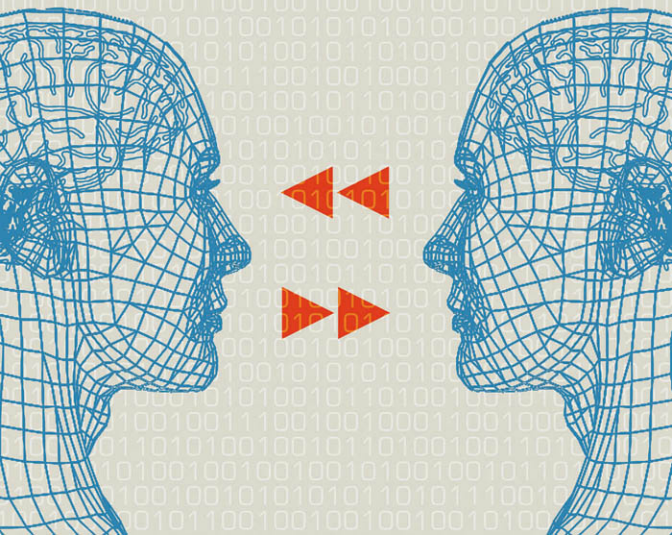


# Story Proof

HENDALL  
HAVEN

the science behind  
the startling **power of story**




# **STORY PROOF**



# STORY PROOF

The Science Behind the Startling  
*Power of Story*

KENDALL HAVEN

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# INTRODUCTION: IT WAS A DARK AND STORMY NIGHT

I once heard it said that life is like chess and that stories are like books of famous chess games that serious players study so that they will be prepared if they ever find themselves in similar straits. I thought it a clever and well-turned phrase—stories form a roadmap for life—until I began the research for this book. Then the profound truth of it struck me full force.

Results from a dozen prominent cognitive scientists and developmental psychologists have confirmed that human minds *do* rely on stories and on story architecture as the primary roadmap for understanding, making sense of, remembering, and planning our lives—as well as the countless experiences and narratives we encounter along the way. Lives are like stories because we think in story terms, make sense out of experiences in story terms, and plan our lives in story terms.

In our enlightened, literate, scientific, rational, advanced world, it is still story structure that lies at the core of human mental functioning. In this age of binary wizardry, “That reminds me of a story . . .” or “Once, back when the world was young . . .” are still the royal road to meaning and comprehension. In this age of cell phones, Blackberries, and airport cards, human minds are still hardwired to think and perceive through stories.

Everyone loves a good story. An enthusiastic teller begins, “Once, long ago, deep in a forest that clung to the topmost crags of a distant mountain . . .” and everyone within hearing sheds their own world and concerns to sink deliciously into the world of the story. Certainly, it has always happened to me and to those in audiences when I perform. I’ve always taken it for granted. That’s just the way it is. Until I began to research this book and I had to consciously ponder the question: why? Why are humans drawn to and entranced by a good story? What’s the appeal? Certainly not all narratives possess that appeal, that allure. Only a few enter our memories and linger there for years if not for decades. Why is that? Just luck? I will argue that no, it is not.

In this book I want to lay out the evidence and build my case to prove that stories are more effective and powerful than any other narrative structure. Said

more specifically, I want to prove that stories are more efficient and effective structural vehicles when used to motivate, or to teach and communicate factual, conceptual, and tacit information (attitudes, beliefs, values, and cultural expectations). Stories belong as the bedrock of management, leadership, education, outreach, and general communication efforts.

But if I am to accomplish that, we must first agree on what several terms actually mean: narrative and story. We bandy both terms around quite loosely. Many allow them to slop back and forth interchangeably. Research on the value of stories will have minimal meaning until we have settled on specific definitions for what is and isn't story; what is and isn't narrative. If these key terms don't mean something specific, they don't mean anything useful at all.

Yet we tend not to devote much thought to *story*. Many, hearing me talk about this book, have responded, "Oh, you're going to write a book about storytelling." No. Storytelling (orally telling a story to a live audience) is one—but only one—means of communicating a story. Neither is this a book on the value of story *reading*. That is another means of communicating a story. This is a book about the *thing*, itself: about *story*. Once you understand and master stories, many books can show you how stories may be used.

On a cab ride from JFK Airport into New York City a cabbie asked me what I did. When I said that I tell stories, he said that he told stories, too. I asked if he told in a local storytelling group. He said that he told stories while he drove. I asked, "To your customers?" He said, no, his driving *was* his story.

