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Narrative in Technical Communication

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NARRATIVE IN TECHNICAL COMMUNICATION

by

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ABSTRACT

The focus of this research is on the involvement of narrative learning within technical communication and the benefits that such an involvement can bring to the field. I analyze literature from within technical communication to determine how narrative is perceived, as well as the traditions in technical communication that made the field resistant to the use of narrative in the past. These findings are considered with respect to the history and definition of narrative, as well as to how narrative can improve learning outcomes when compared to expository learning approaches commonly used in technical documentation.

While narrative is not a new concept to technical communication, this thesis offers new insights through a multidisciplinary approach that considers the work of philosophers and narratologists that are relatively unknown to the field. Philosophers Daniel Dennett and Jerome Bruner, as well as narratologists Gerard Genette, David Rudrum, and David Darby, show that narrative forms the basis for the construction of reality and that all human learning is based on the stories that we construct to give meaning to the world. Research studies conducted on the efficacy of narrative based learning are discussed in detail and an analysis of the areas where narrative use would most benefit technical communication is provided. Recommendations are made for the future use of narrative in technical documentation and for further research on the implementation and cost of narrative solutions.

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CHAPTER ONE: TRADITIONS IN TECHNICAL COMMUNICATION

Technical communication has developed into a broad field that addresses learning across a plethora of subject areas, technical devices, and processes. At its core, technical communication is focused on the teaching and learning of specialized information and processes via task oriented instruction. Since the creation of the field, however, technical communication has struggled to produce documentation that end users often find to be both useful and engaging. The problems that users have with technical documents are diverse, ranging from individuals that find documents too dense, to others that find them hard to navigate, and to others still that find them to be too heavily abstracted from the day to day processes that they are intended to explain. Initially, these problems may seem too different to have a common cause. The first two issues, information density and navigation, are matters of form and structure, as the information is being delivered in a format that makes it hard to read through and learn. The third issue is a matter of insufficient information, as users struggle to relate incomplete documented information to their specific needs.

However, it appears that this lack of consistent success is due to a common disconnect between technical documents and the real world processes that they attempt to model. This disconnect is caused in part by traditions in the field that prize analytical, hierarchical writing styles above all else. According to these traditions, humans are capable of producing objective, universally applicable knowledge with regard to a technological product. In other words, a technical writer that is working alongside the development of a product will be able to correctly assess all of the most common uses of the product and perfectly explain those uses to end users. Since we created the product, we should be able to perfectly understand how it will be used.

Despite this, every single task an end user accomplishes will necessarily be embedded in context, whether it is the specific requirements of the project they are working on or the culture of their

workplace. While technical writers might very well be able to guess the most common uses of their product, they are generally taught to avoid including context. According to the traditions in the field, including such context would taint the distilled wisdom of a cut and dry step by step explanation. Since the possible contexts in even a small end user population are extremely diverse, the field prefers to avoid engaging with context all together due to the risk of favoring one set of potential users and alienating another. The basic tenet of this approach is that one size of documentation should fit all users.

This approach sounds excellent on paper, but consistently fails to satisfy end users in practice because it attempts to operate independently of real world circumstances. While this traditional avoidance of context does indeed avoid favoring any specific sub groups at the cost of others, it tends to immediately sacrifice those gains by alienating the entire user base equally. In other words: one size fits all documentation tends to fail to fit most. By attempting to be context independent, technical documentation presents itself as infallible. This, however, could not be further from the truth. All too often end users attempt to follow directions, only to find that the directions were not accurate to their specific situation. When this occurs end users have no recourse, as documentation is typically planned around the notion that it will solve the overwhelming majority of problems that users would have. This ultimately boils down to a usability issue: why would end users use technical documentation when it consistently fails to address their specific problems? They are almost always better off going to a place where they can find context, such as forums and technical support phone lines.

To overcome this usability issue, technical documentation needs to be able to include context. This thesis will argue that the best way to include context and improve usability is via narrative learning. Narrative learning refers to any learning activity in which narrative (for, example, stories or narrations) plays a central role. Simply put, in order to solve a specific technical problem, more information about

the user's story needs to be considered. Users go to forums and help lines because these mediums allow them to tell their story and hear the stories of others, while technical documentation does not.

The best examples of this trend can be found in a paper by Michael F. Steehouder titled "Beyond Technical Documentation: Users Helping Each Other." Steehouder investigates what customers are coming to expect from technical documentation through a survey of relevant literature and current customer support sites on the internet. Two customer expectations are identified in the paper. First, customers expect tailored information that addresses their specific needs or concerns. Second, users are coming to expect communication instead of documentation. By "communication," Steehouder means that dialog is fast becoming a better metaphor for technical communication than documentation is. Steehouder marks this as a shift from distributive information to responsive information. Traditional paper based documentation is the best example of distributive information, as it attempts to distill all relevant information and distribute it amongst users. Documentation of this sort is unable to respond to questions or have a dialog with users. Newer modes of technical documentation, including forums and help lines, represent responsive information, as they can respond to questions and concerns with tailor made information.

