emotional context.

The second aspect that makes Jones' "Story/Time" effective is that dance's expansive and varied movement vocabulary takes advantage of the "peak-shift" effect to keep viewers' attentions fixed on the narrative at hand. In the article "The Science of Art: A Neurological Theory of Aesthetic Experience," neuroscientists Vilayanur Ramachandran and William Hirstein describe the peak-shift effect, first observed in animals, as a process in which humans "take the *average*" of their surroundings, "subtract the average" from the particular object they are observing, "and then *amplify* the differences to produce a caricature" (18). Although this concept was applied to visual arts in their research, Hagendoorn explains that the same principle can be applied to how we observe dance. Since "exaggerating the essential features of an object will create a quicker and stronger response in the brain of the observer" ("The Dancing Brain" 8), it follows that narratives told in conjunction with choreography, like "Story/Time," are more likely to capture and hold our attention stronger and longer than non-embodied narrative or even a staged play. This more prominent emotional response is due to the greater range

and contrast of motion, as well as a level of abstraction, in dance than in stationary reading or in the pedestrian vocabulary of a realistic play. To use the same scene from "Story/Time" described above as example, Jones' choreography grasps the key words of his anecdote and boils them down into a few essential gestures or movements, such as a thrust, a kneel, a point of the finger, that embody the events of his story.

But there remains van der Kolk's warning that this level of sensory detail ultimately heightens the possibility of audience rejection as spectators react to any personal discomfort that might arise while taking in a traumatic story. So how do we soften the blow? As I mentioned at the start of this section, audience reception is twofold, and the second half of creating an accepting audience is providing a level of emotional distance in the trauma narrative. Recall the *zone of abstraction* I mentioned above in my continuum of embodied narrative. The Oxford English Dictionary defines abstraction as "the process of isolating properties or characteristics common to a number of diverse objects" ("Abstraction"), which is a primary function of the peak-shift effect. By understanding how to manipulate the peak-shift effect and mix abstract movement into their works, choreographers can negotiate the emotional distance an audience member feels when witnessing a dance, thus tapping strongly into audience empathies.

But removing excess and boiling down an idea to more basic units of meaning seems contradictory to kinesthetic empathy, which relies on *more* sensory information rather than less; However, Ferrari et al. point out that there is a second type of empathy, cognitive empathy, in which "neural systems involved in cognitive control and decision making, such as the cingulate, prefrontal, and temporal areas are often activated" (68). While the premotor area of our brain

mirrors the sensory detail onstage while we watch a dance and stirs up our emotions, the prefrontal area kicks in to help us "[realize] that other people can think and feel differently from us" and promote "inhibition of inappropriate actions" that we would otherwise execute on impulse (59). So just like we can (usually) restrain ourselves from punching someone in the face for insulting us, we as audience members can usually talk ourselves down from acting on our negative emotions if we're given room to put them into perspective. Incorporating dance into a trauma narrative helps us put the story in perspective by adding a level of abstraction such that we witness the narrator's emotions clearly, but we don't become negatively overwhelmed by any unnerving details. When we are given space enough in the narrative to abstract the most unsettling details for ourselves, our prefrontal brain is able to distinguish that we are merely witnessing someone else's trauma, not experiencing our own. This is similar to what happens in the brain when reading a written fictional narrative; the abstract motions of dance create just enough space for the audience to visualize the worst of it, in many ways mimicking how we visualize a fictional world. This differentiation allows our cognitive empathies, or the part of us that decides *how* we react to our emotions, to take over and calm us down rather than misguidedly lashing out at the person who made us uncomfortable. In this way, dance can help cushion a trauma narrative's emotional blow on an audience, in turn lessening the probability of an isolating audience rejection and creating a more inviting space for the storyteller to feel safe sharing their experiences.

FURTHER APPLICATION: FICTION AND READING COMPETENCE

Returning to the topic of flow state, aesthetic reading has been shown to have important benefits on human learning, beginning with reading competence. By teaching children to read for pleasure from an early age, they can develop a positive relationship with the challenge-skill balance within fiction texts and form an intrinsic motivation to seek more complex narratives as they develop into adulthood. By building a positive flow state experience into children's reading habits, fiction narratives could serve as a gateway to lifelong engagement with other self-reinforcing and self-rewarding activities in their adult life.

Reading fiction has been shown to have important benefits on human learning, beginning with reading competence. It is commonly held that good reading habits are most easily developed in people at a young age, when the language processing areas of the human brain are still maturing, developing, and easily able to absorb new information. This is why so much of early childhood education is centered around reading. However, over the last few decades, the U.S. literacy rate and percentage of habitual readers has dropped dramatically, and "of adults 18 to 24 years of age, the literary reading rate decreased from nearly 60 percent in 1982 to 43 percent in 2002 – a drop of 17 percentage points" while "a smaller percentage of 13-and 17-year-olds read for fun daily in 1999 than in 1984" (Bradshaw 26). One of the commonly blamed reasons for this decline in reading for pleasure, and reading as a whole, is the rise of technology. However, a closer look at America's public education system reveals that a lack of autotelic reading time at elementary and middle school levels has been impacting reading competency levels on a large scale. Nicole Willekes sheds light on the negative effects of the Accelerated Reader programs in public schools in her article,

"Disrupting the Flow: The Detrimental Effects of Accelerated Reader on Student Motivation," stating that the program's model built around mathematical algorithms, point systems, and teacher incentives for students, strips students of their intrinsic motivation to engage with literature. The Accelerated Reader program is widely known and put into practice in over 70,000 schools in North America with the purpose of "provid[ing] differentiated reading assessment for a wide range of students" (Willekes 32) and to keep their reading development on track as they grow through their education. However, the program's model works such that "after completing a book, a student takes an AR-generated quiz in order to earn points" which are then used "in order to gain rewards such as public recognition, snacks, or small toys" (Willekes 33; Schmidt). Willekes points out that this model bases reading curricula around *extrinsic motivation*, or motivation derived from outside oneself, as opposed to *intrinsic motivation*, which comes from the mere act of partaking in the activity.