The way he drove was—in his mind—a story, his storytelling. Is that what *you* mean when you say, "Tell me a story"? Orchestra conductors are often described as storytellers by the way they conduct. Does a musical composer or a conductor "tell stories" when they write music or lead an orchestra? Does an artistic painter tell stories?

What *is* a story? What is not? The act of gathering and assessing evidence to answer those questions will sharpen your understanding of this key word and, thus, unlock much of its amazing power to your control. I want to show you that the word—*story*—really has a specific meaning that is defined by specific informational elements and that this structure produces a radically different effect inside the human mind than do other narrative structures.

So, I must first prove that the power and effectiveness of stories comes from these specific informational elements and show that they correspond to how the mind processes narrative information. If so, these elements will define what we really mean when we say "story." For this I'll rely heavily on research from the cognitive sciences, neurological science, developmental psychology, and neural net modeling. We will spend four chapters exploring the inner mysteries of human minds and the wondrous ways in which they process arriving narrative and experiential information.

This effort will expose the myths and misconception, the ambiguities and confusion that abound surrounding the idea of story. It will also peel back the layers of fog to expose the heart and structural framework of successful stories.

This book and its dual set of proofs (first, what a story really is, and second, a story's value for a variety of applications) will benefit anyone who needs to effectively communicate, needs to find ways to more effectively motivate and to create a sense of belonging and of community, or who seeks more effective and efficient ways to teach factual, conceptual, and tacit information. That should cover most of us. We all want to convince, to communicate, to teach, to get

others to see and to share our own vision and images, to effectively reach another human with our words. Stories are a universal expressway to accomplish each of these tasks.

Teachers, sales people, managers, lawyers, clergy, organizational leaders, writers, scientists . . . the list of those who can more effectively do what they do through story structure is virtually endless. Stories hold human attention. Stories are understood. Stories “make sense” in a way other narratives do not—even stories about the longings of a talking tree stump or about a little girl who decides to commit felony breaking and entering to swipe a bowl of porridge (oatmeal) from the house of the bear family. Stories get remembered and are easily recalled.

This goes for fiction and nonfiction stories alike. It applies to the overall story and to any key information contained within the story. This book will help those to whom communication is important.

The good news is that story—as a specific narrative structure—is not difficult to learn, master, or apply. Just the opposite. Most struggle to write effective narratives and struggle to deliver effective presentations. Understanding and using story architecture makes these jobs easier and more effective.

It turns out that your mind was evolutionarily hardwired long before birth to think in specific story terms. You know now, and have always known, this structure. Your mind uses it every waking hour. However, your internal neural story maps are not housed in the conscious mind. Rather they reside below that level so that they can be automatically, subconsciously applied to incoming information. It is well worth spending some time examining story structure in order to dredge that structure up into your conscious thinking.

## USING THIS BOOK

I will weave three kinds of information into the tapestry of my proof in this book: solid research results (both qualitative and quantitative), anecdotal examples to breathe life and clarity into research results, and as many demonstrations as I could stuff in to make the concepts real and personal (and fun) for you. For many—me included—hearing about something isn’t enough. I need to see it and to do it in order to truly believe. The demonstrations, I think, are vital to helping you see and understand the power that lies in story form. Through this triad of related streams of information—research, experience, and demonstration—I hope you develop a clear understanding of why stories are so uniquely powerful and effective.

Because I will report on a great many research studies in this book, the temptation has existed to treat it as a dissertation. I have tried to resist that temptation. Stories are supposed to be enlivening as well as enlightening, energizing as well as thought provoking. I have tried to maintain that outlook while writing this book *about* stories. In addition to providing information about stories and the evidence to support their expanded use, I have included sections to serve as guides to the successful application of story concepts.

A few technical notes: This book contains summary references to a vast array of supporting research. I will cite my sources in the text using (author year) notations that link to the full citations in the bibliography.

Several roles are involved in the use of stories. The story creator is either a storyteller or a storywriter. The receiver of the story is either a listener or a

reader. It is far too awkward to repeatedly say “writer/teller” or “reader/listener.” However, “creator” sounds too lofty and “receiver” sounds too much like stereo equipment. Thus, I often use “writer” and “reader” for the sake of simplicity and narrative flow. When you read these terms, reinsert the teller or listener, knowing that I intended them as well, but didn’t want to subject either of us to the tedium of including them in the sentence.

## THANKS

I owe a great many deepest thanks to those who have supported the development of this book. The combined library staffs of the Sonoma County Public Library, Santa Rosa Junior College, and Sonoma State University did a wondrous job of and yeoman’s work in locating and delivering the mountains of references I required.

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Finally, I want to thank you, the reader, for taking the time to ponder these important ideas and to explore the potential and wonder of the simple things we call stories. It will be well worth your while.

