# The Neuroscience of Teaching Narratives: Facilitating Social and Emotional Development

*Lisa Whalen*
North Hennepin Community College,
7411 85th Avenue North
Brooklyn Park, MN 55445-2299, United States
lisa.whalen@nhcc.edu

## Abstract

Humanities and the sciences have long been considered polar opposites that exist in separate realms of academia and require different cognitive skills. However, neuroscience has brought about renewed interest in what we can learn about the human brain by investigating links between disciplines. For example, studies related to English literature have revealed that the benefits of reading narratives (fiction and nonfiction stories) extend far beyond language development and include increased competence in social and emotional functioning. By combining the results of an original dissertation study and a review of past and current research in education, psychology, linguistics, and neuroscience, this essay explores how reading narratives serves as practice for managing emotions and social interactions in everyday life. In fact, several studies suggest that reading narratives strengthens nearly every part of the brain because the brain is designed—or "wired"—to think and learn in terms of narratives, regardless of subject matter.

This essay provides several types of support for the claim that reading narratives facilitates social and emotional development. Research discussed includes studies showing that reading narratives is not a solitary activity but "a surprisingly social process" ([30], p. 1) and is linked to increased ability to view people and events from multiple perspectives, increased empathy for others, and increased ability to interpret social cues ([2], [8], [10], [11],[18], [21], [33], [35], [36], [44]).

Understanding how the brain processes narratives and relates them to real life functioning has important implications for many disciplines, such as psychology, in its attempt to understand and treat post-traumatic stress disorder. This essay, however, focuses on the implications for education. Teachers striving to help students develop the perspective-taking abilities necessary for critical thinking and the empathy necessary to become responsible adults may be more effective if they understand the role narratives play in students' social and emotional development.

**Keywords:** neuroscience, narratives, social development, emotional development

## 1. Introduction

Once upon a time, reading narratives (stories) was considered a leisure-time activity, something done for pleasure, not for benefit [34]. Studying narratives was limited to English departments, which were being relegated to "dark ages" status by the rapid growth of fields such as business and technology. However, the future for narratives appears to include a happily ever after, as researchers in psychology, higher education, and neuroscience have discovered that reading narratives offers many benefits. Based on dissertation research and a review of the literature, this article explains how reading narratives facilitates social and emotional development by allowing readers to simulate and practice real-world social interaction.

## 2. Definition and Brief History of Narrative

Narratives come in many forms—plays, novels, movies, etc., and can be imaginary (fiction) or based in fact (nonfiction) [24], [33]. At a minimum, narratives include a setting, a character with a goal, and one or more impediments to accomplishing the goal [33].

Narratives are among the oldest and most important forms of human communication (Coste, 1989). Even before the development of language, human beings' earliest ancestors painted images on cave walls to record their history for future generations, demonstrating a self-awareness not observed in other forms of life [17],[14]. In fact, self-awareness, one of the key characteristics

setting human beings apart from other animals, appears to be bound up with narrative. Unlike other living organisms, human beings can distinguish between self and other by the age of two, the same age at which they begin to understand narratives and empathize with the characters in them [22]. By the early teenage years, human beings develop their own life narratives—stories that enable them to understand who they are as individuals according to their unique history. They use narratives as a means of sharing knowledge, developing relationships, and building societies [16], [39].

Narratives are especially effective for building relationships because in addition to providing factual knowledge, they enable readers to simulate—or live through vicariously—storytellers' experiences [24]. In my 2010 dissertation study, I found a statistically significant correlation between the number of narratives college students read and their ability to simulate characters' experiences—or what M. H. Davis (1980, [11]) calls "fantasy." My study also showed that fantasy is related to the ability to simulate the experiences of other people in real life, a key factor in both empathy and social competence.