Steehouder provides several examples of why forums are one of the most popular services on the Internet. These examples fall into two categories: functional advantages and social advantages. With regard to functional advantages, Steehouder identifies three. First, user forums help identify problems that are not addressed in user documentation, specifically "idiosyncratic problems that have to do with compatibility of data in different programs, specific applications, and special uses of the software" (491). Second, forums let users phrase their issues in their own words, as opposed to finding the right keywords in existing documentation to describe their problem. Steehouder identifies that finding the right keywords is one of the main obstacles that users encounter when using technical

documentation. Third, user forums provide tailored information that is focused on the particular circumstances of the user that is seeking help. These three examples represent functional advantages because they provide users with additional sources of useful information.

In addition to these functional advantages, Steehouder identifies three social advantages that forums can provide. These advantages are made possible because the forums bring users seeking help into contact with numerous strangers. These strangers have "weak tie relationships" with the users seeking help, in the sense that users have no relationships with the strangers and typically do not know them at all. This can be contrasted to people who the users know very well and have "strong tie relationships" with them. First, the weak tie relationships on forums offer more potential helpers than strong tie relationships do, simply because the circle of people is much larger. Second, the weak tie relationships on forums offer more diverse potential helpers. This is because strong tie relationships typically occur between people with similar backgrounds and knowledge, resulting in the answers to difficult questions often being found outside a circle of strong tie relationships. Third, weak tie relationships on forums provide access to people with more expertise. This is also due to the large variety of individuals that a forum can provide to solve a user's problem. The functional advantages listed above, as well as these social advantages, are the primary reasons that users prefer to seek help via forums.

The primary trend in this preference for forums is that forums can meet the user expectation of tailor made information that takes special circumstances into consideration. Users are able to engage in dialog with a wide variety of other individuals and communicate their particular story. This exchange of information hinges on narrative's ability to provide rich context regarding the problem in question. This user preference for narrative based troubleshooting is critical to the idea that narrative can improve traditional documentation.

The first step of this thesis will be a literature review with a focus on the traditional roles of technical communication and the influence narrative has had on the field. The focus on traditional roles is intended to help facilitate an understanding of why narrative is so seldom employed in technical writing, while the influence that narrative has had on the field will be examined with respect to the most typical learning solution in the field: task oriented instruction. This literature review is necessary because many technical communicators take the role of task-oriented instruction for granted. While most technical communicators make frequent use of task-oriented instruction, very few are aware that an alternative mode of instruction exists in narrative. Even fewer are aware that narrative has the potential to produce superior learning outcomes in some cases, specifically those cases where successful learning is more dependent on real world context, circumstance, and culture.

While narrative is not a new concept to technical communication, this thesis will offer insights through a multidisciplinary approach that considers the work of philosophers and narratologists that are relatively unknown to the field. Daniel Dennett and Jerome Bruner, among others, show that narrative forms the basis for the construction of reality and that all human learning is based on the stories that we construct to give meaning to the world. In short, without the ability to construct stories and engage with narratives, our capacity for learning would be extremely limited. Furthermore, the work of narratologists Gerard Genette and David Rudrum will show that all technical documents are narratives, despite the fact that they are defined otherwise within the field of technical communication. Based on the work of these theorists and others, I will discuss some of the frequent failures of technical documentation: technical documentation sometimes fails because it attempts to divorce itself from its narrative nature and deliver universal, context independent knowledge.

Though a narrative based set of instructions would not be able to account for every single context in a given population, if properly bolstered with audience research, it would be able to help end

users in ways that traditional documentation cannot. Over the course of this thesis, this claim will be supported through the analysis of historical practices and trends within technical communication, an investigation of narrative, and empirical evidence from studies on narrative learning.

Overview of the Literature

A survey of literature in the fields of technical communication, narrative theory, and narrative learning revealed four primary trends that impact narrative learning in technical communication:

1) Technical communication, as a field, was only recently equipped with the mind set to make adopting narrative on a wide scale a possibility. This resulted primarily from a shift away from analytical, content based approaches that focused on the technological product, towards contextual, community driven approaches that focus on the user.
2) Narrative is the primary means humans use to construct and understand reality. It is a natural form of learning in the sense that humans must engage with it in order to interpret the world itself, whether it be experiences, emotions, beliefs, cultural practices, or history.
3) The field of technical communication has begun to recognize the value of narrative, but is still a long way from fully embracing it.
4) In practice narrative methods show promise in improving learning outcomes.

The first trend listed suggests that technical communication traditionally presented a hostile environment for narrative, a view primarily supported by the work of Robert Johnson, Johndan Johnson-Eiloa, and Russell Rutter. All three of these scholars advocate the notion that technical communication, from its inception until roughly the 1970s, was concerned with interpreting technology as a form of objective reality. A user's work was defined entirely in relation to technology, a focus that led to documentation that was reductive and context-independent (Johnson-Eilola 177). Rutter marks a shift

towards a more rhetorical approach to technical communication that resulted in writers being viewed as creators of technological reality, instead of simply reacting to it (28). Social constructionist theories solidify the perspective that technological development, values, and knowledge are community driven, meaning users have been pushed to the forefront (Johnson 95). This trend will be discussed in greater detail in the following section of this chapter.