The latter, intrinsic motivation, is the foundation for the concept of aesthetic reading coined by Louise Rosenblatt, as discussed in an earlier section. Aesthetic reading has been shown to be more conducive to deep learning because they reduce "intruding or distracting stimuli," (Willekes 34), thus opening the gates for a pleasurable, immersive flow state experience while reading.

Allowing kids more time in school for aesthetic reading thus increases the likelihood of achieving flow state during their reading time, engaging them more and more with the challenge-skill correlation described earlier. The more children engage with the challenge of reading new fiction works, the more skill they acquire in decoding textual language. Thus, in order to achieve flow state in the future, the child must seek out more challenging written texts that will bring the challenge

level back into balance with their newly increased skill level. This steady increase in the challenge-skill balance as children continually engage with reading fiction narrative over the course of their development is the mark of increased reading competence. As a child becomes more skilled and accustomed to visualizing fictional worlds from clues in the text, they are able to move on to more complex works.

Taking a look at the *Harry Potter* series once again, it becomes clear that J.K Rowling tailored her books to become increasingly more challenging as her readers quite literally grew up with her characters. *Harry Potter and the Sorcerer's Stone* seems relatively lighthearted compared with the last book in the series, *Harry Potter and the Deathly Hallows.* In the first book, Harry and his schoolmates are 11 years old and only just being introduced into the world of magic. Although there is mention of dark themes and the looming threat of Lord Voldemort, dangers still seem distant, and the protagonists' biggest worry is winning the House Cup at Hogwarts. However, by the time readers reach the seventh installment, Harry and his friends are 17 years old and deeply entrenched in multiple storylines of Dark magic, Lord Voldemort has made his successful and prominent return in the flesh, the protagonists have been through the quintessential ups and downs of teenage life (including relationships and heartbreaks), and the joys of Hogwarts seem small and irrelevant compared to the destruction and loss they have endured. Countless new creatures and spells have been introduced to the reader, as well as complex emotional themes that parallel the development of a generation growing up very much in tandem with Rowling's characters. As a young reader transitions from one *Harry Potter* novel to another, their reading competence increases as the fictional wizard world grows larger and more

complex, and each book must be more challenging than the previous in order to keep readers engaged and reading in flow state. And the notion of building reading competence through aesthetic reading can carry on into other, more difficult fictional worlds; a child might start out reading the *Harry Potter* series in middle school, and by the time they reach college, their reading skillset has developed enough to find pleasure in the elaborate challenge of a Dickens novel. Reading in flow state becomes self-reinforcing and self-rewarding until it is habit, and it could serve as a stepping stone toward lifelong engagement with other pleasurable, intrinsically motivated activities to improve personal satisfaction and self-esteem.

In the context of dance once again, reading competence would be similar to "muscle memory" for a dancer. The brain of a trained dancer observing a dance performance would react differently than that of a non-dancer observing the same performance. A trained dancer will have enough familiarity with movement vocabulary that, even if they are unfamiliar with a choreographic work, their mirror neurons are able to process the motor imagery they are witnessing and recruit the correct muscle groups to execute the movement much faster than a non-dancer could. I have experienced this myself as a dancer observing dance performances, as I often find myself moving in my seat as I watch the dancers onstage, almost as if my muscles want to dance with them. Similarly, a "trained" reader, one with a large literary vocabulary and experience with visualizing fictional worlds, would, will more efficiently process sensory clues from a new and unfamiliar text and immerse themselves in their visualized world. A question for further investigation would be whether mirror neuron engagement while reading fiction might actually translate to reader embodiment of their fictional world. Might mirror neurons signify a higher form of flow state, one in which a reader

begins to recruit muscles and move in response to their text as a dancer moves when observing dance?

CONCLUSIONS FOR A WORLD IN CRISIS

In this pandemic world, we've all suddenly found ourselves in our own version of *Room,* confined, worried, and rethinking our relationships with ourselves and our society. Some people's experiences during this uncertain time can and will be far worse than our own, and we will have to handle posttraumatic stress on a global scale that we haven't encountered since the first half of the twentieth century. Now more than ever it is vital to relate to each other with compassion and empathy, because we will all have a story to tell on other side of global crisis. The goal of the research I have presented in this paper is not to provide an end-all, be-all therapy method or suggest that there is any one perfect way to share our stories. Rather, I offer an alternate and interdisciplinary lens through which to view the inseparable nature of science and art, of mind and body. In understanding how we process narrative and movement in our brain at a foundational, anatomical level, we can work to formulate and share our stories in a way that not only stimulates but expands each other's empathic capacities. We can engage with fiction narratives for pleasure to make a habit of flow state and bring ourselves solace when it seems no one else will. We can tell our message through our words and through our bodies *together* so that they resonate clearly in the minds and bodies of those who listen; in doing so, we break down the kind of alienating stigmas that caused Ma's overdose and, in their place, build up a community, a lifeline. We create a space free of judgement for those who have escaped from their own "rooms." We renegotiate our emotional spaces so that society is no longer just another form of confinement.

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