## 3. Reading Narratives Enhances Social Competence

Data from my dissertation study revealed a statistically significant correlation between the ability to simulate fictional characters' experiences and what Davis [11] called perspective-taking, or the ability to simulate the experiences of people in real life. Mar, Oatley, dela Paz, Hirsh, and Peterson [35], [38] found that study participants with high fantasy scores also scored higher on measures of empathy and social competence, implying that reading narratives may increase empathy and social competence by providing three types of mental practice for real-world social interaction: simulating characters' worlds, simulating characters' emotions, simulating characters' behavior [15], [36].

## 4. Readers Simulate Characters' Worlds

Coplan [9] and Rall and Harris [41] found that readers' simulate characters' experiences so completely that they recreate characters' worlds, placing themselves within those worlds. Coplan discovered that readers gather and process information based on characters' physical orientation within narrative worlds. Her study showed that readers identified with and simulated the main character's experiences more often and in more detail than those of any other character. Participants then read and processed sentences that supported the main character's perspective more quickly than sentences that opposed the main character's perspective or that indicated a neutral perspective. Both Coplan and Rall and Harris found that readers demonstrated greater recall of objects in a narrative when the objects were located closer to the main character or within the character's sightline (i.e., in front of rather than behind the character) regardless of how the author wrote about the objects. They concludes that if readers merely observed a character's experience, they would have recalled objects by the amount of detail the author provided rather than by the objects' proximity and visibility to the main character. The implication, they contend, is that readers mentally created narrative worlds and *became* the character(s) while still maintaining awareness of themselves as living beings in a world outside of the narrative. This dual existence allowed readers to experience and learn from characters' behavior.

## 5. Readers Simulate Characters' Emotions

Readers undergo a dual existence in terms of characters' emotions as well [6]. Readers feel characters' emotions with the same intensity as emotions produced by real-world situations in their own lives, but they can also reflect on simulated emotions, comparing them to what they have felt or imagine they would feel in similar real-world circumstances [47]. Feeling characters' emotions and comparing them to real-world circumstances increases readers' social competence by providing them with opportunities to practice managing their emotions, reacting to what they feel, and observing likely outcomes of their reactions without having to deal with the consequences of their reactions. For example, readers of a narrative about domestic violence gain firsthand factual and emotional knowledge of what domestic violence feels like without enduring physical harm [32]. As

Mar and Oatley (2008, [34]), explain, reading narratives "trains us to extend our understanding toward other people, to embody (to some extent) and understand their beliefs and emotions" and to anticipate their reactions and behavior, making us more likely to react constructively (p. 181). Narratives help make this training more readily accessible than training obtained from expository texts.

### 6. Long-Term Benefits of Reading Narratives

Knowledge absorbed through the simulated experiences prompted by narratives is more likely to be stored in long-term memory and more easily recalled than knowledge absorbed from expository writing because nearly all cognitive recall is initiated by emotion [1], [12], [13]. The brain stores and recalls factual information according to the emotions associated with the information. When readers face real-life encounters similar to those they have read about, they match the emotions caused by the real-life encounter with simulated emotions from narratives. Among the information readers access through simulated emotions are consequences associated with behavior they read about in the narrative; readers are then able to imitate the behavior they remember as being the most likely to lead to a positive outcome.

Readers also abstract knowledge from narrative simulations to apply it more broadly. Mar and Oatley (2008) explain, "the understanding gleaned from complex social events [in narratives] can be seen to generalize from one instance to many similar instances" (p. 177). Without being aware of it, readers treat each character in a narrative as a synecdoche [21], [37]. For example, events and characteristics associated with the evil stepmother in the Cinderella narrative are stored in memory as "stepmother." When readers encounter a stepmother in the real world, they compare and contrast her to information stored in memory as "stepmother," modifying and abstracting the idea of "stepmother" as it is stored in memory.