The second trend is the result of a notable shift in the analysis of human intelligence and the ways we construct reality. The work of Jerome Bruner, a psychologist who works in the fields of cognitive learning theory and educational psychology, embodies the resulting perspective of this analysis: "We organize our experience and our memory of human happenings mainly in the form of narrative – stories, excuses, myths, reason for doing and nothing, and so on. Narrative is a conventional form, transmitted culturally and constrained by each individual's level of mastery" (4). Narrative is the primary means that humans use to construct reality. The creation of this perspective was in large part the result of a shift in the way narrative is defined and understood. In a paper titled "Form and Context: An Essay In the History of Narratology," David Darby identifies the roots of this shift in French structuralist narrative theory, specifically the 1966 publication of the eighth issue of *Communications*. Combined with Gerard Genette's codification of narrative forms in his 1972 book *Figures III*, these works represent the foundation of modern narratology. Darby contrasts the French view with German narrative traditions. While both the French and the Germans were initially concerned with the form and structure of narrative, the French tradition was able to move beyond considerations that focused primarily on the narrator/author of a work and include the act of reading in its understanding of how narrative functions. This shift is of paramount importance, as it includes readers in the conversation and allows narrative texts to be considered with respect to the reader's intentions, goals, and circumstances. This is because the reader's perspective, despite an author's intentions, can alter the meaning of a text.

In other words, a single text could have several different interpretations based on the person doing the reading, despite the text never changing between readings. Meaning is constructed through dialog between author, reader, and text, as opposed to meaning being discovered by the author and passed directly to all readers through the text.

This shift mirrors the audience-centric turn that technical writing has taken over the last several decades. Within technical writing, the reader is most often included by gathering knowledge of the intended audience. This contrasts with the previous view in the field that technical writers only needed to distribute objective information about a technological product and that the technological product was the sole concern. Consideration of the reader has allowed for an expansion of scope and the inclusion of audience needs that would have previously been ignored. In a similar fashion, including the audience in our understanding of how narrative functions allows writers to produce stories that are more relevant to their intended readers. It also forces writers to consider interpretations of their text beyond the one that they primarily intend. In both cases, the inclusion of the reader's perspective allows for more accurate, engaging, and relevant texts that connect with readers in more individually specific ways. Without these shifts, writers of both technical documentation and narrative would have a much harder time engaging readers and producing meaning from their texts.

In addition to this shift in the understanding of narrative, the work of Genette provides further support for the narrative construction of reality. According to Genette, "one will define narrative without difficulty as the representation of an event or sequence of events" (Genette 127). While this definition will be detailed and expanded through the work of David Rudrum in Chapter 2, it is important to consider Genette's original definition with respect to how humans learn. In order to understand the impact that this definition has on the way humans learn, we must first briefly consider constructivist learning theory. According to constructivist learning theory, learning is the construction of meaning

from experience (Phillips 6). In other words, to learn something we must reflect on our experiences and construct meaning based on our interpretations of these experiences. Without experience, we would have no foundation for knowledge. For example, if an individual has not had experience of a particular color, this individual – no matter how intelligent – cannot invent the idea of that color (Phillips 6). Furthermore, without the ability to put language to the experience through narrative, this individual would have no way to reflect on his or her experience of the color and interpret it as a color like "green" or "blue." To return to Genette's definition of narrative, the dictionary definition of the word "representation" states "to bring clearly before the mind." Thus, to apply this to Genette's definition: a narrative brings an event or a sequence of events clearly before the mind. Since constructivist learning theory describes all human learning in a general sense, this means that narrative acts as a tool during the learning process. Narrative allows us to reflect on experience by giving it language, form, and structure. Without the reflection on experience that narrative facilitates, no learning can take place. It is for this reason that narrative is the basis for the construction of reality.

Moving to the third trend, the view that narrative is critical to the learning process has been embraced by a small population within the field of technical communication and exemplified over the years by a variety of individuals, including Carolyn Miller, Ben and Marthalee Barton, Nancy Blyler and Jane Perkins, and Ben Rinzler. In 1979, Carolyn Miller published a paper titled "A Humanistic Rationale for Technical Writing." This paper helped lead the charge against the view that technical writing courses at universities were purely "skills" courses. According to this "skills" centric view, human knowledge "is a matter of getting closer to the material things of reality and farther away from the confusing and untrustworthy imperfections of words and minds" (Miller 610). Miller argues against this view with the claim that technical writing courses have intrinsic humanistic value. Instead of the traditional view of technical writing as the revelation of absolute reality, Miller would rather we view it as a persuasive

version of experience that includes culture and context. Through the phrase "absolute reality", Miller is referring to the tradition in technical communication that views humans as capable of producing objective, universally applicable knowledge with regard to a technological product. Since objective, universally applicable knowledge of a technological product is possible according to this view, it also means that such knowledge is "absolute" in that it perfectly describes the technology in question. The basic tenet of this approach to technical documentation as "absolute" knowledge is that there is only one correct way to understand any given piece of technology and, thus, one set of documentation should fit all.

Miller's view of technical writing has found acceptance in the field of technical communication. Additionally, the view of technical writing as a humanistic activity has opened the door for narrative based solutions within the field. Over the years, additional researchers and theorists have begun to advocate similar views of technical writing and the benefits that a narrative approach can provide. Citing a wide body of research, Barton and Barton argue that narrative texts are read faster, processed more effectively, and remembered better (43). Additionally, narrative provides the means to reconcile disparate perspectives within technical communication, both in the broad public sphere and within specific institutional contexts (Barton and Barton 45-46). Building directly on Barton and Barton's research, Blyler and Perkins show that narrative helps to connect interdisciplinary research communities and facilitates the consideration of topics that were previously ignored (29-30). Narrative also offers less objectivist forms of writing that produce knowledge more suitable to some scholars (Blyler and Perkins 31). Technical communication is understood by Blyler and Perkins as knowledge-making, a characteristic that is necessarily tied to narrative's ability to create meaning (32). Understanding narrative can help professionals manage change, since narrative and change are interdependent (Blyler

and Perkins 33). Lastly, narrative helps make databases and websites more meaningful, accessible, and navigable for users, as well as helping to build human relationships (Blyler and Perkins 33-36).

