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# Feeling at Home: Learning, Law, Cognitive Science, and Narrative

Lea B. Vaughn

*University of Washington School of Law*

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## Feeling at Home: Law, Cognitive Science, and Narrative

Lea B. Vaughn\*

*“Art is a lie which makes us realize truth.”*

—Pablo Picasso (1881–1973)

### ABSTRACT

*What is the “how and why” of law’s affinity for narrative? In order to explain why the use of stories is such an effective teaching and presentation strategy in the law, this paper will consider theories and accounts from cognitive as well as evolutionary psychology, neuroscience, and, briefly, cultural anthropology. This account seeks to address “how” narrative helps us learn and use the law as well as “why” we are so compelled to use stories in teaching and in practice.*

*Brain science, simplified here, suggests that the first task is to grab someone’s attention. Emotionally charged events are more likely to capture our attention and to be remembered. Because of their emotional content, stories and narrative (which will be used interchangeably here) seize the attention of listeners and readers, students and jurors. In turn, this emotional fixation focuses attention on context and meaning. Studies suggest that this context is the platform that allows later and successive integration of details. Thus, stories work because they focus attention and provide a context for learning the details, that is, the law. Moreover, the same principles that apply to the success of using stories in the classroom also bear fruit in practice. Our culture, and perhaps our genetic make-up, compels us to use stories as a way to both comprehend and transmit the law.*

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I. INTRODUCTION

It is a summer evening. The air is warm and soft. Everyone has been well fed, and the children already lie, tangled with dogs, in sleep. A fire is not necessary on this summer's night, but its absence draws us closer together. In a circle, we all sit cross-legged, comfortable with a lifetime's knowledge of the people around us. Although we are nomadic, we feel at home. And then the story begins . . .

Somewhere in unrecorded, preliterate time, the naked ape became the primate that tells stories.<sup>1</sup> No one knows when this event occurred, and we are still trying to uncover exactly why we tell stories.<sup>2</sup> The invention of the printing press and the rise of electronic media have not slaked our thirst for storytelling;

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1. Storytelling appears to be “the oldest of arts.” DENIS DUTTON, *THE ART INSTINCT: BEAUTY, PLEASURE, & HUMAN EVOLUTION* 5 (2009). “Evidence for the origins of human art necessarily remains extremely patchy.” BRIAN BOYD, *ON THE ORIGIN OF STORIES: EVOLUTION, COGNITION, AND FICTION* 7 (2009) [hereinafter BOYD, *ON THE ORIGIN OF STORIES*]. But while “[w]riting is much younger than cave” art, “fictional storytelling is far older, and a human universal.” *Id.* at 9. Dutton and Boyd are the leading proponents of applying the insights of evolutionary psychology to the arts, and specifically to literature, to argue that our love of the arts and of fiction is an adaptation secured by natural selection. *See generally id.*; DUTTON, *supra*. Boyd has amplified and extended his thesis in his latest work, *WHY LYRICS LAST: EVOLUTION, COGNITION, AND SHAKESPEARE’S SONNETS* (2012).

2. *See generally* BOYD, *ON THE ORIGIN OF STORIES*, *supra* note 1.

rather, new media have increased it. We read, we gossip,<sup>3</sup> we blog, but whatever the form, we are constantly telling stories.

Law schools, on the other hand, have only lately, and often reluctantly, acknowledged stories.<sup>4</sup> Wedded to the Socratic Method of Christopher Columbus Langdell and leery of appearing subjective, the law-school classroom has traditionally been a place of hard analysis and probing questions.<sup>5</sup> But for a first-year student, and even many upper-level students, it is an uncomfortable place. The chasm between prior educational experiences, including undergraduate studies, and law school generally does not prepare a law student to feel “at home” in the law-school classroom. Partially to bridge that gap, many of us, often without knowing why, have begun to use stories in our law-school classrooms.<sup>6</sup> This venture is often successful, and allows many law students to make connections between their lives before law school and their unfolding lives as lawyers. Students frequently comment that the stories help them to learn the related doctrine more easily and deeply. Indeed, exposure to storytelling prepares students for significant aspects of practice as well as making conceptually difficult legal ideas more intelligible.<sup>7</sup>

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3. Gossip, in fact, is an important social and possibly adaptive behavior. Through gossip we access the trustworthiness of our conspecifics. “[T]he search for trustworthiness makes us avid consumers of gossip.” STEVEN PINKER, *HOW THE MIND WORKS* 405 (1997). For an extended discussion of the intersection of gossip, character, and evolutionary psychology, see BLAKEY VERMEULE, *WHY DO WE CARE ABOUT LITERARY CHARACTERS?* (2010) (Literature deepens the ability to humans to read the intentions of others, a trait vital to survival and part of our cognitive make-up.).

4. See, e.g., Bret Rappaport, *Tapping the Human Adaptive Origins of Storytelling by Requiring Legal Writing Students to Read a Novel in Order to Appreciate how Character, Setting, Plot, Theme, and Tone (CSPTT) Are as Important as IRAC*, 25 T.M. COOLEY L. REV. 267 (2008). Rappaport argues that Langdell’s characterization of law as a science focuses on the use of IRAC to teach “students to think[] like a lawyer.” *Id.* at 270 (alteration in original). He notes that this approach “can suck the life right out of [legal] conflicts” that are the study of law. *Id.* at 270–72 (alteration in original) (quoting Kenneth D. Chestek, *The Plot Thickens: The Appellate Brief as Story*, 14 LEGAL WRITING 127, 130 (2008)); see also Kim Lane Scheppelle, *Narrative Resistance and the Struggle for Stories*, 20 LEGAL STUD. F. 83 (1996) (addressing both civil law’s averseness to facts and stories as well as mainstream critiques of feminist and critical-race theory scholarship that employ stories to advance their arguments).

5. Rappaport, *supra* note 4, at 270.

6. Although I will define “stories” below, see *infra* Part II, it is not clear to me whether it matters that these stories are true; that is, whether they are journalistic accounts or fictional. One recent set of curricular materials, the *Legal Stories Series* (Foundation Press), see, e.g., *infra* note 22, is based on the stories behind the cases. Fernand N. Dutile, *Bringing Cases to Life: Education Law Stories*, 35 J.C. & U.L. 131, 131–33 (2008). It is designed to supplement instruction “through the use of appellate-court opinions.” *Id.* at 131. The idea behind the series is to prevent students from seeing “cases so clinically that the people involved become nothing more than faceless, bloodless robots who merely provide the setting for our legal magic, manipulation, or mistakes.” *Id.* Many of these accounts, he avers, “read[] like a good novel.” *Id.* at 139.

7. Many would characterize lawyers as storytellers, and deem storytelling a skill central to practice. The literature abounds with articles analyzing various aspects of this insight. For example, Professor Menkel-Meadow argues in one of her articles that lawyers transform a client’s narrative into legal documents such as a complaint. Carrie Menkel-Meadow, *The Transformation of Disputes by Lawyers: What the Dispute Paradigm Does and Does Not Tell Us*, 1985 MO. J. DISP. RESOL. 25, 31–32 (1985). Similarly, Professors Fajans and Falk argue that narrative techniques need to be brought back into pleading practice. Elizabeth Fajans &

In conversations with colleagues,<sup>8</sup> we began to explore the ways in which we had begun using stories in our classrooms. Faculty used stories to help students make deeper and faster connections to the legal materials covered. In my own classes, I have frequently used stories and extended-narrative hypotheticals to enrich the class and focus learning. My metaphor for teaching the Federal Rules of Civil Procedure is that they are a set of rules for transforming the client's narrative, or story, into a stylized narrative that is initially presented in the complaint.<sup>9</sup> Ultimately, the competing stories that jurors and judges are told are mediated through the Federal Rules of Evidence and the Federal Rules of Civil Procedure at trial. This reality of the transformation of stories links the classroom to practice—novice students must learn *how* and *why* expert practitioners use narrative to advance client goals.

At the same time, my interest in the scientific literature in psychology and biology has deepened over the last decade. Advances in science and learning theory have far outstripped anything I learned as an undergraduate in the 1970s. My traditional scholarly research had focused on the problems of sexual harassment and domestic violence in the workplace.<sup>10</sup> More recently, I have focused on the abusive workplace.<sup>11</sup> Even in the driest of court opinions, these workplace problems manifest powerful narratives of inequality, violence, and personal, as well as structural, affronts to human dignity. As I delved into the research on abusive workplaces, I was increasingly drawn to the literature in psychology and neuroscience to understand and explain the effects of these phenomena on workers. Serendipitously, much of this new research also has a

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Mary R. Falk, *Untold Stories: Restoring Narrative to Pleading Practice* (Sept. 2008) (unpublished manuscript), available at [http://works.bepress.com/elizabeth\\_fajans/20](http://works.bepress.com/elizabeth_fajans/20) (on file with the *McGeorge Law Review*).

8. My conversations started with Professor Katherine O'Neill, University of Washington School of Law (B.A. Stanford University, 1975; J.D., Columbia University, 1980). Professor O'Neill's companion paper to this one, presented at the same conference, is *A Story with No End in Sight* (June 30, 2009) (unpublished manuscript) (on file with the *McGeorge Law Review*). She states: "My tentative thesis is that quality journalism can provide context and contemporary relevance for law students as they learn to 'think like lawyers.'" *Id.* at 8. In this, she wanted "to mitigate the abstraction of law school and to situate the study of law within the context of social events and the activities of major economic and political institutions." *Id.* at 9–10. To do so, she treated the journalistic accounts used in her class as a form of "storytelling" because journalists use narrative techniques characteristic of storytelling. *See generally id.* The two journalistic stories upon which she relied in her contracts class were Peter J. Boyer, *Ohio Postcard: Eviction—The Day They Came for Addie Polk's House*, *NEW YORKER*, Nov. 24, 2008, at 48, and Jonathan Karp & Miriam Jordan, *House of Cards: How the Subprime Mess Hit Poor Immigrant Groups*, *WALL ST. J.*, Dec. 6, 2007, at A1.

9. Menkel-Meadow, *supra* note 7, at 32; Fajans & Falk, *supra* note 7.

10. Lea B. Vaughn, *The Customer Is Always Right . . . Not! Employer Liability for Third Party Sexual Harassment*, 9 *MICH. J. GENDER & L.* 1 (2002); Lea B. Vaughn, *Victimized Twice—The Intersection of Domestic Violence and the Workplace: Legal Reform Through Curriculum Development*, 47 *LOY. L. REV.* 231 (2001).

11. Lea B. Vaughn, *In Denial: "Brain Rules," Legal Norms and the Abusive Workplace*, presentation at the University of Augsburg, Germany, for a conference titled *Workplace Bullying and Protection Against Discrimination in the Employer–Employee Relationship: Changes and Risks in an International Comparison* (Apr. 17, 2010).

bearing on how people learn. My interest in theories about teaching and my interest in workplace narrative happily converged as I explored how this literature explains what captivates our attention and helps us to learn and practice the law.

So what does the scientific literature tell us? First, while our technology has taken us to the stars and unpacked the genome, we have not significantly evolved.<sup>12</sup> Although the information we process has become overwhelmingly complicated, the way in which our brains work and learn has changed little from the days in which we ran across the savannah, looking for our next meal and hoping not to become someone else's. The dilemma, then, for the law instructor is how to initially capture the attention of students, help them to digest and organize complex patterns of legal doctrine, and then recall and apply it with a brain that is still cued to the dangers of the savannah rather than the law-school classroom or courtroom. These same challenges—of capturing attention and developing understanding of the law—confront the practitioner dealing with clients and lay juries.