Howe [23] found that in addition to applying abstracted knowledge to real situations, readers also apply it to hypothetical circumstances. Howe explains that readers "may begin to construct emotions for situations that may not be directly in [their] own particular experience" (p. 9). This is an important stage in the development of empathy. The ability to simulate others' emotions and predict their behavior in addition to managing one's own emotions and behavior is associated with increased social competence. In fact, Harrison (2008) and Mar (2004) found that because of their highly developed empathy and ability to determine which behaviors are likely to lead to a desirable outcome, readers are often perceived as having greater social competence when compared to non-readers.

### 7. Simulating Characters' Behavior

According to Batson [4], empathy lies at the heart of social ability. Researchers believe that the brain's innate capacity for empathy plays a role in why humans tend to think and learn through narratives and why narratives serve as practice for increased social competence.

The human brain contains cells called mirror neurons that prompt readers to imitate characters' behaviors, the most primitive form of empathy ([43], [27]. [28]). Brain scans show that the same areas of the brain stimulated by performing an action are also stimulated by reading about someone else performing that action [29], [17], [40]. Controlled experiments show that when a character expresses an emotion (e.g., the character frowns), readers' mirror neurons cause them to frown too, though they may not be aware of it. The brain links muscle movements required for frowning with the emotions most often associated frowns (e.g., sadness), so readers feel sadness as soon as they read that a character has frowned. This is the start of the emotion-simulation process.

Mar and Oatley (2008) found that narratives are more likely than expository text to prompt mirror neuron-invoked empathy. They explain that reading narratives "appears to invoke a social-processing mode in readers, priming them for the understanding of social relations" ([34], p. 182). A number of studies support Mar and Oatley's contention. Banyard [3] found that narratives were more effective than textbooks in increasing both knowledge of mental illness and empathy for

individuals suffering from mental illness among psychology majors in college. Beveridge [5] found that complaints about medical students' lack of empathy dropped significantly after the students were assigned to read narratives. Hanson [20] and Kroner and Mills [31] discovered that narratives are more effective than expository texts in prompting empathy for victims of sexual assault and in decreasing incidences of repeat offenses among violent sex offenders. Hakemulder (2001) found that narratives were more effective than expository accounts in increasing empathy among White women for the plight of women in Algeria [19]. Studies examining the effect of narratives on Whites' perceptions of African-Americans showed similar results [21]. Butcher [7] found that high school students who read fantasy narratives were more accepting of people who were different than non-readers. Butcher also found that fantasy readers were less likely to demonstrate black-white thinking and were perceived as better socially adapted.

## 8. Conclusions: Implications for Higher Education

Educators outside of English departments are taking another look at narratives and their ability to facilitate social and emotional development. Numerous studies have indicated that the development of empathy and social competence may be more important than intelligence when it comes to academic success. Vandervoort (2006), a professor in social sciences at the University of Hawaii, explains in [45] that "knowledge about ourselves and others, as well as the ability to use this knowledge to solve problems, is a keystone to academic learning and success" (p. 4). Jo-An Vargo, Head of the Primary School at Holland Hall, adds that academic learning is "enhanced when supported by these [social and] emotional skills" (as qtd. in [42], p. 124). Their conclusions have been supported by Izaguirre [25], Jaeger [26], and Volkwein and Cabrera [46]. Though still considered a leisure-time activity, reading narratives is proving to be more beneficial than was once imagined. Future research may indicate that reading narratives leads students to happy endings not only in novels, but in real life as well.

## References

[1] Adelson, R. (2004, December). Emotional learning holds up with age. *Science Watch, 35*(11). Retrieved March 7, 2008, from http://www.apa.org/monitor/dec04/learning.html.

[2] Atkins, M. W. (2000). *The relationship of empathy and developmental maturity among a group of college students*. Dissertation Abstracts International, 61(3). (UMI No. ATT 9967024). Retrieved November 11, 2008, from ProQuest database.

[3] Banyard, V. L. (2000). Using first-person accounts to teach students about psychological disorders. *Teaching of Psychology, 27*(1), 40-43.

[4] Batson, C. D. (1991). *The altruism question: Toward a social-psychological answer*. Hillsdale, NJ: Erlbaum.