While the two aforementioned pairs of authors effectively summarize the benefits that the acceptance of narrative provides, it is important to note that an increasing number of technical writers have begun to embrace these findings. This is reflected in research by Patrick Moore, Bernadette Longo, Miles Kimball, and Jack Bushnell among others. A prime example of this narrative turn's effect on the field is Ben Rinzler's book *Telling Stories: A Short Path to Writing Better Software Requirements*. In this book, Rinzler provides strategies and techniques for using stories to produce software documentation. He argues that stories provide clear benefits when compared to traditional technical documentation strategies because narrative is the most ancient and effective tool for sharing information. Books like this one effectively demonstrate how far the field of technical communication has come with regard to narrative since the 1970s.

While works like Rinzler's are becoming more common, narrative still faces many challenges. Barton and Barton highlight two primary reasons for narrative's devaluation within technical communication: narrative is associated with modes of discourse that are traditionally underprivileged in technical communication and technical communication is biased towards examining distinctive features in relation to other discourses (39). Regarding the latter, this means that technical communication is concerned with things like technical vs. non-technical or exposition vs. narration, as opposed to the value of shared features like narration (39). Byler and Perkins detail six interrelated causes for narrative's devaluation: the western tradition of privileging logic and science; the linking of professional communication to an objectivist view of rhetoric and to the concept of skills-oriented writing; the ties of narrative to the feminine, the subjective, and the emotional; the influence of cognitive theories of development; the classification of narrative as a mode of discourse; and the positioning of professional

communication within English departments (19-20). The last two causes warrant additional explanation. The classification of narrative as a mode of discourse puts it at odds with the other modes of discourse, specifically exposition, description, and persuasion. Due to this formal classification, narrative is viewed as the "presentation of a series of events in chronological order," while the most common mode of discourse in technical writing, exposition, is viewed as the "presentation of facts and ideas with the purpose of informing the readers" (17). This rigid classification has caused the field to ignore narrative under the impression that it is distinct and separate from the other modes. Narrative, however, along with the other modes of discourse, are not so rigidly employed in practice. For example, a narrative could be used to present facts and ideas, while an exposition could be delivered as a series of events in chronological order. This separation also helped to cause professional communication's poor positioning within English departments. Since narrative is typically viewed as separate from technical communication, English departments generally view technical communication as distinct from literature and the rest of their core content as well. This leads some English departments to view technical writing courses as "service courses" and staff them with poorly trained and unmotivated teachers (18). Technical writing courses are typically viewed as completely separate from an English professor's research and pedagogical interest in writing and literature. Both pairs of authors essentially point to the notion that narrative is devalued because it stands in opposition to the traditions of technical communication, which are primarily focused on objectivity, scientific positivism, and an analytical approach to writing.

Lastly, the literature clearly showed examples of narrative methods improving learning. A study comparing narrative and expository texts conducted by Michael Wolfe and Joseph Mienko showed no universal advantages for either type, replicating commonly accepted results of findings by other researchers (557). Instead, each type of text showed improved learning given the prior knowledge of

the reader; narrative texts were better suited for readers with intermediate prior knowledge of the subject, while expository texts were better suited for readers with high prior knowledge (Wolfe and Mienko 557). These results show that narrative learning has a clear role to fill in the acquisition of knowledge.

Two additional studies highlighted the general trends seen in the results of studies that consider narrative learning outcomes in comparison to other learning methods. The first study placed final year nursing students in a narrative-based learning environment as an alternative to traditional case study teaching (Stranieri and Yearwood 275). Results showed an improvement in learning when compared to the traditional method (Stranieri and Yearwood 279). The second study measured knowledge before and after eighth grade students used a narrative-based learning environment to teach them about microbiology. This study showed that students experienced significant learning gains by interacting with the environment, as well as motivational benefits (McQuiggan et al. 536).

These studies represent two primary trends that are typically observed in studies on narrative learning. First, a narrative approach provides measurable improvements with regard to learning outcomes. Individuals who review new information using narrative methods are more likely to learn and recall that information when compared to traditional learning methods that place learners in a position to act as recipients of absolute knowledge, such as memorization, lecture, step by step instruction, and reading textbooks. Second, individuals who use narrative learning methods are, statistically speaking, more motivated and engaged with their learning. These trends, along with additional studies on narrative learning, will be explored in detail in Chapter 3 of this thesis.

In summary, a survey of the literature shows that technical communication is open to the use of narrative. Scholars and practitioners within the field have already begun to view narrative as filling a vital role, based on both sound theory and empirical evidence. However, further acceptance of

narrative will be a slow process, since it stands opposite the long held traditions of technical communication.