Brain science, simplified here, suggests that the first task is to grab someone's attention because "better attention always equals better learning."<sup>13</sup> One of the features of stories that captures students' attention better than cases is their emotional content. Emotionally charged events are more likely to capture our attention and be remembered.<sup>14</sup> A beneficial consequence of this emotional fixation is that it focuses attention on the content, context, and meaning of a story. This context is the platform that allows later and successive integration of the details. Thus, stories work because they focus attention and provide a context for learning the details, that is, the law. Moreover, the same principles that apply to the success of this strategy in the classroom can also bear fruit in the courtroom and in litigation documents.<sup>15</sup>

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12. PINKER, *supra* note 3, at 205. Pinker surmises that we are probably not biologically evolving very much, in part because modern human life is not conducive to evolution through natural selection. *Id.* The basic structure of our brain was set in the Pleistocene: "From our day back to the time of Socrates and Plato is a mere 120 generations. If we go further back from their Athens to the invention of writing, agriculture, and the first cities, it is a lot longer: another 380 generations. But the Pleistocene itself—the evolutionary theater in which we acquired the tastes, . . . was eighty thousand generations long." DUTTON, *supra* note 1, at 23, 42–43. *But see* JOHN MEDINA, BRAIN RULES: 12 PRINCIPLES FOR SURVIVING AND THRIVING AT WORK, HOME, AND SCHOOL 35–36 (2008) (discussing how people became smarter in order to survive); Oliver Sacks, *A Man of Letters: A Neurologist's Notebook*, NEW YORKER, June 28, 2010, at 22 (discussing evolutionary changes through natural selection). Others, however, would argue that the attainment of human culture has allowed us to evolve in a way that escapes the constraints of natural selection. Stephen Jay Gould suggests this in some of his writing. BOYD, ON THE ORIGIN OF STORIES, *supra* note 1, at 42 (citing Gould). Steven Pinker, who occupies a stance somewhat closer to Gould's than other evolutionary psychologists discussed below, appears to agree: "My own view is that human brains evolved by one set of laws, those of natural selection and genetics, and now interact with one another according to other sets of laws, those of cognitive and social psychology, human ecology, and history." PINKER, *supra* note 3, at 208. This nature-versus-nurture debate will be briefly addressed below.

13. MEDINA, *supra* note 12, at 74.

14. *Id.* at 71–83.

15. *Id.* Medina's very accessible book presents twelve rules, based on peer-reviewed science, that

In this article, I will discuss three bodies of knowledge that seek to account for how and why stories are such powerful devices for human learning. First, neuroscience and cognitive psychology seek to explain the *how* of learning. By explaining how attention, memory, and learning occur in the brain, scientists have provided a useful and salient account of how stories help us to learn. Second, a brief look at cultural anthropology suggests that it is a universal feature of all human cultures that we learn and transmit knowledge by storytelling.<sup>16</sup> Finally, evolutionary psychology,<sup>17</sup> a relatively new field, posits that the appeal of stories goes beyond the cultural; rather, this mechanism for learning may be hard-wired into our brains. That is, our appreciation of the arts, particularly of storytelling and music, may be adaptations that have continuing use for learning given the plasticity of our brain/mind.<sup>18</sup>

In Part II of this article, I will briefly address what constitutes a “story.” This concept is impossible to confine to one definition. The scientific sources used here describe stories in a different way than do literary theorists. In Part III, I will describe the three accounts that shed light on why stories help us to learn, beginning with current neuroscience findings on learning, memory, context, and attention. It then will move, briefly, to cultural anthropology, and end with the answer that is provided by evolutionary psychology: we learn from stories because we have evolved to do so. In the conclusion, I illustrate how these insights bear on learning as well as on practicing the law.

## II. WHAT IS A STORY?

Defining a “story” as anything beyond something that has “a beginning, a middle, and an end” can only lead to trouble.<sup>19</sup> In addition to identifying the

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explain better ways to structure learning and working experiences. Medina’s scientific references are available at his website: John Medina, *BRAIN RULES* (2012), [www.brainrules.net](http://www.brainrules.net) (on file with the *McGeorge Law Review*).

16. This article will not go into depth on this issue because cultural anthropology’s insights are fairly well established and widely accepted.

17. Evolutionary psychology is not accepted by all authorities, and is contrary to the Standard Social Science Model (SSSM). See, e.g., PINKER, *supra* note 3, at 44–58, 165–71. As such, it constitutes a new paradigm for understanding certain human behavior and may account for a connection between culture and neuroscience. See THOMAS S. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* (1962).

18. “Brain” and “mind” will generally be used interchangeably in this article. Evolutionary psychology and neuroscience suggest that the two are more closely related, if not identical, than our received Cartesian dualism usually leads us to intuit. See ANTONIO DAMASIO, *DESCARTES’ ERROR: EMOTION, REASON, AND THE HUMAN BRAIN* (1994). Emotions are necessary to cognitive thought; “Descartes’ error[ was] the abyssal separation between body and mind,” and the idea that emotions and thought are separate. *Id.* at 249–50.

19. ANTHONY G. AMSTERDAM & JEROME BRUNER, *MINDING THE LAW* 113 (2000). Some legal academics, however, have adopted the model that Anthony Amsterdam and Jerome Bruner developed in their book, *Minding the Law*, in which they state that the component parts of stories are (1) its grounding in the ordinary or every day, (2) some type of trouble that disrupts ordinary expectations, (3) an attempt to address the disruption, that eventually leads to (4) a resolution. *Id.* at 113–14; see also Carolyn Grose, *Storytelling Across the Curriculum: From Margin to Center, from Clinic to the Classroom*, 7 J. ASS’N LEGAL WRITING DIRECTORS

salient aspects of what makes an account a story rather than an analogy, metaphor, or parable, the largest obstacle is deciding whether the most effective part of a story comes from a fictional rather than factual aspect. Most stories have some tie to reality. Unless one is reading the most cutting-edge science fiction, most of the laws of physics will still apply. Similarly, stories will be marked by forms of human organizations, such as government and community. For this reason, I argue that while there may be some psychological advantages to using fiction, there can still be advantages to using factual stories, whether they come from newspapers and magazines or fuller, richer accounts—the actual narrative—of the cases we teach. In the end, it may not make a difference.<sup>20</sup>

Interest in stories and narrative has blossomed in the last two decades within the academy and in practice.<sup>21</sup> For example, many professors now assign materials from the *Legal Stories Series* to augment student understanding of the cases assigned for class.<sup>22</sup> Some casebooks have framed their courses as an exploration of the tension between formalism and narrative, and include excerpts from literature or journalism in addition to cases.<sup>23</sup> This focus is not limited to the teaching of doctrinal materials, but can also be used to deepen the appreciation of a wide variety of practice materials.<sup>24</sup> Similarly, many practice materials or

37, 42 & nn.20–25 (2010) (adopting Amsterdam and Bruner’s model). She notes that this schema is typically called “the plot.” *Id.* at 42.

20. Ana Margarida Abrantes, Narrative—A Key Concept for Cognition and Culture (May 24, 2009) (unpublished manuscript), available at <http://ssrn.com/abstract=1409402> (on file with the *McGeorge Law Review*). Abrantes has a different definition of narrative, choosing to develop a functional definition that highlights its use as a human strategy for dealing with “time, process and change.” *Id.* at 1. (quoting DAVID HERMAN, BASIC ELEMENTS OF NARRATIVE 2 (2009)). As such, she deems her definition as “cognitive by nature.” *Id.* This definition, however, is not necessarily at odds with the more typical definition outlined above. For example, Abrantes identifies the four parts of a narrative or story as “situatedness,” the “[s]tructured event sequence,” “the rupture” and “the what it’s like dimension.” *Id.* at 2–3 (citations omitted). These would be recognized more popularly as the setting, the plot, the conflict, and what is represented or communicated to us in a particular story.

21. See *id.* at 3–7 (providing examples of this scholarship); see also Linda H. Edwards, *Once Upon a Time in Law: Myth, Metaphor, and Authority*, 77 TENN. L. REV. 883 (2010) (“Since at least 1983, when Robert Cover gave us [*Nomos and Narrative*], and probably as early as James Boyd White’s [*The Legal Imagination*], we have been on notice that the law has stories.”). Noting, however, that stories are more frequently used in law and legal academia is not to say that this was an easy transition. See, e.g., Nancy Levit, *Reshaping the Narrative Debate*, 34 SEATTLE U. L. REV. 751 (2010). Levit outlines the debate, particularly as it applies to family and workplace issues. *Id.* at 753–54.

22. For example, I frequently assign a chapter or two from *Civil Procedure Stories* (2004) in my civil procedure course. CIVIL PROCEDURE STORIES (Kevin M. Clermont ed., 2d ed. 2004).

23. Continuing with the civil procedure example, the casebook I used most recently is Subrin, Minow, Brodin, and Main’s *Civil Procedure: Doctrine, Practice, and Content*, the third edition, which avers directly to this tension in their teachers’ manual. STEPHEN N. SUBRIN ET AL., CIVIL PROCEDURE: DOCTRINE, PRACTICE, AND CONTENT (3d ed. 2008). Similarly, the casebook, in the introductory materials, juxtaposes *United States v. Hall* and Martin Luther King’s *Letter from a Birmingham Jail*.

24. For example, to learn client interviewing, in addition to watching a live client interview, civil procedure students can read either of the following two articles on the connection between narrative and practice: Anthony V. Alfieri, *Reconstructive Poverty Law Practice: Learning Lessons of Client Narrative*, 100 YALE L.J. 2107 (1991), or Menkel-Meadow, *supra* note 7. The latter is particularly interesting because it



journals, particularly in litigation, will include articles on the importance of using stories in writing briefs or addressing the jury.

### III: HOW AND WHY DO STORIES HELP US LEARN?

A few words of introduction are in order before formally beginning this section. First, the sources used to compile this section are accessible to the lay reader.<sup>25</sup> Second, I am not a literary theorist, psychologist, or scientist. My training has been, on the contrary, in philosophy, education, and the law. This does not mean, however, that my reading of these materials from outside of my field is uncritical, but that it comes from an outside perspective rather than from someone with formal training in these domains.

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addresses the way in which lawyers decode and recode a client's story from everyday lay prose into something that can be acted upon by courts and other legal entities. Menkel-Meadow, *supra* note 7. James Boyd White also believes that law and translation are related. James Boyd White, *An Old-Fashioned View of the Nature of Law*, 12 THEORETICAL INQUIRIES IN L. 381 (2011). "Law was the language into which this problem would have to be translated . . ." *Id.* at 384. He illustrates this relationship in a discussion of a client interview where the client "will have a story to tell and a language in which to tell it." *Id.* at 387. The lawyer's task will be "to go from his or her language to the law and back again . . ." *Id.* at 388.

25. Lorie Graham and Stephen McJohn note the growing use of cognitive science in the law to describe "how we reason, decide, intend, moralize, and perceive." Lorie M. Graham & Stephen M. McJohn, *Cognition, Law, Stories*, 10 MINN. J. L. SCI. & TECH. 255, 255 (2009) (citing STEVEN PINKER, *THE STUFF OF THOUGHT* (2007)). For obvious reasons, the use of cognitive science has been especially prevalent in criminal law and in articles about law-school pedagogy. One of the greatest services that any academic or public intellectual can perform is to make some of their work available to as wide an audience as possible. Therefore, the information and insights that are developed below should be readily attainable to legal readers who wish to understand more about the connections between anthropology, psychology/neuroscience, and law. Consider, for example, the following: "There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved." JAMES T. COSTA, *THE ANNOTATED ORIGIN: A FACSIMILE OF THE FIRST EDITION OF ON THE ORIGIN OF SPECIES* 490 (2009). Stephen Jay Gould borrowed this sentiment, "*This View of Life*," in titling his three-hundred gracefully written essays that appeared in *Natural History* "without a break from January 1974 to January 2001 . . ." STEPHEN JAY GOULD, *I HAVE LANDED: THE END OF A BEGINNING IN NATURAL HISTORY* 15 & n.\* (2002). Although Gould disagreed with evolutionary psychology's premises, his love of literature and a deeply held belief in the role of the public intellectual writing for a curious public inform this work.