[5] Beveridge, A. (2003). Should psychiatrists read fiction? *British Journal of Psychiatry, 182*, 385-387.

[6] Boruah, B. H. (1988). *Fiction and emotion: A study in aesthetics and the philosophy of mind*. New York: Oxford University Press.

[7] Butcher, M. (n.d.). Reading fantasy literature and its effect on the development of empathy: A study of Harry Potter readers. Retrieved February 2, 2010, from jupiter.plainedgeschools.org

[8] Campbell, R. (2001). Learning from interactive story readings. *Early Years, 21*(2), 97-105).

[9] Coplan (2004). Empathic engagement with narrative fictions. *Journal of Aesthetics and Art Criticism, 62*(2), 141-52.

[10] Courtright, K. E., & Mackey, D. A., & Packard, S. H. (2005, April). Empathy among college students and criminal justice majors: Identifying predispositional traits and the role of education. *Journal of Criminal Justice Education, 16*(1), 125-144.

[11] Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalogue of Selected Documents in Psychology, 10*, 85-100.

[12] Dirkx, J. M. (2001, Spring). The power of feelings: Emotion, imagination, and the construction of meaning in adult learning. *New Directions in Adult and Continuing Education, 89*, 63-72.

[13] Dirkx, J. M. (2006, Spring). Engaging emotions in adult learning: A Jungian perspective on emotion and transformative learning. *New Directions for Adult and Continuing Education, 109*, 15-26.

[14] Develt, E. (2007, January). Rock Art and the Material Culture of Siberian and Central Asian Shamanism. The Archaeology of Shamanism, pp. 43-54. Retrieved February 2, 2010, from http://scandinavian.wisc.edu/dubois/Courses_folder/shamanism_readings/2_9_13/Devlet.pdf

[15] Erikson, E. H. (1959). Late adolescence. In: D. H. Funkenstein (Ed.), *The student and mental health.* Cambridge, MA: Riverside Press.

[16] Erikson, E. H. (1968). *Identity, youth and crisis*. New York: W. W. Norton & Company.

[17] Gallese, V., & Goldman, A. (1998, December). Mirror neurons and the simulation theory of mind-reading. *Trends in Cognitive Sciences, 2*(12), 493-501.

[18] Greif, E. B., & Hogan, R. (1973). The theory and measurement of empathy. Journal of *Counseling and Psychology, 20*(3), 280-284. Retrieved January 20, 2009, from ScienceDirect database.

[19] Hakemulder, J. (2001). How to make the alle Menschen Bruder: Literature in multicultural and multi-form society. In: Schram, D., & Steen, G. (Eds.), *The psychology and sociology of literature: In honor of Elrud Ibsch,* pp. 225-452.

[20] Hanson, R. K. (2003). Empathy deficits of sexual offenders: A conceptual model. *Journal of Sexual Aggression, 9*, 13-23.

[21] Harrison, M. C. (2008, October). The paradox of fiction and the ethics of empathy: Reconceiving Dicken's Realism. *Narrative, 16*(3), 256-278.

[22] Hoffman, M. (2000). *Empathy and moral development: Implications for caring and justice.* Cambridge: Cambridge University Press.

[23] Howe, (2000). *Imagined emotions: A phenomenology of unreal emotion*. Dissertation Abstracts International, 61(10). (UMI No. AAT 9990322)

[24] Ingram, M. A., & Nakazawa, M. (2003). Developing empathy among community college counselors through sociocultural poetry. *Community College Journal of Research and Practice, 27*, 485-493.

[25] Izaguirre, R. (2008). *The relationship among emotional intelligence, academic achievement, and demographic characteristics in first-year community college students*. Dissertation Abstracts International, 69(6). (UMI No. AAT 3318590).

[26] Jaeger, A. J. (2003). Job competencies and the curriculum: An inquiry into emotional intelligence in graduate professional education. *Research in Higher Education, 44*(6), 615-639.