Traditions in Technical Communication

The traditional role of technical communication has been that of research and support. Research has shown that technical communication presented a hostile environment for narrative. This position is supported by three articles that are iconic within the field. In the first, Johndan Johnson-Eilola argues that technical communication traditionally occupied a support position for both the corporate and academic spheres (177). This resulted in technical documentation defining a user's work entirely in relation to technology, a focus that led to documentation that is reductive and context-independent (Johnson-Eilola 177). Within academia, the focus was primarily on teaching skills as a response to the needs of industry. This firmly placed technical communicators in a secondary, supporting role, since the field was largely reactionary (Johnson-Eilola 177). Thus, value in both academia and industry was located in the technological product, while technical communication was something to be added on after the product was produced. This mindset caused consequences for the users of technical documentation, as the social purposes and contexts of a user's work were not considered. The primary tasks covered in documentation tended to be fragmented and decontextualized in the interest of producing a set of formalized functions (Johnson-Eilola 179).

The user being ignored in favor of a focus on content is supported by Russell Rutter. Departing from the notion that this results from technical communication filling a support role, Russell argues that the content focus arose due to the acceptance of pragmatism. With the interest of simplifying style and orienting technical writers towards producing documents that were the most useful in a professional atmosphere, pragmatism was viewed as a disinfectant intended to remove unnecessary style, subjectivity, contexts, and processes (31). Content, just like in Johnson-Eilola's article, was the primary

focus here, one that was shaped in response to the needs of industry and the professional atmosphere. However, Rutter marks a shift that took place in the 1970s towards a more rhetorical approach to writing. Central to this approach was the writer-reader relationship, bringing users firmly into the picture for the first time. Writers were viewed as creating reality and striving for consensus between readers, instead of merely reacting to reality (Rutter 28). As creators of knowledge, technical writers became able to relate the content of their writing to the specific circumstances and contexts of an intended audience.

Building on the notion that at one time technological products were the sole creators of knowledge and the primary focus of technical communication, Robert Johnson argues that technological determinism was to blame. Under technological determinism, technology is viewed as autonomous of human agency. This view rests on two premises: 1) that technology follows a predictable, traceable path that is beyond human influence and 2) that technology effects society in an inherent way, rather than a conditioned or produced way because society organizes itself to support and further develop technology (Johnson 365). According to the first premise, humans have no control over technology. According to the second premise, it is instead technology that has control over us. Rather than developing technology based on immediate social and cultural needs, technological determinism holds that technology develops independent of social and cultural concerns. Instead, we organize ourselves to meet the needs of technology and we have no control over the outcome. Since humans can have no influence over technology, the possibility for creating technological knowledge is erased. Rather, we are discovering knowledge that is already present in technology. This view of technology also cuts users out of the picture. Since users cannot influence technology and no knowledge can be created, there is no point in discussing the needs, perspectives, or circumstances of users. Johnson argues that traditional

acceptance of this perspective cut users out of the picture because it erased the possibility of knowledge and left “no hope of power or influence upon the part of users” (94).

For Johnson, rhetoric and social constructionist theories led to a shift that placed users as the main focus over technology. Social constructionist theory solidifies the perspective that technological development, values, and knowledge are community driven (Johnson 95). Knowledge construction in this case revolves around inventors, artifacts (technology), and users, allowing the user for the first time to assume the role of knowledge builder (Johnson 95). This means that for the first time, users were involved in the process of technology creation. Instead of discovering the knowledge that technology had to offer according to technological determinism, users were able to participate and influence the creation of technology by creating new knowledge that focused on their own needs and circumstances. This new knowledge is then used to inform the creation of technological products, with the goal of tailoring technology to meet real world needs.

The research in this section serves to show that narrative had no place in technical communication until roughly the 1970s. Before the shift away from documents that were focused on the technology itself, it would have been impossible to consider teaching users through narrative, as stories are inherently focused on users’ specific circumstances and contexts. Now that technical communication is more focused on users, however, the time is ripe for narrative to be leveraged as a primary learning method.

CHAPTER TWO: WHAT IS NARRATIVE?

Now that an overview of the literature has been provided, it is important to discuss narrative in more detail, specifically with respect to the characteristics of narrative, how narrative relates to learning, and narrative learning theory. A brief history of the field of narratology will be provided in this chapter, culminating in a definition of narrative that will be referenced for the remainder of this thesis. In order to produce this definition, the characteristics that qualify a piece of language as a "narrative" or a "story" will be discussed in detail. As one of the four general modes of rhetorical discourse, narrative will be discussed and contrasted with respect to the three additional modes of rhetorical discourse: exposition, argumentation, and description. Lastly, research studies that were conducted on narrative learning solutions will be discussed. These studies will provide empirical evidence to support the theory discussed throughout this chapter.

Characteristics of Narrative

As a multifunctional concept, narrative has many characteristics that warrant consideration. Narrative shares many of these characteristics with the other forms of literary discourse, including function, authorship, method of composition, and interpretation. Function refers to the specific goals that the text is intended to accomplish. The function of a text helps determine content, form, and structure. While a dramatic novel might span hundreds of pages rich with description and dozens of characters, an expository text is likely to be shorter with a focus on instructing readers.

Authorship is commonly viewed in terms of authority and power (McEwan 87). The more powerful, trustworthy, or dominant the culture an author represents, the bigger an impact that author's text will have on readers. A dominant culture can use this characteristic of narrative to control values, beliefs, and behaviors. The best example of the characteristic of authorship at work is the prevalence of

origin myths in cultures across the globe. These myths "inhibit novelty and postpone efforts at reform in the interests of established groups and traditional procedures" (McEwan 88). Rather than teaching readers new information, origin myths legitimize tradition and teach readers that nothing in their lives needs to be done differently. Educational narratives engage with this concept in an attempt to persuade learners that they are learning the truth (McEwan 88). In order to persuade readers, an author must be writing from a recognizable position of credibility and power.