In fact, it is at our peril if we do not study these subjects because of the way they bring insights to bear on nearly all realms of legal (and economic) study. Although I do not think those fields will one day "swamp" the law, we could all benefit from a closer alliance between these intellectual domains. Similarly, while I cite a number of well-known studies and books, I do not intend to provide exhaustive annotation of the various "law and" subjects implicated here. For more coverage, however, see, for example, Owen D. Jones & Timothy H. Goldsmith, *Law and Behavioral Biology*, 105 COLUM. L. REV. 405, 411-12 & nn.8-14 (2005). They begin by noting that "[u]ntil about forty years ago, legal thinkers were firm in the conviction that law was an autonomous discipline" which has broken down to become a wide variety of "law and" subjects. *Id.* at 411. Finally, this account of storytelling compels consideration of the new discoveries in cognitive science; their ultimate effects on legal theory and law cannot be ignored: "Each new generation of astronomers discovers that the universe is much bigger than their predecessors imagined. The same is also true of brain complexity. Every era's most advanced technologies, when applied to the study of the brain, keep uncovering more layers of nested complexity, like a set of never ending Russian dolls." Christof Koch, *Playing the Body Electric*, SCIENTIFIC AM. MIND, Mar./Apr. 2010, at 18.

A. *How Do We Learn from Stories?: Lessons from Neuroscience and Cognitive Psychology*

Of all of the developments in psychology, the advances in neuroscience and cognitive psychology have been perhaps the most helpful to people who teach.<sup>26</sup> Psychology has shifted from a social science to a natural science, focusing on how the brain works as well as psychology's traditional domains of human behavior. This can mean study of subject matter as remote from law as the biochemical and electrical phenomena<sup>27</sup> that make thought possible to studies of brain function in more manageable units like memory or attention. But whether one is a cognitive scientist or an evolutionary psychologist, both groups converge on the belief that "[t]he brain appears to be designed to solve problems related to surviving in an unstable outdoor environment, and to do so in nearly constant motion."<sup>28</sup>

Regarding the draw of stories in the classroom, three psychological phenomena are pertinent: (1) emotion and attention, (2) memory, and (3) the role of context and meaning, especially how these two latter concepts vary for novices and experts in a particular discipline. Storytelling and narrative in law school improve the operation of each of these learning dynamics above and beyond the didactic recitation of cases.

I. *Emotion and Attention*

Emotion plays a critical role in the classroom on at least two levels. First, it can be important for creating an environment in which people can learn.<sup>29</sup>

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26. Some argue that law professors have been reluctant to make themselves aware of advances in cognitive and educational psychology. "Despite significant advances in the science of learning, law professors today teach much as their own professors did a generation ago. Legal scholars and lawyers know surprisingly little about the cognitive science research that has unveiled new methods of harnessing the brain to work harder and smarter." Deborah J. Merritt, *Legal Education in the Age of Cognitive Science and Advanced Classroom Technology*, 14 B.U. J. SCI. & TECH. L. 39, 41 (2008).

27. Therefore, this article will not depict at any great length the neural basis of learning or of brain anatomy. Simply put, learning is also exhibited at the level of the neurons as they grow and branch. See, e.g., HENRY GLEITMAN ET AL., *The Neural Basis for Learning*, in *PSYCHOLOGY* 154–56 (6th ed. 2004). As it pertains to this paper, however, the fact that learning occurs at the neural level throughout our lives establishes the basis for the claim that our brains are "plastic," or capable of learning throughout our lifetime. This takes place mainly through the process of long-term potentiation, in which a neuron can become more receptive to stimuli and this process forms the cellular basis of learning and memory. *Id.*

28. MEDINA, *supra* note 12, at 4–5.

29. Although I will make passing reference to the effects of stress and a poor emotional environment on learning, that is not the major point of this article. Modern research reveals that a classroom requires an atmosphere that is conducive to learning in contrast to the cauldrons of fear that older lawyers may recall from their law-school days. Granted, the fear may have constituted an emotionally salient stimulus that focused one's attention, but it is not clear whether fear helped one to learn. See, e.g., *id.* at 45–46 (indicating that creating a stressful learning environment may be counterproductive).

Second, emotion is a hook that grabs our attention.<sup>30</sup> As John Medina notes, “[w]e don’t pay attention to boring things.”<sup>31</sup> As he elaborates, “The more attention the brain pays to a given stimulus, the more elaborately the information will be encoded—and retained.”<sup>32</sup> As it turns out, we are most likely to pay attention when our emotions are engaged.

Fear, whether on the savannah or in the classroom, is certainly an emotional hook. But in modern life, it is problematic. It is now well documented that stress and anxiety can interfere with the learning process. In fact, excessive stress can literally kill brain cells.<sup>33</sup> For most people, this is a picture-perfect description of the first year of law school. While this kind of flight-or-fight response was useful on the savannah, the long-term stress that most of us feel in a long-term learning situation is not helpful. During stress, the body floods itself with hormones such as adrenaline and cortisol “spurred into action by your brain’s hypothalamus.”<sup>34</sup> If the stress is moderate, this can spur learning because it does mimic our prehistoric life, but

[i]f the stress is too severe or too prolonged, however, stress begins to harm learning. . . . In almost every way it can be tested, chronic stress hurts our ability to learn. . . . Specifically, stress hurts declarative memory (things you can declare) and executive function (the type of thinking that involves problem-solving).<sup>35</sup>

One of the advantages of storytelling, as opposed to traditional cold-call Socratic teaching, is that it can create an environment and an emotional context that is more conducive to learning. Many of us, when telling stories to our classes, change our effect and create an atmosphere of immediacy.<sup>36</sup> What does

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30. “In short, adults learn by paying attention to what they want to learn, thinking about it, and then using the information repeatedly.” Hillary Burgess, *Deepening the Discourse Using the Legal Mind’s Eye: Lessons from Neuroscience and Psychology that Optimize Law School Learning*, 29 QUINNIPIAC L. REV. 1, 23 (2011). She notes that adults, like children, have to “choose to focus on specific stimuli” so it still pays to capture their attention. *Id.* at 24; see also Anthony J. Greene, *Making Connections: The Essence of Memory Is Linking One Thought to Another*, SCIENTIFIC AM. MIND, Jul./Aug. 2010, at 22 (discussing how memory is based on making connections with what one learns).

31. MEDINA, *supra* note 12, at 71.

32. *Id.* at 74.

33. *Id.* at 169–82. Medina provides that “not all stress is the same;” some types of stress harm learning while other types improve it. *Id.* at 172–73. Stress and its associated physiological suite of reactions were originally designed, as noted in more detail below, to “help[] us manage the threats that could keep us from procreating.” *Id.* at 175. The fear associated with this kind of stress was evolutionarily useful: “Life-threatening events are some of the most important experiences we can remember.” *Id.* at 177–78. Being called on to recite a case, however, is not (or should not be) one of those events. Inappropriate chronic stress can lead to illness, a weakened immune response, harm to learning and memory, depression, and interference in the brain’s executive functions. *Id.* at 176–80.

34. *Id.* at 174.

35. *Id.* at 178.

36. Merritt, *supra* note 26, at 48 & n.36.

this look like? It most likely means that we may come from behind our lectern, relax our body language, and use a conversational style of instruction.<sup>37</sup> Merritt notes that faculty who display “immediacy” “significantly boost their students’ interest in a subject.”<sup>38</sup>

A story given its relationship to emotion becomes an “emotionally competent stimulus” or “ECS.”<sup>39</sup> In fact, the more attention we pay to a stimulus, the more likely we are to encode and retain it in our memory.<sup>40</sup> Additionally, our radar for the interesting is also shaped by our past experiences and genetic make-up. Thus, the fact that storytelling is a universal way of signaling the intent to both entertain and transmit information tends to get our attention, particularly if the story has salience to what is being taught or to our personal interests. “Emotionally arousing events tend to be better remembered than neutral events.”<sup>41</sup> The more a story arouses emotions and interest, the more likely a student is paying attention and prepared to absorb the more difficult legal material that follows a story in the typical law-school classroom. The other

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37. *Id.* at 49 & n.40.

38. *Id.* at n.39 (noting that more gain, however, may come from establishing long-term relationships with students as a motivational cue); *see also* MEDINA, *supra* note 12, at 45 (“[O]ur ability to learn has deep roots in relationships. If so, our learning performance may be deeply affected by the emotional environment in which the learning takes place. There is surprising empirical data to support this. The quality of education may in part depend on the relationship between student and teacher.”).

39. MEDINA, *supra* note 12, at 80. “When the brain detects an emotionally charged event, the amygdala releases dopamine into the system. Because dopamine greatly aids memory and information processing, you could say the Post-It note on a given piece of information means that information is going to be more robustly processed.” *Id.* at 80–81; *see also* HOW PEOPLE LEARN: BRAIN, MIND, EXPERIENCE, AND SCHOOL 14–15 (John D. Bransford et al. eds., 2000) [hereinafter Bransford], available at <http://www.nap.edu> (on file with the *McGeorge Law Review*) (stating that “if [the students’] initial understanding is not engaged, they may fail to grasp the new concepts and information that are taught”).

40. MEDINA, *supra* note 12, at 74; *see also* JONAH LEHRER, PROUST WAS A NEUROSCIENTIST 75–95 (2007) (providing a more lyrical, narrative account of memory in the face of an emotionally competent stimulus). In *Chapter 4: Marcel Proust: The Method of Memory*, Lehrer chronicles how Proust’s description of his memories, particularly of the famous madeleine, foreshadowed later scientific discoveries about memory. *Id.* at 81. Lehrer notes that Proust explores how “time mutates memory,” which we now know to be the case as “[e]very memory begins as a changed connection between two neurons.” *Id.* at 81, 83. That is, memory is a process that occurs, as Dr. Eric Kandel has theorized, at the nerve synapses. *Id.* at 85, 91; *see also* MEDINA, *supra* note 12, at 57 (“Kandel showed that when people learn something, the wiring in their brains changes. He demonstrated that acquiring even simple pieces of information involves the physical alteration of the structure of the neurons participating in the process.”). This constant physical change explains why each of us will, ultimately, have different wiring in our brains and that the strength of the memory is contingent upon the strength of the synaptical connection (which is why repetition matters). *Id.* at 57–62.