[27] Keen, S. (2006, October). A theory of narrative empathy. *Narrative, 14*(3), 207-236.

[28] Keen, S. (2007). *Empathy and the Novel.* Oxford: Oxford Univ. Press.

[29] Kourtzi, Z., & Kanwisher, N. (2000). Activation in human MT/MST by static images with implied motion. *Journal of Cognitive Neuroscience, 12*, 48-55.

[30] Krakovsky, M. (2006). Novel delights: Reading books can help you read minds. *Psychology Today*, 50-53.

[31] Kroner, D. G., & Mills, J. F. (1998). The structure of antisocial attitudes among violent and sexual offenders. *International Journal of Offender Therapy and Comparative Criminology, 42*(3), 246-257.

[32] Kurkjian, J. W., & Banks, W. (1978). The properties of empathy explored and developed through literature. *Personnel Guidance Journal, Number, 56*(10), 634-636.

[33] Mar, R. A., (2004). The neuropsychology of narrative: Story comprehension, story production, and their interrelation. *Neuropsychologia, 42*(10), 1414-1434.

[34] Mar, R., & Oatley, K. (2008). The function of fiction is the abstraction and simulation of social experience. *Perspectives on Psychological Science, 3*(3), 173-192.

[35] Mar, R. A., Oatley, K., Hirsh, J., dela Paz, J., & Peterson, B. (2006). Bookworms versus nerds: Exposure to fiction versus non-fiction, divergent associations with social ability, and the simulation of fictional social worlds. *Journal of Research in Personality, 40*, 694-712.

[36] McLeod, J. (1999). A narrative social constructionist approach to therapeutic empathy. *Counseling Psychology Quarterly, 12*(4), 377-394.

[37] Nussbaum, M. C. (2001). *Upheavals of thought: The intelligence of emotions*. Cambridge: Cambridge University Press.

[38] Oatley, K. (2002). Emotions and the story worlds of fiction. In T. C. Brock, J. J. Strange, M. C. Green (Eds.), *Narrative impact: Social and cognitive foundations*. Erlbaum, Mahwah, NJ, pp. 39–69.

[39] Pennebaker, J. W., & Seagal, J. D. (1999). Forming a story: The health benefits of narrative. *Journal of Clinical Psychology*, 55, 1243–1254.

[40] Pulvermuller, F., Harle, M., & Hummel, F. (2001). Walking or talking?: Behavioral and neurophysiological correlates of action verb processing. Brain and Languages, 78, 143-168.

[41] Rall, J., & Harris, P. L. (2000). In Cinderella's slippers? Story comprehension from the protagonist's point of view. *Developmental Psychology, 36*(2), 202-208.

[42] Salovey, D., & Sluyter, P. (Eds.), (1997). *Emotional development and emotional intelligence: Educational implications.* New York: BasicBooks.

[43] Singer, T., & Fehr, E. (2005, July). The neuroeconomics of mind reading and empathy. IZA Discussion Paper No. 1647 (pp. 1-14). Thr Institute for Empirical Research in Economics. Retrieved February 2, 2010, from http://www.iew.unizh.ch/wp/, ftp://ftp.iza.org/dps/dp1647.pdf.

[44] Stanovich, K. E., & West, R. F. (1989, Fall). Exposure to print and orthographic processing. *Reading Research Quarterly, 24*, 402-433.

[45] Vandervoort, D. J. (2006). The importance of emotional intelligence in higher education. *Current Psychology: Developmental, Learning, Personality, Social, 25*(1), 4-7.

[46] Volkwein, J. F., & Cabrera, A. F. (1998, May). Student measures associated with favorable classroom experiences. Paper presented at the annual meeting of the Association for Institutional Research, Minneapolis, MN.

[47] Worth, S. E. (1997). *Fiction, belief, and emotive response*. Dissertation Abstracts International, 58(7), 2697. (UMI No. AAT 9801354). Retrieved January 4, 2009, from ProQuest database. (ProQuest document ID 736565691)