Commonly discussed in terms of form, the method of composition determines the structure that a piece of text takes. As McEwan writes:

> Specific cultures present us with a finite number of story schemas, and we tend to sort our perceptions and experiences into those that we recognize as comfortable and familiar structures or plots. We also seem to work with a fairly limited repertoire of story forms in educational settings. These implicit genres are a sort of prefabricated line of scaffolds or templates that we habitually use to organize our experiences. (88)

The method of composition determines which form a story will take, while the form determines whether or not readers will be able to recognize and understand the story. Many possible forms could be employed for any given piece of text and it is important that the author picks the one that best facilitates the intended function of the text. This means that readers must be able to recognize and understand the form that a text has taken. This necessitates a relationship between author and readers, in which the author incorporates feedback based on reader interpretation (McEwan 91). By incorporating feedback, authors are able to recompose their work in a way that readers can interpret. The aforementioned process of interpretation is error prone, as narratives often contain hidden meanings that can only be discovered from additional, focused readings of the text (McEwan 91). Engaging with the process of interpretation is critical to how a narrative will eventually be received.

The four aforementioned characteristics – function, authorship, method of composition, and interpretation – of narrative are common across most forms of literary discourse. While they are still critical to this discussion and to the creation of meaningful narratives, it is also important to consider the characteristic that sets narrative apart from other modes of discourse. Simply put, the defining characteristic of narrative is the fact that it represents a sequence of events or experiences (Genette 127; Scholes 205; Prince, "Revisiting Narrativity" 43; Prince, *Narratology* 1; Prince, *Narratology* 4; Prince, *Narratology* 145; Onega and Landa 5; Bal 5). As David Rudrum points out, there is some variability within this view of narrative. Specifically, some narratologists side with Gerard Genette and hold the view that narrative only requires a single event (Rudrum 196). Others insist that narrative requires a series of events that are linked together by causality (Rudrum 196). Despite this, an overwhelming majority of narratologists use the term "representation" when defining narrative. As Rudrum explains, this makes logical sense:

> That the concept of representation should play such an important role in narratology's definition of its subject matter is unsurprising; narratology, so closely bound up with semiotics, is predicated on a view of language as signifiers (*sjuzet*) and signifieds (*fabula)*, the former conveying a representation of the latter. To disagree with the narratologists therefore raises and begs a great many troublesome questions about the very nature of narrative, and perhaps even about communication itself. Surely, at least at an intuitive level, representing events is simply what narrative does. (196)

This process – connecting signifier to signified – is the basis for the construction of meaning. As Rudrum points out, without this process of representation, not only would narrative be impossible, but communication would break down. Just like connecting signifier to signified, stories provide a direct link between experience and meaning and the process of learning is itself already a narrative one. This

makes narrative more accessible and easier to interact with than traditional learning methods in technical communication like task oriented instruction, as all humans regularly learn new information through narrative processes.

Despite being commonly accepted as the defining characteristic of narrative, the concept of representation can produce confusion. For example, a set of instructions could easily be viewed as a representation of events. In fact, the step by step representation of experience is often the primary goal of instructions, as they aim to precisely recreate the results of specific actions. Despite their ability to represent an event or sequence of events, most readers do not view instructions as narratives. This issue will be discussed in detail in the next chapter and a definition of narrative that addresses it will be presented.

A Definition of Narrative

This section aims to produce a cohesive, complete definition of narrative. In order to accomplish this task, several related areas will need to be discussed. First, I will provide a brief history of narrative. A complete history would be out of scope, so I will focus on two traditions, French and German, which are most relevant to understanding my definition of narrative. Since the French tradition goes beyond the traditional concerns of form and structure and forms the basis for our current understanding of narrative, it will be used as the basis for my definition. However, the French tradition by itself is lacking and will require help from the work of David Rudrum and Wittgenstein. Only by fusing the ideas of the French tradition with this work can an acceptable definition of narrative that accommodates contemporary paradigms and practices be arrived at. Lastly, using this new definition, a brief connection will be made between narrative and the field of technical communication – a field that typically eschews narrative.

A Brief History of Narrative

A definition of narrative must take into account the history of narrative theory over the past several decades. This history can be traced back to two major traditions of French and German descent. Gerard Genette, a critical figure in the French tradition, applies a broad definition to narrative: "one will define narrative without difficulty as the representation of an event or sequence of events" (Genette 127). While this definition of narrative is effective, it is also rather broad. In the interest of creating a more specific understanding, the French tradition focused on the form and structure of narrative. The core of French structuralism is represented by a 1966 issue of *Communications* and Genette's 1972 book *Figures III (Darby 830)*. Between the two, a comprehensive codification of narrative forms and terms is presented. This codification has become the basis for modern day narratology in North America.