Scientists at the Montreal Neurological Institute and Hospital, McGill University, and University of California, Los Angeles recently confirmed Proust’s (and Kandel’s) intuitions and modern scientists’ theories when they captured, for the first time, the image of a memory being made. “The finding provides the first visual evidence that when a new memory is formed new proteins are made locally at the synapse—the connection between nerve cells—increasing the strength of the synaptic connection and reinforcing the memory.” *First Image of Memories Being Made*, SCI. DAILY (June 18, 2009), <http://www.sciencedaily.com/releases/2009/06/090618151331.htm> (on file with the *McGeorge Law Review*). Their study, published in *Science Daily*, explains that this architecture allows humans to retain information stably yet flexibly over time. *Id.*

41. MEDINA, *supra* note 12, at 79.

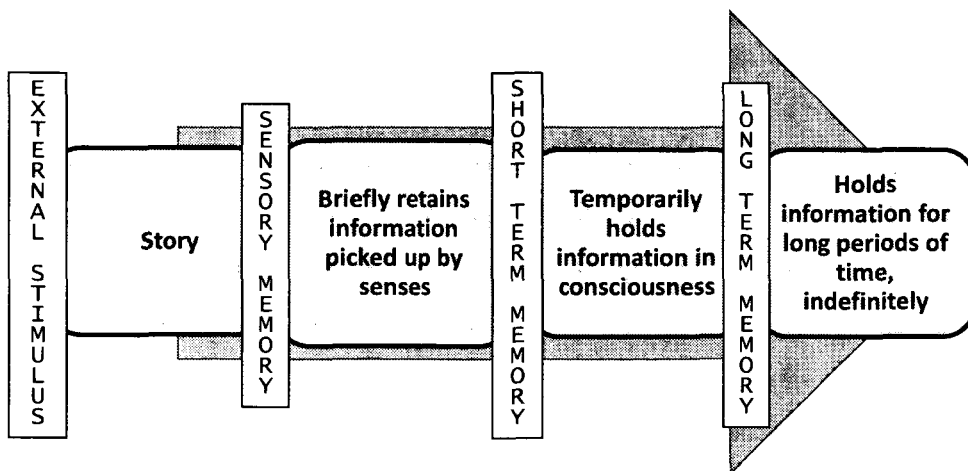
valuable component of a story is that it gives a person meaning for the details that follow.<sup>42</sup> Small wonder, then, that accomplished trial lawyers tend to be marvelous storytellers, as they instruct the jury in the facts and the law.

## 2. Memory

Memory, although we have only one word for it, is now understood to be a very complicated and multipart process. But the basics of memory “depend on three basic processes: encoding, storage, and retrieval.”<sup>43</sup> Basically, this means that “information to be remembered must be put in a form that the brain can accept and use.”<sup>44</sup> Second, we need a way to retain knowledge over time, which is the value of stories. Finally, we need to be able to retrieve the information we have stored into consciousness (and forget what is no longer useful or true). Further, there are a complicated series of typology of memory. For the purposes of this article, the focus is on semantic memory (as opposed to episodic or procedural), the memory that allows one to assimilate generalized knowledge.

Traditional descriptions of memory, generally called the “information-processing model,” describe memory as a three-part phenomena:

CHART 1: THE INFORMATION-PROCESSING MODEL<sup>45</sup>



42. This is particularly true for the novice learner. See, e.g., Bransford, *supra* note 39, at 31–50 (discussing “[H]ow [E]xperts [D]iffer from [N]ovices”). A lawyer may pay more attention to a completely legal presentation because she will have the framework of information for which the details presented can be integrated. This is not true of a student or novice lawyer who is still developing that framework.

43. DOUGLAS A. BERNSTEIN ET AL., *PSYCHOLOGY* 235 (7th ed. 2006). A complete explanation of the process is beyond the scope of this paper.

44. *Id.* at 236. Encoding is further broken down into three categories: acoustic (sounds), visual (a picture), and semantic (meaning). A story has power, therefore, because it can be encoded semantically and through a sense. *Id.*

45. *Id.* at 241.

In this model, our senses register information for a very short period of time, and if our attention is piqued, the information might enter short-term memory. Note how contingent memory can be—the presentation of a stimulus is not a guarantee of retention. Moreover, although memory is typically described as a linear process, it tends to be interactive and shaped by the experiences that contribute to your long-term memory which, in turn, may influence whether one perceives something.<sup>46</sup> For example, a three-year-old looking at a word may see an array of lines and circles; a literate adult would see a word. Consider this description of reading:

The act of reading illustrates all three stages of memory processing. As you read . . . , light energy reflected from the page reaches your eyes, where it is converted to neural activity and registered in your sensory memory. If you pay attention to these visual stimuli, your perception of the patterns of light can be held in short-term memory. This stage of memory holds the early parts of the sentence so that they can be integrated and understood as you read the rest of the sentence. As you read, you are constantly recognizing words by matching your perceptions of them with the patterns and meanings you have stored in long-term memory. In short, all three stages of memory are necessary for you to understand a sentence.<sup>47</sup>

These three stages, then, each describe a different type of memory, and the task facing a law-school professor is to ensure that material communicated in class becomes part of a young lawyer's long-term memory of the law. Or in practice, that a client can understand communicated legal opinions or that a jury has a recall of the story to which jury instructions must be applied. The importance of the story lies in its ability to facilitate and enlarge short-term memory, as well as to allow a student or lay listener to more easily relate new knowledge (legal materials) to previously assimilated knowledge.

Short-term memory is actually a component of working memory.<sup>48</sup> Short-term memory allows us to store "limited amounts of information for a limited

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46. Memory is also shaped by culture. MEDINA, *supra* note 12, at 76 (describing an experiment involving memory where, on average, urban Asians recall features of a visual scene differently than people urban Americans); *id.* at 75 (discussing that native New Guinea students can detect "subtle changes in the jungle" that urbanites cannot).

47. BERNSTEIN ET AL., *supra* note 43, at 242. This example seems particularly apt for hearing or reading a story. It also indicates that memory is useful because it develops a "web of connections between people and things. . . . And it is the connections that let us understand cause and effect, learn from our mistakes and anticipate the future." Greene, *supra* note 30, at 22.

48. Merritt, *supra* note 26, at 45. "[T]he brain contains two types of memory: long-term memory and working memory." *Id.* at 44. Long term memory is vast, perhaps infinite, and "holds all of our recollections and accumulated knowledge . . ." *Id.* at 44-45.

amount of time.”<sup>49</sup> Working memory allows one to “manipulate . . . information . . . held in short-term memory,” and is crucial “to do[ing] many kinds of mental work.”<sup>50</sup> Most pertinent here is the capacity of short-term memory, or immediate memory span. Unfortunately, most adults can retain only *six or seven* items for recall at a time for about twenty seconds, and all information that is to make it to long-term memory “must navigate this passage to reach the brain’s long-term storehouse.”<sup>51</sup>

In a traditional law classroom, where the details and information come at one like water from a fire hose, this limited capacity hinders learning. This limited capacity did not matter when we were concerned with the five or six animals in front of us, and our need to identify them (will they eat us or can we eat them??), but when we’re trying to hold facts, issues, decisions, holdings, and reasoning in our minds, especially as novices, we do well to give up. But not to despair. Short-term memories can be singular items like numbers or words, but they can also be collective items or groupings, which psychologists call “chunks.”<sup>52</sup> As Bernstein notes:

Chunks of information can become very complex. . . . [P]eople can build bigger and bigger chunks of information. . . .

Learning to use bigger and bigger chunks of information can enhance short-term memory. Children’s memories improve partly because they gradually become able to hold as many as seven chunks in memory, but also because they get better at grouping information into chunks. . . . Adults, too, can greatly increase the capacity of their short-term memory by more appropriate chunking. . . . One college student increased his immediate memory span from seven digits to eighty digits. . . . In short, although the capacity of short-term memory is more or less constant—five to nine chunks of meaningful information—the size of those chunks can vary tremendously.<sup>53</sup>

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49. BERNSTEIN ET AL., *supra* note 43, at 243.

50. *Id.* (citations omitted).

51. Merritt, *supra* note 26, at 45.

52. DAVID A. SOUSA, *HOW THE BRAIN LEARNS* 296 (4th ed. 2011). “Chunking” is “[t]he ability of the brain to perceive a coherent group of items as a single item or chunk.” *Id.*; *see also* Graham & McJohn, *supra* note 25, at 261 (describing how as we learn, we can aggregate small pieces of knowledge into one piece that becomes a new “chunk”). “Law school, in large part, consists of assembling chunked concepts. A tort, like battery, is composed of several elements, each of which breaks down into sub-elements. After enough practice, students and lawyers use ‘battery’ . . . fluidly . . .” *Id.* That is, as we learn the constituent elements of each tort, we can ultimately assimilate them into one chunk subsumed under a label like battery or assault.

53. BERNSTEIN ET AL., *supra* note 43, at 245 (citations omitted).

My hypothesis is that the use of stories enables the law student to develop bigger “chunks” of memory during the typical class.<sup>54</sup> Legal information that is delivered with the story is more likely to be encoded and retained into long-term memory, which is nearly limitless in its size and indefinite in its time scale, subject to disease and death. While some of our long-term memory encoding is automatic, most of us must be very conscious of our attempts to move information into a permanent location. While educational psychologists often focus on various rehearsal and retention strategies, it may be that stories help by providing a hook for chunking legal information in a way that it can be encoded into long-term memory. That is, the use of stories facilitates the move from novice to expert as students pack more content into each retrievable chunk of information. The students may remember the story as a chunk to which they can attach and retain various legal doctrines relevant to understanding the account as a legal story as well. Stories are also helpful because people tend to encode the general meaning of information rather than discrete details. For example, a story about an assault may help students move from holding each individual element of the doctrine of assault as a separate chunk into one more-efficient chunk that contains all of the elements of an assault.

Similarly, stories can help us to recall information. “Stimuli that help people retrieve information from long-term memory are called retrieval cues.”<sup>55</sup> Further, the ability of a stimulus to act successfully can depend upon the “degree to which the [cue] taps into information that was encoded at the time of learning.”<sup>56</sup> “Because long-term memories are often encoded semantically, cues related to the *meaning* of the stored information tend to work best.”<sup>57</sup> For example, a story will provide a semantic context for legal doctrine until that doctrine has a meaning of its own. Thus, thinking about the Bernie Madoff story may trigger the contract doctrine of unconscionability. Similarly, the fact that the memory is encoded with the meaning of the legal doctrine as elicited through the story demonstrates that the principle is not abstract but has real-world consequences. It also makes students’ retrieval of the material covered in class more likely.<sup>58</sup>

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54. Graham & McJohn, *supra* note 24, at 261.

55. BERNSTEIN ET AL., *supra* note 43, at 249.

56. *Id.* at 250.

57. *Id.*

58. This scenario is overly simplistic since many other factors having to do with the actual story and the way it was told may contribute to memory. For example, psychologists tell us that a memory may also be context dependent (retrieval occurs best when it occurs in the same environment where the material was learned) and state dependent (whether a person was sober and what mood they were in). *Id.* at 250–51.



This chart, below, captures these relationships:

CHART 2: THE SENSE–MEANING RELATIONSHIP<sup>59</sup>

		Is Sense Present?	
		No	Yes
Is Meaning Present?	Yes	<b>MODERATE TO HIGH</b>	<b>VERY HIGH</b>
	No	<b>VERY LOW</b>	<b>MODERATE TO HIGH</b>

### 3. *Context and Meaning: Experts and Novices*

A further contribution, consistent with anthropology, is represented by the story as a teaching device as it relates to memory retrieval. This arises from the effects of schemas on memory. Schemas are defined as “mental representations of categories of objects, events, and people.”<sup>60</sup> In light of the anthropological view of culture, stories could arguably be described as culturally shared schemas. In this sense, sharing stories has at least two advantages. In an era where law schools, thankfully, seek out students from diverse backgrounds and ethnic groups, there may not be a shared canon of stock stories.<sup>61</sup> Using stories in the classroom can provide that common vocabulary and experience—thus contributing to developing richer schemas as legal information is added. Second, stories can also provide a level of emotional safety and comfort that makes learning possible.