**PART 1**

**STORY SMARTS**



## CHAPTER 1

# OPENING ARGUMENTS: MORE THAN YOU IMAGINED

I began my research for this book in September 2005, in response to a challenge. I had presented several workshops at NASA's Goddard Space Flight Center advocating the use of story as a more effective medium for science outreach writing. One of those present, who has since become a good friend, lobbied to restructure much of NASA Earth Science's outreach writing into story form. He was stopped by someone at the directorate level in NASA headquarters who said that wasn't how science writers write. "I know it isn't," said my friend. "Story writing is better!"

The director replied, "Prove it." My friend turned back to me and repeated, "Prove it." As we talked, it became clear that a few examples of effective story use would not "prove it" to a skeptical world. It also became clear that I would have to provide a clear definition of story—say what that word means and doesn't mean. We'll begin that job in Chapter 2.

I started this information search expecting to desperately hunt for scraps of evidence to support my case. I expected to be forced to rely on opinion and anecdote. However, I have been overwhelmed by the mountain of available, pertinent, qualitative *and* quantitative, research-based studies. My proof has been substantiated a dozen times over by research from a half-dozen fields.

I readily admit that I am not an unbiased researcher. I came into this project with twenty-five years of full-time work as a storyteller and author. I have seen, on countless occasions, the positive power, benefit, and effect that stories have on audiences. Listeners and readers are entranced for the duration of a "good" story. They long remember stories.

### *Consider:*

- Humans have told, used, and relied on stories for over 100,000 years. Written communication began only 6,000 to 7,000 years ago. Modern expository forms of argument, persuasion, and logic developed well after that. Most Western cultures began, en masse, to read and write only a few *hundred* years ago. Before that, oral stories were the dominant form through which

history, news, values, cultural heritage, and attitudes were passed from person to person and from generation to generation. Current research indicates that stories even predate *language* (see Chapter 3). In the beginning there were stories. Then came language to express story concepts. Then came written language with its grammar and syntax. Only much later did other narrative and expository forms emerge. Evolutionary biologists confirm that 100,000 years of reliance on stories have evolutionarily hardwired a predisposition into human brains to think in story terms. We are programmed to prefer stories and to think in story structures.

- Every culture in the history of this planet has created stories: myths, fables, legends, folk tales. Not all have developed codified laws. Not all have created logical argument. Not all have created written language and exposition. All developed and used stories.
- Research by cognitive scientists has shown that “experiences not framed into story form suffer loss in memory” (Mandler 1984, and Mandler and Johnson 1977). We remember *stories* (and information in stories) better and longer than the same information presented in any other narrative form.
- Canadian researchers found a strong positive correlation between early storytelling activity and later math abilities. They suggested that time spent on stories (telling, reading, and listening to stories) during preschool years improves *math* skill upon entering school (O’Neill, Pearce, and Pick 2004). That says that learning story structure develops logical and analytical thinking as well as language literacy!
- A senior official at the World Bank, Steven Denning, found that “time after time, when faced with the task of persuading a group of managers or front-line staff in a large organization to get enthusiastic about a major change, *storytelling* was the only thing that worked” (Denning 2001).
- In a small, five-school test I personally conducted, one hour of instruction on *story structure* raised writing assessment scores 0.86 (over 25 percent) on state standardized writing assessments even though the assessment writing assignment was to write a persuasive essay, not a story.
- In researching this book, I have reviewed over 350 research studies from fifteen separate fields of science. Incredibly, every one of those studies, as well as every other study they cite—*every one*—agrees that stories are an effective and efficient vehicle for teaching, for motivating, and for the general communication of factual information, concepts, and tacit information. *Not one* doubted or questioned the effectiveness of stories!
- Famed developmental psychologist, Jerome Bruner (2003) pointed out that “stories are surely not innocent: they always have a message.” He or she who understands the internal structure of story controls the message. As Lori Silverman (2006) says in her book introduction, “Those who learn . . . and apply its [story’s] principles are those most likely to succeed.”

It would seem that stories and their supporting evidence are universal. It’s an intrinsically human thing to do. We rely on stories like we rely on air, water, sleep, and food. Proving the value of story should feel like an exercise in proving the obvious—something everyone already knows.

However, the studies that will form the core of my proof have had little impact to date, though most have been available for five years or more. Stories struggle to infiltrate into the normal flow of education, of organization and corporate

management, and of governmental agency outreach. More and more institutions seem to turn away from stories just as more research from more fields confirms in more ways and at more levels story's effectiveness and efficiency.