Predating this French structuralism, a separate German tradition is exemplified by the work of Eberhard Lammert and Franz Stanzel. Regarding codification of form and structure, the German tradition helped point the way forward for the French. The root cause of this was a shared set of broad analytic concerns. This similarity is often illustrated by Lammert's work on the temporal organization of narrative, "which addresses among its areas of focus (a) the sequencing of narrated events and (b) the relationship between narrative time and narrated time" (Darby 831). Regarding the former, Lammert's analysis of analepis has much in common with Genette's work, while his analysis of foreshadowing is quite different from Genette's work on narrative prolepsis, or flashforward (Darby 831). Genette's work on duration has much in common with Lammert's work on narrative time and narrated time (Darby 831).

The similarities and differences between these two traditions could be discussed at length, but such a discussion would be beyond the scope of this thesis. There is, however, a critical difference between the two that influences the definition of narrative in this thesis: the French-American tradition

has developed beyond a focus on the codification of narrative forms, structures, and terms. This has allowed the French-American tradition to "accommodate itself to the literary-critical paradigms that have developed from and subsumed the purely formalist concerns of low structuralism and have become dominant in the contemporary study of narrative as practiced in North America" (Darby 832). This ability to incorporate traditional concerns about form and structure, while still moving forward into new areas like linguistics, audience relationships, situational context, and structuralist anthropology, places the French-American tradition in a unique position of importance. As a result, this tradition provides an excellent starting point on the path to a definition of narrative.

Towards a Definition of Narrative

This starting point takes us back to Genette's definition, that "one will define narrative without difficulty as the representation of an event or sequence of events" (Genette 127). It is important to note that these events can be either real or fictitious. There is some debate over whether a narrative can contain only one event, as Genette's definition states, or whether a narrative must contain a sequence of events. Despite this, the term "representation" in Genette's definition appears in almost all other contemporary definitions of narrative (Rudrum 196). However, simply defining narrative in terms of "representation" presents some unique problems. These problems are best illustrated in a paper by David Rudrum, titled "From Narrative Representation to Narrative Use: Towards the Limits of Definition."

Rudrum uses the examples of a Calvin and Hobbes comic and a diagram that details how to construct a model airplane (see Figure 1 and Figure 2 on the next page). He says we typically view the comic as a narrative, but that we do not view the instructional diagram as narrative. He makes the point that, in terms of the structure and form of narratives, both examples are the same and should be considered narratives (Rudrum 198). By this he means that both examples are representations, both are

sequences of events, and both require the reader to remember information from the beginning to make sense of the end. Still, in the face of these similarities in form and structure we tend to distinguish between them.

Figure 1 – The Calvin and Hobbes comic example
Source: Rudrum, David. "From Narrative Representation to Narrative Use: Towards the Limits of Definition." *Narrative* 13:2 (2005): 195-204. Web. 3 June. 2012. CALVIN AND HOBBES © 1986 Watterson. Reprinted with permission of UNIVERSAL PRESS SYNDICATE. All rights reserved.

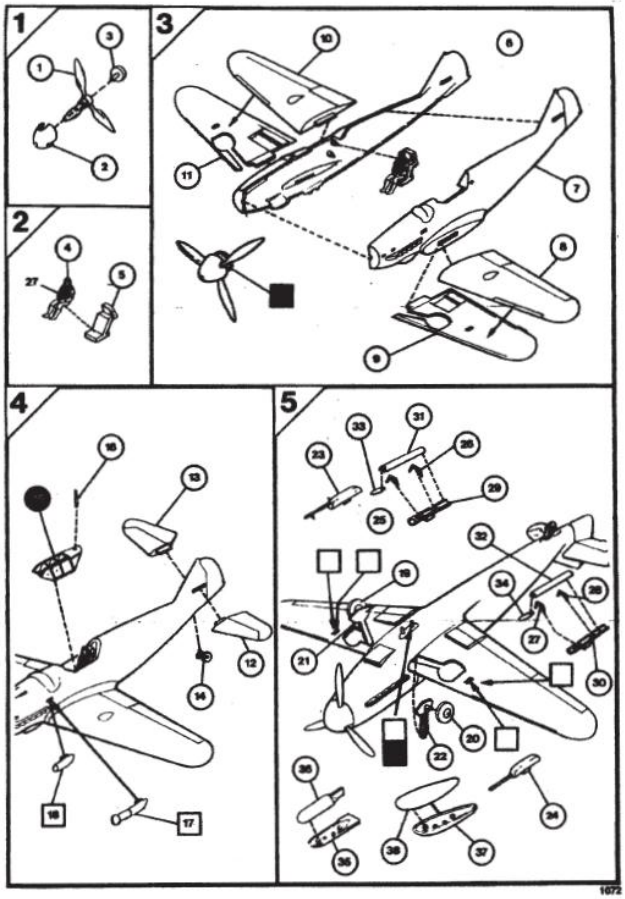

Figure 2 – The example airplane diagram
Source: Rudrum, David. "From Narrative Representation to Narrative Use: Towards the Limits of Definition." *Narrative* 13:2 (2005): 195-204. Web. 3 June. 2012. Reprinted with permission of Airfix. All rights reserved.

To summarize Rudrum's point, he says the reason we do not view the Calvin and Hobbes comic as a set of instructions is because of how we use it. In the comic, Calvin starts walking, trips, falls down, and then tries to fake a gymnastics landing, saying "Ta-daa!" to cover up his mistake. Rudrum correctly argues that it would be possible to discover this comic 1000 years later and think it was part of a set of gymnastics instructions, literally telling gymnasts what to do if they make a mistake during a routine (202).