Professor Hilary Burgess notes that one of the most important reasons to use schemas is that they help students to both retain and transfer information to new situations, perhaps the essence of legal training.<sup>62</sup> Drawing on insights from cognitive psychology, much of which is explained above, she argues that one of the most important things a professor can do in the classroom is to help law students create schemas, that is, help them link new information to information they already have so that it can be retained in long-term memory.<sup>63</sup> Building on

59. SOUSA, *supra* note 52, at 49.

60. BERNSTEIN ET AL., *supra* note 43, at 255.

61. See, e.g., Menkel-Meadow, *supra* note 7, at 32 (discussing the use of stock stories in litigation).

62. Burgess, *supra* note 30, at 8.

63. *Id.* at 30. “The easier the concept is to integrate into an existing framework or schema, the easier the concept is to learn, understand and retain.” *Id.* (citation omitted).

this information, she suggests that introducing concepts repeatedly over a “distributed period” and teaching it in multimodal ways (that is, through multiple sensory avenues) is more likely to contribute to building better pathways in the brain for information integration and retrieval, that is, learning.<sup>64</sup>

Burgess uses a concept from John Bransford’s research focusing on the ways in which novices learn differently from experts.<sup>65</sup> Burgess points out that “experts learn differently than novices,”<sup>66</sup> because experts, who have established schemas, can more easily distinguish between “critical and less relevant information.”<sup>67</sup> Students, for example, may analogize “the court system to a family tree,” and one of the responsibilities of a law professor is to help them create a good organizational system for new knowledge.<sup>68</sup>

Bransford and his colleagues focus extensive attention on the difference between novices and experts in the classroom.<sup>69</sup> Basically, experts are expert learners within their discipline because they “have acquired extensive knowledge that affects what they notice and how they organize, represent, and interpret information in their environment. This, in turn, affects their abilities to remember, reason, and solve problems.”<sup>70</sup> A student and a teacher will experience the same stimulus differently because of their past experiences.<sup>71</sup> In discussing an example from physics, Bransford notes that the expert will start with major applicable principles and rationales combined with methodologies for applying these to a problem.<sup>72</sup> In contrast, a student will probably approach the same problem by trying to recall and manipulate a memorized formula that they believe pertinent to the problem without seeing an underlying principle for

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64. *Id.* at 27.

65. Burgess’ discussion of this work permeates her article. *Id. passim*. Basically, she argues that current law-school pedagogy results in “cognitive overload” because students do not have a way to organize the mass of information, via efficient chunking, into working memory and thereafter semantic memory. *Id.* at 27–28. “When students are first introduced to a discipline, they have not yet organized the associated information into ‘chunks.’” *Id.* at 28. Merritt adds that “[l]aw school instruction probably exceeds the capacity of students’ working memory quite often. The problem is compounded by the fact that professors, who have already combined these elements into larger schema, can accommodate more material in working memory than students can.” Merritt, *supra* note 26, at 48.

66. Burgess, *supra* note 30, at 30; *see also*, Merritt, *supra* note 26, at 46 (arguing that it is crucial to relate new information that is already in long-term memory).

67. *Id.* at 30.

68. *Id.* at 30–33 (noting that the sooner this is done, the more rapidly a class can advance to more advanced topics).

69. Bransford, *supra* note 39, at 17, 29–72. While their research focuses on the K–12 classroom, they note that “the principles apply to adult learning as well.” *Id.* at 26.

70. *Id.* at 31.

71. *Id.* at 32. In this sense, learning the law resembles the language acquisition of young children. A young child may call all waterborne birds ducks. *See* Greene, *supra* note 30, at 27. But, as they become older, having more experiences and making more connections, their ability to generalize and discriminate (“the yin and yang of learning and memory”) become more developed. *Id.* Thus, the older child will identify ducks, geese, and swans. *Id.*

72. Bransford, *supra* note 39, at 37.

selecting a particular formula.<sup>73</sup> Moreover, experts are much more adept and fluid at retrieving information, as well as applying information to a new problem with understanding rather than as a result of rote memorization.<sup>74</sup> Further, they point out importantly that “transfer,” or what I will call learning, is affected to the degree to which people learn with understanding rather than mere memorization.<sup>75</sup>

Similarly, Professors Graham and McJohn, using the language of “metaphor” rather than of schema, point out that the value of metaphor, especially as found in stories, is a key feature of improving learning in legal education: “Lawyers deal with stories, not just legal rules or analogies.”<sup>76</sup> Much of their article discusses the role that context, defined by them as metaphor, controls human thinking. “To change someone’s view, reasoned argument will never be sufficient. Rather, supplanting the metaphor that controls their thinking on the subject is required.”<sup>77</sup> These metaphors help us to organize knowledge and reach both rational and emotional aspects of knowing.<sup>78</sup> From a depiction of metaphor, they move to story as a unit of thinking: “Most of our experience, our knowledge, and our thinking are organized as stories.”<sup>79</sup> The remainder of their article focuses on the ways in which stories broaden our legal reasoning,<sup>80</sup> as well as provide a framework for learning and understanding because they can constitute a chunk<sup>81</sup> and have emotional content that makes it “easier to learn and remember . . . .”<sup>82</sup>

To expand my thesis further I would argue that the use of stories in the law-school classroom is valuable in helping the student-novice become a legal expert. As students make a transition from undergraduate studies and non-legal life, stories can act as a transition, context, and metaphor for assimilating a broad range of legal material. The stories can become a stage upon which cases are enacted with deeper meaning and context. Rather than learn didactically about unconscionability, the student who has read stories about the financial crisis as well has a framework that ties everyday knowledge to specialized legal

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73. *Id.* They tie the development of a schema or context to more efficient chunking: “In each case, expertise in a domain helps people develop a sensitivity to patterns of meaningful information that are not available to novices.” *Id.* at 33.

74. *Id.* at 43–44, 55–68. Textbooks are not the best way to teach people when to use knowledge or how to transfer it. *Id.* at 43.

75. *Id.* at 55.

76. Graham & McJohn, *supra* note 25, at 258.

77. *Id.* at 271.

78. *Id.* This foreshadows the work of evolutionary psychologists who increasingly argue that thinking involves both rationality and emotion. See, e.g., Leda Cosmides & John Tooby, *Evolutionary Psychology and the Emotions*, in MICHAEL LEWIS, HANDBOOK OF EMOTIONS (Michael Lewis & Jeannette M. Haviland-Jones eds., 2d ed. 2000); PINKER, HOW THE MIND WORKS, *supra* note 3, at 370. Although not an evolutionary psychologist, this is also borne out in the work of ANTONIO DAMASIO, *supra* note 18.

79. Graham & McJohn, *supra* note 25, at 280.

80. *Id.* at 281.

81. *Id.* at 283–84.

82. *Id.* at 283.

knowledge. Of course, this calls upon the instructor to select narrative materials carefully in a way that reinforces the structure of doctrine. In class discussions, a particular story may become emblematic for recall of a difficult doctrine and its context. Hopefully, the students move past memorizing rules into understanding their application.

Finally, research on memory reinforces the importance of context if one defines context as the web of connections between pieces of information held in the memory. “The discovery that memory is all about connections has revolutionary implications for education. It means that memory is integral to thought and that nothing we learn can stand in isolation; we sustain new learning only to the degree we can relate it to what we already know.”<sup>83</sup>

These insights pertain to practice as well. In our roles as counselor or advocate, we are frequently required to explain a particular legal doctrine to clients or members of the lay public. Many of us have probably heard people complain about the prolixity and complexity of legal explanations. On the other hand, a client meeting in which some information is delivered as a narrative, for example, “Here’s a story about a company that did this the wrong way,” will focus client attention and enhance their comprehension and retention of the content of our communication. It also explains why more comprehensible government regulations are frequently accompanied by examples—little stories that explain how a particular regulation works on the ground.

## B. Cultural Anthropology

Around 30,000 years ago, a time that many think tracks the rise of civilization,<sup>84</sup> something amazing happened. There were more grandparents.<sup>85</sup>

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83. Greene, *supra* note 30, at 24. This is supported by a laboratory study that shows memory does not exist in one location, but rather is “distributed across the entire cerebral cortex.” *Id.* His article also provides a concise explanation of the history of memory research and our current theories of memory. *Id.* at 22–29.

84. *Piece of Evolution Puzzle Added; Grandparents Helped Spur Rise of Civilization*, REDORBIT (July 21, 2004), [http://www.redorbit.com/news/science/73364/piece\\_of\\_evolution\\_puzzle\\_added\\_\\_grandparents\\_helped\\_spur\\_rise/index.html](http://www.redorbit.com/news/science/73364/piece_of_evolution_puzzle_added__grandparents_helped_spur_rise/index.html) [hereinafter REDORBIT] (on file with the *McGeorge Law Review*). There is no way to pinpoint with certainty, at this time, exactly when *homo sapiens* became modern man. For example, Professor Hrdy, who is the major researcher behind alloparent theory, notes that we have “evolved only within the last 200,000 years.” Sarah Blaffer Hrdy, *Meet the Alloparents*, NAT. HIST. MAG., <http://www.naturalhistorymag.com/features/09270/meet-the-alloparents> (last visited May 8, 2012) (on file with the *McGeorge Law Review*) (adapted from SARAH BLAFFER HRDY, MOTHERS AND OTHERS: THE EVOLUTIONARY ORIGINS OF MUTUAL UNDERSTANDING (2009)). Moreover, “behaviorally modern humans, capable of symbolic thought and language, emerged more recently still, within the last 80,000 years.” *Id.* (emphasis in original).

85. REDORBIT, *supra* note 84; see also Betty A. Sichel, *Beyond Moral Stories*, PHIL. EDUC. SOC’Y, <http://ojs.ed.uiuc.edu/index.php/pes/article/view/2235/930> (1996) (on file with the *McGeorge Law Review*) (providing a modern version of this phenomena). Sichel begins her article: “Tell me a story, Grandma.” *Id.* at 1. She then describes much of alloparent storytelling as the transmission of moral education (which I see very closely akin to law) in which, citing Martha Nussbaum’s book, *Love’s Knowledge* (1990) and the work of child psychiatrist Robert Coles, depict literature as a form of “moral stories for moral education” that help us become a moral person and expand our awareness and sensitivity to others. *Id.* at 3, 5–7. These themes are shared in

While it appears that humans have always told stories, it did not do young people much good if no one was available to tell them stories because the storytellers were out hunting or gathering. The survival of grandparents changed this dynamic. Anthropologists have pointed out that increased rates of survivorship among adults provided a cadre of people who could “watch[] and educate[] the young.”<sup>86</sup> While increasing survivorship made wider territorial spread possible, it also meant that a particular group’s collective wisdom could be transmitted to the young rather than having each individual learn on the basis of private and limited experience. This lays a foundation for not just the spread of civilization, but its ability to innovate on a collectively shared knowledge base. As Lawrence Rosen noted: “Human beings possess the capacity to create the categories of their own experience, and this capability, having largely replaced instinct, came before—and was instrumental in creating—the animal we have become.”<sup>87</sup>

In this account, stories are successful in teaching because they are cultural artifacts that allow us to transmit wisdom as well as to survive and flourish. More fundamentally, this shared rearing, in Hrdy’s estimation, led to the growth of empathy and “endowed [us] with a rudimentary theory of mind,” laying the groundwork for cooperation among early humans.<sup>88</sup> One could speculate about the ways in which both a theory of mind and growing cooperation (and the need to maintain it) may have led to the development of early laws and social norms.

In the same way, law, like stories, creates another key domain of culture with which storytelling profoundly overlaps in its use of metaphor and fact creating.<sup>89</sup> For example, Rosen argues that one should see “law as constituted by culture, and culture (in no small way) by law, . . . [and that it] is indeed an excellent storehouse of stories.”<sup>90</sup> His study of law aims to show that an anthropological study of law reveals a great deal about human social ordering, and that “[I]ike art and literature, through law we attempt to order our ties to one another.”<sup>91</sup> As a

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common by philosophers, anthropologists, cognitive psychologists, and evolutionary psychologists.

86. REDORBIT, *supra* note 84; *see also* Hrdy, *supra* note 84. Hrdy also believes that this cooperative breeding strategy “came before big brains.” *Id.* In fact, it may have made them possible because it meant that we were better nourished.