In state after state, departments of education and school districts push second graders into expository writing to inform and writing to persuade instead of letting them focus on learning story structure and story writing. The Language Arts frameworks in many states consider *story* reading and *story* telling to be fluff—pleasant and enjoyable curriculum extras, carrots to dangle over students as a treat during free reading times for completing other, more serious activity. (See Maria 1998 for a discussion of this phenomenon.)

The outreach programs of many governmental agencies prefer to use rigorous academic and technical articles instead of stories as a way to share their research and to—literally—tell their stories to the public. Many then find that their messages are lost, unappreciated, and unheard in the clutter of assumptions, caveats, data, and the distant third-person writing academic articles provide. Many organization and corporate leaders shy away from leading through stories fearing that they will not be taken seriously.

It seems that a litany of research results will not be sufficient on its own to prove the value and power of story. What must accompany such proof was well-defined by a question posed during my NASA conversation: "What *exactly* are you going to prove?"

My initial answer was that I would prove that stories are a better (more effective and efficient) way to teach and to communicate. By "communicate" I mean that stories more readily garner and hold reader's/listener's attention. They more readily create meaning and understanding in a reader's/listener's mind. Stories are remembered better and are more accurately recalled from memory.

My friend asked, "Better than *what*?"

"Better than other narrative forms."

"*What* other narrative forms? A poem? A play?"

And this opens the biggest question of all: What does the word *story* really mean? What is a story and what isn't? Research that establishes the value of story will have little value until we agree on what the word *story* means and doesn't mean.

Let's test your story IQ. Which of the following do you think involve a story?

- Uncle Fred perches on a kitchen chair doing his impersonation of the president while he makes up silly policy initiatives.
- Your grandmother quietly tells you about eight generations' worth of family history as she knits.
- You tell your spouse about your day.
- You tell a joke.
- You read an article in *Time* or *Discover* magazine.
- You read a stock report or a computer program instruction book.
- You read an essay your neighbor wants to submit to the Letters-to-the-Editor section of the local paper.
- You read a recipe for venison stew.
- You read a short story in a collection of classic literature.

Are they *all* examples of stories? Which are and which aren't? Why? Intuitively we know there are significant differences between some of these

examples. But are there enough similarities for them all to be called *stories*? I will argue that no, there are not. But that answer leads to a far greater question: what is (and what is not) a story?

Surely, a conversationally delivered chronology of my accomplishments during a day's work won't sway or influence anyone as Denning's stories do. It wouldn't develop logical thinking and math skills as stories did in the Canadian study. Analyzing my ho-hum daily narrative surely wouldn't raise student writing scores. Can my narrative be a story as much as those mentioned earlier?

One way to look at it would be to say that there exists more than one kind of story. However, this approach always leads to confusion and muddies—rather than clarifies—the meaning of the word, story.

Another way is to admit that not all things written in narrative form are stories. Some are. Some aren't.

I strongly prefer this second view. There exist a number of specific narrative forms in the "non-story" category that, unfortunately, don't have an agreed-upon moniker in the English language. But they still exist as "non-stories." If we eliminate everything in the non-story category, we should be able to locate the source of the power and effectiveness of *stories* and to then define exactly what a story really is.

Thus, I have divided the book into two parts.

Part 1 explores how human brains and minds process narrative information and identifies the specific informational elements that trigger the creation of meaning, that enhance memory, and that form the central structure of stories. Pulitzer Prize winner Jon Franklin (1986) said, "He who would comprehend stories, no less than he who would understand universes or temples, must first grasp the nature of their structure and component parts." In describing that nature, he said, "Just as all uniquely individual human beings have brains, hearts, stomachs, and pancreases, all stories have a common set of attributes that are arranged in a certain, specific way."

The power and effectiveness of stories come from these specific informational elements that form the core architecture of stories and match the informational demands of human neural story maps. In this narrower view of the word, stories are more effective because it is easier for the mind to extract and understand this essential information from something structured in story form.

Part 2 lays out hundreds of rigorous, research-based studies to prove the value of stories for the following key uses of story:

- **Is there a clear link between narrative comprehension and story? Yes.** Reading comprehension is directly linked to understanding story structure. Reading enjoyment varies directly with comprehension.
- **Is there a clear link between writing and story? Absolutely.** Mastering the architectural elements of story arms writers with specific and powerful strategies for creating the content of consistently effective writing.
- **Is there a clear link between story and logical and critical thinking? Definitely yes.** Research shows that mastering story structure is an essential precursor to successful mastery of logical understanding.
- **Is there a clear link between story and motivation? Most emphatically yes.** The elements that define story structure create context and relevance. Those elements create motivation in the reader or listener to pay attention,