87. LAWRENCE ROSEN, *LAW AS CULTURE: AN INVITATION* 3 (2006).

88. Hrdy, *supra* note 84. This social learning is important because it meant that children and infants would learn to read people and how to attract their attention. *Id.* The point here is that in this theory, empathy is believed to be a cultural acquisition rather than an adaptation to group living as an evolutionary psychologist might argue. This nature versus nurture, in terms of explanations for human behavior, is why I separate anthropology from psychology.

89. ROSEN, *supra* note 87, at 9.

90. *Id.* at xii. This point of view is not necessarily at odds with the longer, and less familiar, description of evolutionary psychology presented below. Every evolutionary psychologist described makes room for culture and does not necessarily see it as adverse to natural selection. To date, however, evolutionary psychologists have not focused on law in any serious fashion. *Accord*, Linda L. Berger, *The Lady, or the Tiger?: A Field Guide to Metaphor and Narrative*, 50 *WASHBURN L.J.* 275, 278, 281 (2011) (noting “stories are entangled in culture”).

91. ROSEN, *supra* note 87, at 199.

cultural category, law is also a key form of reasoning. “Whether a legal system explicitly relies on metaphors or implicitly works through analogies to recognized legal categories, metaphors serve as a vital bridge connecting the style of legal reasoning to a society’s overall style of cultural reasoning.”<sup>92</sup> The difference, though, between an account derived from cultural anthropology and the one arising from evolutionary psychology will not be a difference so much in the observation of the behavior, but its sources. The anthropologist, then, will tell us we use stories because it is something we have done culturally from the beginnings of our social history.<sup>93</sup>

Finally, evolutionary theory (below) and cultural theories do not necessarily oppose each other. As we learn more about human history and brain science, it may well be that they are complementary and related phenomena. For example, Jones and Goldsmith suggest that although there are variations between legal systems, they all care about roughly the same topics, including sex, inheritance, family, property, and that they all express a number of social and normative attitudes toward these topics. As cultural studies have demonstrated the overlaps in topics and attitudes, some evolutionary theorists have concluded that “[i]t is vanishingly unlikely that cultures across time and throughout the globe settled upon these same basic features of law because they happened to encounter one another. These features are almost undoubtedly an outgrowth of the effects of evolutionary processes on human brains functioning in social environments.”<sup>94</sup>

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92. *Id.* at 133. Rosen requires the concept of “metaphor” to pull together much of his argument about law and culture. To that extent, it fits well with insights about law and literature. As he states:

Metaphors are the glue of social and cultural life: They knit together the different domains in which our concepts and our relationships exist with such force that they seem to be features of the natural world. . . . Indeed, metaphors may be our species’ vehicle for keeping open the possibilities of moving from one way of conceiving reality to another, of adapting to changing circumstances by keeping alive the very mechanism through which cultural alteration is effected.

*Id.* at 132; see also Linda H. Edwards, *Once Upon a Time in Law: Myth, Metaphor, and Authority*, 77 TENN. L. REV. 883 (2010).

93. Rosen addresses some of the arguments regarding evolution and the possibility of evolved behavior in his book. ROSEN, *supra* note 87, at 54–60. As he does with many phenomena, he sees “evolution” as a metaphor and notes that “no one has persuasively specified the precise mechanisms through which social evolution is purposed to operate.” *Id.* at 56–57. In this, he relies on Stephen Jay Gould. *Id.* at 57.

94. Jones & Goldsmith, *supra* note 25, at 468.

Considering Topics and Content in light of evolutionary biology leads to the prediction that the normative content of legal systems will tend, over the entire globe, to reflect evolved, species-typical brains, even as the details of those legal systems will inevitably vary in many particulars. Legal systems will not be identical, because there is ample room for cultural differences and historical accident. . . . The evolved characteristics of the brain place some constraints on the range of outcomes of legal systems and define the universe of cultural differences from which those legal systems emerge.

*Id.* at 469. By way of example, they point to the fact that nearly all cultures distinguish between crimes of passion and premeditated crimes. *Id.* at 470.

C. *Evolutionary Psychology*

*In the distant future I see open fields for far more important researches. Psychology will be based on a new foundation, that of the necessary acquirement of each mental power and capacity by gradation. Light will be thrown on the origin of man and his history.*

—Charles Darwin, *ON THE ORIGIN OF SPECIES*<sup>95</sup>

With the publication of the late Denis Dutton's *The Art Instinct*,<sup>96</sup> arguing that humans, by nature of their evolution, are drawn to and adapted for the arts, particularly music and narrative, the art and scientific worlds have been abuzz with debate—nature or nurture? Culture or instinct? Dutton's compelling presentation draws heavily on the works of John Tooby and Leda Cosmides, scientists at the University of California, Santa Barbara, and the more well-known works of Steven Pinker of Harvard.<sup>97</sup> Not long after the publication of Dutton's work, Brian Boyd published *The Origin of Stories*.<sup>98</sup> These works ask us to consider our assumptions about narrative and learning, suggesting that rather than a product of culture, storytelling is an adaptation that is part of the human psyche as a result of natural selection.<sup>99</sup>

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95. COSTA, *supra* note 25, at 488 (quoting CHARLES DARWIN, *ON THE ORIGIN OF SPECIES* (1859)).

96. DUTTON, *supra* note 1; *see also* Abrantes, *supra* note 20, at 3. "Humans have what we might call a narrative instinct." *Id.* (emphasis in original).

97. In addition to *How the Mind Works* (1997), Pinker authored four other popular books: *The Language Instinct* (1994), *Words and Rules: The Ingredients of Language* (1999), *The Blank Slate: The Modern Denial of Human Nature* (2002), and *The Stuff of Thought: Language as a Window into Human Nature* (2007). These are in addition to his prolific scholarly writings. As it pertains to this article, *see* Steven Pinker, *Toward a Consilient Study of Literature*, 31 *PHIL. & LITERATURE* 162 (2007).

98. BOYD, *ON THE ORIGIN OF STORIES*, *supra* note 1.

99. This theory is controversial, and most notably the late Stephen Jay Gould disagreed with this theory. *Id.* at 36; *see also* Jeremy McCarter, *Rage Against the Art Gene*, *NEWSWEEK*, Apr. 6, 2009, at 49. My point in describing this theory is neither to whole-heartedly endorse it nor to engage in an elaborate critique. That is beyond the scope of this paper. Nonetheless, it sheds a great deal of light onto our understanding of the human mind. Many scientists dismiss accounts of human behavioral adaptations as "just so" stories. Although I do not believe that Professor Medina endorses evolutionary psychology, he does note: "The brain is biological tissue; it follows the rules of biology. And there's no bigger rule in biology than evolution through natural selection . . ." MEDINA, *supra* note 12, at 34. Although he agrees with evolutionary psychology that are brain evolved for life on the savannah, he states that beyond this, there is a lack of evidence for precise adaptations. *Id.*

Additionally, I am not arguing that accepting a role for evolution means that our behavior is determined. "The essential point is that biological processes, properly understood, provide no support for genetically deterministic views of human behavior, whether they arise from political motivations or from misconceptions." Jones & Goldsmith, *supra* note 25, at 428; *see also id.* at 485–88 (discussing genetic determinism). Not surprisingly, they also adhere to the "is/ought" distinction. *Id.* at 484–85.

1. *A Primer in Evolutionary Theory*

One of the most formative events in the life sciences was the publication of Darwin's *The Origin of Species* in 1859. It is only recently, however, that its impact has been felt in the discipline of psychology.<sup>100</sup> Regardless of its disciplinary setting, however, evolutionary theory remains constant in its basics: randomness and natural selection. Evolution is the result of two contradictory phenomena: randomness and natural selection. "Randomness" describes the reality of genetic change through mutations, and acting on only this principle, life on earth would not have advanced in any discernible direction. "Natural selection," on the other hand, is the tendency of speciated populations to select for those genetic mutations that confer survival of the gene. "Evolutionary change is then the mechanical consequence of variation in heritable differences between individuals whenever those differences are accompanied by differences in survival and reproduction."<sup>101</sup> Evolutionary psychologists argue that "all features of a species' cognitive or neural architecture are either adaptations, byproducts, or genetic noise."<sup>102</sup> Adaptations are well known to students of biology as those changes that are present in an organism, including humans, because they perform a function that contributed to genetic propagation. Byproducts, on the other hand, have no adaptive function but operate because of the presence of a useful adaptation. For example, it appears that we are adapted

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100. John Tooby, *The Emergence of Evolutionary Psychology*, in EMERGING SYNTHESSES IN SCIENCE: PROCEEDINGS OF THE FOUNDING WORKSHOPS OF THE SANTA FE INSTITUTE 106, 106–07 (David Pines ed., 1985).

101. Richard C. Lewontin, *Not So Natural Selection*, NEW YORK REVIEW OF BOOKS (May 27, 2010), available at <http://www.nybooks.com/articles/archives/2010/may/27/not-so-natural-selection/> (on file with the *McGeorge Law Review*) (reviewing JERRY FODOR & MASSIMO PIATTELLI-PALMARINI, *WHAT DARWIN GOT WRONG* (2010)). Leading up to this observation, he summarizes the modern theory of evolution by natural selection in four principles:

- (1) The principle of variation: among individuals in a population there is variation in form, physiology, and behavior.
- (2) The principle of heredity: offspring resemble their parents more than they resemble unrelated individuals.
- (3) The principle of differential reproduction: in a given environment, some forms are more likely to survive and produce more offspring than other forms.  
[And, to explain long-term evolution]
- (4) The principle of mutation: new heritable variation is constantly occurring.

*Id.*

He notes that most evolutionary biologists believe that the study of particular populations can reveal the story of how selection operated in their particular case. *Id.* These changes are carried forward in our genes, and he cautions that "it is not traits that are selected but organisms" which may present an implicit criticism of evolutionary psychology, which at times seems to concentrate more on traits than on the human organism as a whole. *Id.*; see also Jones & Goldsmith, *supra* note 25, at 426–31 (explaining the "foundational concepts" of evolution).

102. John Tooby & Leda Cosmides, *Does Beauty Build Adapted Minds? Toward an Evolutionary Theory of Aesthetics, Fiction and the Arts*, 94/95 *SUBSTANCE* 6, 6 (2001) [hereinafter Tooby & Cosmides, *Does Beauty Build Adapted Minds?*].



to avoid or fear venomous snakes, but our fear of non-venomous snakes would be a byproduct of the adaptation.<sup>103</sup> Noise is just that: expressions of the random arrangement and functioning of various genes.<sup>104</sup>

## 2. *Evolutionary Psychology—What Is It?*

Evolutionary Psychology (EP) is susceptible to both positive and negative explanations. For example, EP's adherents are quite vocal about what it is not. Pinker argues that EP is not sociobiology, a school of psychology popularized in the 1970s and 1980s: “[T]here is no need to strain for adaptive explanations for everything we do. Our ancestral environment lacked the institutions that now entice us to nonadaptive choices . . . .”<sup>105</sup> On an even more strident note, Tooby and Cosmides reject what they call the standard social science model (SSSM), which privileges humans above other organisms by claiming that culture exempts us from the operation of evolution.<sup>106</sup> From this vantage point, EP is vehemently opposed to cultural anthropology's assumption that culture alone explains all human development.

From a positive point of view, EP attempts to bring together advances in a number of fields such as field anthropology, genetics, neurobiology, and evolutionary biology, and to weave together a coordinated, elegant account of adaptive human behavior and brain development. It is focused on trying to explain “*why* we have the kind of mind we have.”<sup>107</sup>

The EP scientists' methodology is typically referred to as a type of “reverse engineering.”<sup>108</sup> These scientists begin with the assumption that “[t]he mind is a system of organs of computation, designed by natural selection to solve the kinds of problems our ancestors faced . . . .”<sup>109</sup> A concomitant assumption, borne out by

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103. Significantly, PINKER, *supra* note 3, at 524 & Ch. 8, generally argues that our attraction and use of literature and the arts are byproducts of an adaptation while DUTTON, *supra* note 1, *passim*, BOYD, ON THE ORIGIN OF STORIES, *supra* note 1, *passim*, and Tooby & Cosmides, *supra* note 102, argue that our attraction to beauty is an adaptation. In this, all four authors point especially to narrative and music.

104. PINKER, *supra* note 3, at 174; *see also* John Tooby & Leda Cosmides, *Conceptual Foundations of Evolutionary Psychology*, in D.M. BUSS, THE HANDBOOK OF EVOLUTIONARY PSYCHOLOGY 5, 25 (2005). Gould called much of what an evolutionary psychologist would call an adaptation a “spandrel.” This is an architectural feature, the space between two arches, that appears to be integral to design. Instead, it is a byproduct of the design rather than a direct result of the design. McCarter, *supra* note 99, at 51.

105. PINKER, *supra* note 3, at 42.

106. Tooby & Cosmides, *Conceptual Foundations of Evolutionary Psychology*, *supra* note 104, at 6–7.

107. PINKER, *supra* note 3, at 23 (emphasis in original).

108. *Id.* at 21–23; *see also, e.g.*, Bradley Duchaine et al., *Evolutionary Psychology and the Brain*, 11 CURRENT OPINION IN NEUROBIOLOGY 225–30 (2001); Leda Cosmides & John Tooby, *Evolutionary Psychology: Theoretical Foundations*, ENCYCLOPEDIA OF COGNITIVE SCIENCE 54, 55 (2005).

109. PINKER, *supra* note 3, at 21. Pinker notes, however, that one should not fall prey to the metaphor that the mind is the equivalent of a computer; it is not. He is adamant that a computational theory of mind is not the equivalent of mind as computer. *Id.* at 26–27. Most salient is the fact that a computer is a serial processor while the mind is a parallel processor. *Id.* at 26.

neuroscience,<sup>110</sup> is that the brain is a system of organs or modules “defined by the special things they do with the information available to them”<sup>111</sup> for which the “basic logic is specified by our genetic program.”<sup>112</sup> Similarly, neuroscientists assume that the mind is a compilation of content-specific systems rather than content-general; each module solves a specific problem rather than having general intelligence that could solve any problem a human confronted.<sup>113</sup> Using the same principles of observation that inform evolutionary biology, the evolutionary psychologist looks at a behavior or function to determine what kinds of problems the particular module was designed, by natural selection, to solve.<sup>114</sup>

Given this content-specific structure, the scientists believe that the mind is not a blank slate nor is it any longer accurate to characterize humans as having a mind/body problem. We come with “sub-routines,” if you will, hard-wired into us by natural selection. While these content specific routines work with culture,<sup>115</sup> they nonetheless limit our interactions with and ability to create culture. Similarly, if the brain is a physical system, a collection of organs that is part of our body, and it constitutes the mind, then there is really little reason to distinguish between the mind and the body.

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110. Much of what we know about brain structure and function is as a result of modern imaging technology. For an accessible review of these technologies, see Owen D. Jones et al., *Brain Imaging for Legal Thinkers: A Guide for the Perplexed*, 2009 STAN. TECH. L. REV. 5 (2009).

111. PINKER, *supra* note 3, at 31; *see also id.* at 27–31.

112. *Id.* at 21.

113. Duchaine et al., *supra* note 108, at 226.

114. *Id.* at 225; *see also, e.g.,* Leda Cosmides & John Tooby, *Evolutionary Psychology: A Primer*, <http://www.psych.ucsb.edu/research/cep/primer.html> (last updated Jan. 13, 1997) (on file with the *McGeorge Law Review*). Professors Cosmides and Tooby maintain this website as a resource for members of the public or other scientists interested in evolutionary psychology.

115. Again, evolutionary psychologists distinguish themselves from sociobiologists in that they agree that culture is an operative factor in human behavior. Our innate structure of mind enables us to “create, transmit, and assimilate cultural phenomena.” Tooby, *supra* note 100, at 112. For them, culture is not “some kind of invisible hand” that explains all facets of human behavior. John Tooby & Leda Cosmides, *Evolutionary Psychology and the Generation of Culture, Part I. Theoretical Considerations*, 10 ETHOLOGY & SOCIOBIOLOGY 29, 30 (1989). Rather, our innate psychological structures created a phenomenon, culture, that now acts more quickly upon us than biological evolution. *Id.* at 35. The point, then, is that both natural selection and culture exert an influence on human behavior; they are not opposed nor are they sole operators. *Id. passim*. As such, Pinker notes that this is not sociobiology: “To say that the mind is an evolutionary adaptation is not to say that all behavior is adaptive in Darwin’s sense. . . . [N]atural selection is not a puppetmaster [sic] that pulls the strings of behavior directly. . . . Behavior itself did not evolve; what evolved was the mind.” PINKER, *supra* note 3, at 41–42. Pinker is also much more up front about the way in which this theory challenges conventional wisdom and “psychological correctness.” *Id.* at 44–58. He also faces the question of free will and morality, concluding, that they are separate domains. *Id.* at 53–57. Finally, he notes, “[e]volution and learning can also go on simultaneously, with innate structure evolving in an animal that also learns.” *Id.* at 177. Ultimately, having a lot of built-in “machinery” only makes us “more intelligent[] and flexibl[e]” so that “every part of human intelligence involves culture and learning. . . . It is made possible by innate machinery designed to do the learning.” *Id.* at 33 (emphasis in original).

One of the most salient contributions these scientists have made as it pertains to my argument is that emotions are the result of natural selection. Above, I explained the significance of emotionally competent stimuli to gain students' attention in the classroom. Emotions turn out to be the fulcrum for not only understanding why this may be true in instructional settings, but act as the connective theory to explain the attraction, in part, of narrative. As Pinker notes, not only are we thinking machines, we are "feeling machines."<sup>116</sup> Emotions, in this view, are indispensable adaptations that work together with our intellect. The remaining question, given reverse engineering, is "Why do we have emotions?" The answer is that emotions are an adaptation that allow us to choose among competing avenues of action, because "[a]n animal cannot pursue all its goals at once."<sup>117</sup> Thus, thinking and feeling are fluid and interdependent, and we have, over time developed a repertoire of feelings that helped us survive life on the savannah, for example, fear of snakes, disgust for certain foods, and in our emerging social groups, for example, empathy, altruism, et cetera.<sup>118</sup>

Finally, Pinker addresses the arts, generally finding that they are not so much an adaptation (although he makes an exception for narrative) as they are a by-product of other adaptations. They are, like a fondness for cheesecake or pornography, activities that exist because of our innate interest in pleasure. "[M]usic is auditory cheesecake, an exquisite confection crafted to tickle the sensitive spots of at least six of our mental faculties."<sup>119</sup> He is willing, however, to make stronger claims for literature because of its role in human social life.<sup>120</sup> First, literature often partakes of gossip, a universal human pastime, because it confers knowledge and "knowledge is power."<sup>121</sup> Second, it also instructs, and here he compares novels to scientific experiments, pondering whether robots would invent literature.<sup>122</sup> As such, literature acts as a laboratory for trying out various human hypotheses about how others might behave in a given situation. He concludes, aptly for this paper, by observing: "The cliché that life imitates art is true because the function of some kinds of art is for life to imitate it."<sup>123</sup>

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116. PINKER, *supra* note 3, at 363–424 (Chapter 6: *Hotheads*).

117. *Id.* at 373.

118. *Id.* at 374–404. The discovery of the "mirror neuron" also supports this theory. This neuron is what causes us, in part, to mimic others. *See, e.g.*, Leda Cosmides & John Tooby, *Evolutionary Psychology and the Emotions*, in MICHAEL LEWIS, *HANDBOOK OF EMOTIONS*, *supra* note 78 (Emotions are an adaptation that allow us to perform a type of executive function when choosing among competing goals and motivations. Similarly, they allow us to assimilate environmental clues about our conspecifics that led to a theory of mind.).

119. PINKER, *supra* note 3, at 534.

120. *Id.* at 538–41.

121. *Id.* at 540.

122. *Id.* at 541.

123. *Id.* at 543.

3. *Is There an Art Instinct? Does Fiction Build Adapted Minds?*

*Human beings across the globe expend staggering amounts of time and resources on creating and experiencing fantasies and fictions. The human fascination with fiction is so intense that it can amount to a virtual addiction.*<sup>124</sup>

Denis Dutton in *The Art Instinct* makes the most accessible argument for the proposition that humans possess an “art instinct.”<sup>125</sup> Beginning his argument by noting that there is a cross-cultural experience of art along twelve dimensions, he notes that the imaginative experience may be the most important component of art.<sup>126</sup> He then takes up the inquiry posed by Tooby and Cosmides: “Evolutionary researchers want to know why the mind is designed to find stories interesting.”<sup>127</sup> Wary of Pinker’s argument that our love of fiction is a byproduct, Dutton begins a careful proof of why our “addiction” would be an adaptation rather than an evolutionary byproduct.<sup>128</sup> Basically, he puts forward three plausible reasons: (1) fiction provides “low-cost, low-risk surrogate experience”; (2) stories provide a “vivid and memorable way of communicating information”; and (3) stories, by allowing exploration of others, develop “adaptive interpersonal and social capacities. . . . Stories provide regulation for social behavior.”<sup>129</sup> Stories, story-making, and storytelling are remarkably biologically efficient ways to build a store of experience in the human animal.<sup>130</sup> The variability for which humans are adapted in terms of terrain and situations cannot be handled by “mere” instinct, as we typically think of instincts as fixed behaviors to environmental stimuli. Stories allow us to experiment without threat to life and limb across a wide swath of human intellectual, narrative capital: “vivid gossip, mythologies, technical know-how, and moral fables.”<sup>131</sup>

As Dutton describes it, storytelling does not seem appreciably different from what Langdell hoped to accomplish through the Socratic method: “[T]he ability to think counterfactually, case-based reasoning adds a capacity to interpret and so gain knowledge by drawing analogies and identifying dissimilarities in richly complex situations that are confronted in reality and contemplated in

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124. DUTTON, *supra* note 1.

125. *Id.*

126. *See id.*

127. Tooby & Cosmides, *Does Beauty Build Adapted Minds?*, *supra* note 102, at 8.

128. DUTTON, *supra* note 1, at 109–12.

129. *Id.* at 110. This last argument is particularly interesting for lawyers, and as I will argue in the conclusion, perhaps provides a bridge between law, cultural anthropology, and evolutionary psychology. *See* V.S. RAMACHANDRAN, *THE TELL-TALE BRAIN: A NEUROSCIENTIST’S QUEST FOR WHAT MAKES US HUMAN* (2011) (providing the most recent entry in the “art as instinct” debate).

130. PINKER, *supra* note 3, at 538–43; BOYD, *ON THE ORIGIN OF SPECIES*, *supra* note 1, *passim*; VERMEULE, *supra* note 3, *passim*.

131. DUTTON, *supra* note 1, at 113.

imagination.”<sup>132</sup> The fact that we have an adaptive mechanism to deal with widely varying circumstances means that as we “outgrew automatic animal instincts,” the use of stories to template behavior meant that if we absorbed the lessons of stories, we could escape the “confusion and uncertainty in choices available for action.”<sup>133</sup> In this sense, law and narrative are wedded by providing social ordering for our species, although law is arguably cultural while narrative is adaptive.

But our distanced emotional experience of art and imagination was also an important adaptation. In their articles on emotion and evolution, Tooby and Cosmides inquire about our ability to *fail* to act on products of our imagination.<sup>134</sup> That we can do so, in some sense is amazing, since modern fMRI technology has taught us that with mirror neurons and other behaviors, we can literally activate the part of our brain associated with an action “light up” without undertaking the action.<sup>135</sup> In fact, the ability to separate imagination, emotion, and action are crucial to our survival because if we acted on the roar of every imagined predator, we would be, quite frankly, nervous wrecks! In technical terms, Tooby and Cosmides call this “decoupled cognition” or the ability to “play” at real activities or, as adults, to while away hours in literary decoupled cognition reading novels or watching movies.<sup>136</sup>

Published shortly after Dutton’s work, Brian Boyd has tackled the question of narrative directly in his book, *On the Origin of Stories: Evolution, Cognition, and Fiction*.<sup>137</sup> Building on the work of Tooby and Cosmides, Pinker, Dutton, and Ellen Dissanayake,<sup>138</sup> Boyd takes a slightly different approach to explain why affection for narrative or stories is adaptive behavior.<sup>139</sup> First, he builds on Dutton’s idea that part of our attraction to art is that we enjoy playing.<sup>140</sup> After a

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132. *Id.* at 114.

133. *Id.* at 120.

134. Tooby & Cosmides, *Does Beauty Build Adapted Minds?*, *supra* note 102.

135. PINKER, *supra* note 3, at 289.

136. Tooby & Cosmides, *Does Beauty Build Adapted Minds?*, *supra* note 102.

137. BOYD, *ON THE ORIGIN OF STORIES*, *supra* note 1.

138. ELLEN DISSANAYAKE, *WHAT IS ART FOR?* (1988). Dissanayake was one of the first to argue that there is a biobehavioral need for art, and attempted to bridge the chasm between biology and art.

139. Boyd’s theory is not the only one available. *See, e.g.*, PETER SWIRSKI, *OF LITERATURE AND KNOWLEDGE: EXPLORATIONS IN NARRATIVE THOUGHT EXPERIMENTS, EVOLUTION, AND GAME THEORY* (2007). Swirski believes that the behavior of narrative was adaptive because it allows us to engage in thought experiments, particularly those that involve game theory as story in trying to estimate how other people will act in given situations. *See id.* The fact that there are at least three prevailing explanations for a taste for narrative being an adaptation is concerning because it suggests, at the very least, that more research needs to be done so that either these theories can be unified, discredited (in the sense that a taste for narrative is an evolutionary byproduct), or the one of the accounts can be validated as true.

140. Melvin Konner recently documented confirmation for the role of play as a possible adaptation in human behavior. MELVIN KONNER, *THE EVOLUTION OF CHILDHOOD: RELATIONSHIPS, EMOTION, MIND* (2010). Konner confirms that the development of cooperative breeding, or alloparenting, was important in human development. *Id.* at 426–51.

very careful discussion of nature versus culture, natural selection, and the evolution of intelligence, he focuses on the evolution of cooperation.<sup>141</sup> He notes: “You and I need not only to share norms but also to *know* we share them, so that we feel the pressure not only to resist the temptation to cheat but also to resist the temptation not to slacken in dealing with others who cheat.”<sup>142</sup> Storytelling is a way to communicate these norms to others, but most importantly it is a way to “enlist cooperation.” “Stories arose . . . out of our intense interest in social monitoring. They succeed by riveting our attention to social information, whether in the form of gossip . . . or fiction.”<sup>143</sup>

A second compelling reason for the ascendancy of narrative is play. Here, Boyd confronts Pinker’s argument that a taste for the arts is a by-product of evolution, rather than an adaptation.<sup>144</sup> Boyd concludes that given the costliness of art and play in terms of survival, it would have been “weeded out” if it did not serve an adaptive purpose.<sup>145</sup> It allows us to play with pattern—patterns of human behavior or visual forms in our environment. Because of this, art commands our attention in a way that was instrumental to the development of cooperation and sociality.<sup>146</sup> Finally, Boyd focuses on fiction because it helps us to understand and recall events, and is instrumental in the development of our theory of mind—the way that we understand other people.<sup>147</sup> He identifies several functions for fiction and narrative that contribute to our survival. Narrative allows us to recall and understand events,<sup>148</sup> and understand other people through the development of social intelligence and a theory of mind.<sup>149</sup> Furthermore, it represents events in a way that allows us to test beliefs and manipulate reality so that “narrative may help us to make better decisions” by freeing us from information that came solely from our own perspectives.<sup>150</sup>

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141. BOYD, ON THE ORIGIN OF STORIES, *supra* note 1, at 51–66 (Ch. 4: *The Evolution of Cooperation*).

142. *Id.* at 63 (emphasis in original). At this point, the overlap with Swirski is most apparent. See SWIRSKI, *supra* note 139. Boyd also hypothesizes, in passing, that this same need led larger social groups to “[c]entralized systems of justice.” BOYD, ON THE ORIGIN OF SPECIES, *supra* note 1, at 64.

143. BOYD, ON THE ORIGIN OF SPECIES, *supra* note 1, at 64. Another agent that ensured compliance with social norms, he notes, was religion. *Id.* Boyd does not distinguish between “true” accounts and fiction in ascribing this value to narrative. It is largely for this reason that I have chosen not to distinguish between fiction and journalism (not true and true accounts). Moreover, all of this behavior is preliterate, that is, our interest in story came before our ability to write.

144. *See id.* at 80–96.

145. *Id.*

146. *Id.* at 101.

147. *Id.* at 129–206.

148. *Id.* at 132–40. For example, he notes that “[c]omparison clarifies judgments.” *Id.* at 140.

149. *Id.* at 141–49.

150. *Id.* at 166.

As our brains expanded, we could apply the past to the present and futures still more flexibly. But we were still trapped within what we had witnessed and remembered ourselves. With narrative we could, for the first time, share experience with others who could then pass on to still others what they had found most helpful for their own reasoning about future actions. We still have to act within our

Evolutionary psychology provides a compelling set of reasons for using narrative—we are adapted to use narrative. Particularly in law, narrative is useful because it attempts to secure compliance with social norms and involves social relations. Moreover, its play allows us to forecast, and understand more deeply, the behavior of others.

#### IV. CONCLUSION

At the end of the day, around the academic fire pit, one wonders whether our ardent attention to stories as a result of culture or adaptation really matters. After all, for whatever reason, we are hooked on stories. “We have known for some time that stories are among the primary ways of making sense of the world, including the world of law.”<sup>151</sup> There are a number of reasons founded in cultural studies and cognitive science to use narrative in legal instruction:

- Stories command attention.
- Stories engage emotions in a way that is crucial to engagement of thinking.
- Stories allow students to more quickly build a schema for integration of legal materials so that they can move from a novice to an expert status.
- We are adapted to benefit from narrative.

Indeed, in the course of writing this article, I found various academics advocating that “narrative theory and storytelling can be used . . . across [all] types of courses and types of lawyering.”<sup>152</sup> Grose, for example, argues that lawyers use stories against the backdrop of three particular variables: “the law, the facts, and the client’s goals,” and that in practice, “[s]torytelling is pervasive.”<sup>153</sup> Because of this reality, she argues that pedagogy must incorporate storytelling as a way to (1) teach doctrine and skills; (2) draw attention to values underlying the law; and (3) help develop students’ critical ability to question legal doctrine.<sup>154</sup>

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own time, but with narrative we can be partially freed from the limits of the present and the self.

*Id.*

151. Edwards, *supra* note 21, at 886.

152. Grose, *supra* note 19, at 39. Her article explores the idea that narrative and storytelling can be used to teach “critical thinking and reflection about [students’] role as lawyers.” *Id.* at 41. This is based on the premise that “law is made up of stories that are constructed by lawyers, clients, and decision makers.” *Id.*

153. *Id.* at 44.

154. *Id.* at 47–48. She sees the use of narrative as important for meeting the goals set out in *The Carnegie Report*, in WILLIAM M. SULLIVAN ET AL., EDUCATING LAWYERS: PREPARATION FOR THE PROFESSION OF LAW (2007), also in ROY STUCKEY ET AL., BEST PRACTICES FOR LEGAL EDUCATION (2007).

In the course of writing this article, for example, I found that I had to reevaluate my opinion of hypotheticals. In light of these theories, hypotheticals can be a type of narrative play<sup>155</sup> that allow students to explore the law in what Boyd would argue is an adaptively useful way to explore dimensions of doctrine before encountering it in practice. Similarly, the cognitive psychologist would tell you that it also allows students to build a context for doctrine more quickly. In this sense, I would argue that hypotheticals are related to metaphor, or units of narrative, that help us “to understand new and unfamiliar concepts.”<sup>156</sup>

Stories matter because, as James Boyd White and Carrie Menkel-Meadow tell us, those are the presenting symptoms when a client appears in our office. It behooves legal educators to prepare students to intelligently and compassionately hear these stories even while they simultaneously translate these stories into vignettes of power to effectuate the client’s goals. In this vision, there is no real division between legal education and legal practice because the former should prepare the student for the latter. If the one constant (besides power) that is operating here is the story, then it behooves us to teach students how to most effectively work with the story and work with those in practice to understand how techniques dealing with stories may change over time.

But these insights transcend the classroom. Narrative is crucial in any area of legal practice, whether one is in dispute resolution or transactions. At the beginning of the client relationship, understanding the power of narrative reinforces ethical duties to attend to a client’s story and goals. When beginning to translate the client’s story into something that the legal system can manipulate (in a positive sense), the importance of a sensitive rendering becomes paramount because such a translation enhances the power of a client’s position and the likelihood of reaching client goals. Similarly, using stories with opposing parties, judges, juries, and other audiences can both inform and persuade. Even for other lawyers, as opposed to lay people involved in legal procedures, the use of a story can provide context that enables everyone to get up to speed quickly and in a meaningful manner.

In my most speculative moments, this research has led me to ponder the origins and nearly universal global presence of legal systems. So to return to the beginning.<sup>157</sup> It is a summer evening. The air is warm and soft. The story begins . . . One member of the tribe tells an elaborate and heart-felt story of a wrong done to him by another member of the group. Property was misused perhaps, and fishing nets were broken. Rather than seek relief in self-help, this storyteller implicitly is asking the tribe to take his side in this tale of woe.

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155. Along these lines, consider Bryan Adamson et al., *Can the Professor Come Out and Play?—Scholarship, Teaching, and Theories of Play*, 58 J. LEGAL EDUC. 481 (2008).

156. Berger, *supra* note 90, at 279.

157. “Time present and time past / Are both perhaps present in time future, / And time future contained in time past.” T.S. ELIOT, *Burnt Norton*, in COLLECTED POEMS: 1909–1962, at 175, lines 1–3 (Harcourt, Brace & World, Inc. 1958).



Another member, likely older, recalls a similar story some years back. As tribe members shift their attention from the aggrieved to this new storyteller, he recites from memory his recollections of those events and what the tribe did in that circumstance—requiring the wrongdoer to make new nets for the aggrieved. Nodding in agreement, the tribe agrees and this story becomes precedent for misuse of fishing nets, only later to be broadened out to apply to any personal property. And thus, a legal system is born.<sup>158</sup>

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158. Linda H. Edwards suggests that “law has stories” and describes a series of major cases as archetypes of particular types of stories. Edwards, *supra* note 21, at 883. As our storytelling has evolved, she argues that “[u]nearthing the stories beneath the legal arguments in the *Miranda* and *Hardwick* briefs expands our academic understanding of how law develops” noting that “rescue stories” call for affirmation of existing law while “[b]irth stories” call for legal reform. *Id.* at 907–08. This argument would overlap with the more scientific approach that law mirrors universal conflicts and issues that appear in all cultures (that is, allocation of private resources, exchanges, sex, et cetera). Jones & Goldsmith, *supra* note 25, at 474 tbl.1.