Currently we use it as a comic, so we think it is supposed to tell a funny story and we read it with that in mind. For gymnasts however, it delivers some excellent learning content. Specifically, it teaches them what to do with their bodies in order to recover from a mistake in their routine. In the same vein, we use the airplane diagram as a set of step by step instructions, but it would be perfectly reasonable, and even worthwhile, to view such a set of instructions as a narrative: for example, a pictorial narrative of a construction project, or perhaps a piece of artwork documenting, commemorating, or celebrating the building of the airplane.

Rudrum demonstrates the importance of use through the social construction of language and the work of Wittgenstein. Wittgenstein, in his *Philosophical Investigations*, discusses the idea that representation "has many different functions, since we use representations in a great many different ways throughout our everyday lives" (Rudrum 199). In other words, Wittgenstein claims that the same representation could have several different uses, just as Rudrum argues regarding the comic and the instructional diagram. To Wittgenstein, narrating is simply a form of language game, in the same sense that instructing or giving a political speech is. Narrating is not objectively different from instructing in terms of form and structure; rather we consume content with similar form and structure from differing, subjective perspectives that are influenced by larger societies. Thus, determining which way to use a narrative, or even what gets defined as narrative, depends entirely on social practices and conventions

with respect to use (Rudrum 200). An example of this can be seen by returning to the plane diagram and Calvin and Hobbes comic. While the diagram can be considered a narrative due to its form and structure, it is viewed as a set of instructions because that is how diagrams are typically used in our society. On the other hand, despite the fact that the comic could be viewed as containing instructions for a gymnast, our society typically views comics as jokes. In neither case can the intended use be determined solely from the form and structure of the text. Rather, the impact of social practices contemporary to the production of each piece of text must be considered in order to determine their intended use.

As a result, a cohesive definition of narrative must take into account the dynamic impact of use, as well as the relation between use and society. The previous definition from Genette has been modified to do so here: narrative is the representation of an event or sequence of events, *with respect to how that representation is used in practice.* Given this definition, it becomes possible to see why the field of technical communication, a field that traditionally produces instructions, avoids narrative: our society does not define instruction as a form of narrative. However, according to the definition above this is not because instruction is not narrative, but simply a choice that we make based on the use we assign to instructions.

This begs an important question: could we simply redefine instruction as a kind of narrative? Based on the understanding of narrative described above, the answer to this question would be yes. Despite this, would it be beneficial to the field of technical communication to do so? The field typically avoids narrative in favor of more analytical and hierarchical writing methods. Traditionally, the field has placed technology as its central focus, pushing end users, along with things like context and relatability, out of the picture. Technical information has long been viewed as something that could be perfected and passed down from a place of objective authority. In practice, however, this seldom seems to be the

case. Most users of technical documents express frustration at this particular kind of form and structure, as it frequently does not model reality. It is argued that such an approach is hard for non-specialists to use and provides information that is out of context and unrelatable to the real world. The effect of these difficulties can be observed in practice, as most users avoid technical documentation entirely. Narrative, as the natural way that humans represent real world events, offers many ways to fix these problems – specifically by turning highly specialized, analytical, and hierarchical documents into living documents that are easy to read and relatable via the kind of context and circumstance that only stories can provide.

How Narrative Relates to Learning

This section is focused on the idea that the act of learning is a narrative process. This view has been developed and supported by a number of theorists in recent decades, including Polkinghorne, Bruner, Irwin, Herman, and Sarbin (Clark 61). As described by Rudrum in previous sections, the notion that meaning making is a narrative process makes sense at a very basic level. This is because narratology is "predicated on a view of language as signifiers (*sjuzet*) and signifieds (*fabula)*, the former conveying a representation of the latter" (196). This process of meaning creation via signifiers and signifieds is a core part of constructivist learning theory, a category which narrative learning falls under.

According to constructivist learning theory, learning is the construction of meaning from experience. Based on this, narrative can be viewed as the most natural form of learning available to humans. This is reflected in the way that narrative can be seen as a tool used by humans as they learn. This basic tenet of constructivist learning theory can be seen in the work of constructivists like Immanuel Kant, Thomas Kuhn, and John Dewey. For Kant, knowledge began with experience, but did not simply arise automatically out of that experience. Rather, empirical knowledge was constructed by considering those experiences in light of our impressions, memories, and the various cognitive apparatuses that

make up human consciousness. Kuhn stressed the importance of scientific communities in the construction of knowledge, claiming that these communities were responsible for the construction of knowledge and that the decisions these communities made were not solely influenced by empirical data, but also by the characteristics and guiding principles of the community. John Dewey further added to the constructivist view by arguing that knowledge cannot exist independently from the operations of knowing. In other words, we cannot view reality as outside spectators and expect knowledge to appear to us through observation alone. Instead, we are responsible for the construction of knowledge via the creation of signifiers and signifieds. Accepting the constructivist view means that narrative is the "operation of knowing" that we engage in while learning. Without narrative, knowledge could not be produced as there would be no process for creating it.

As one might imagine, this conclusion has a significant impact on the way narrative relates to learning, specifically in the idea that all learning takes place via narrative means. In other words, if learning is the construction of meaning from experience, then narrative is the tool that allows that process to take place. This has far reaching implications. First, narrative is how we craft our sense of self (Clark 62). As humans experience reality, these experiences are given language and connected to each other through narrative. This then provides the means for reflection and the construction of meaning based on experience. As a human gathers experiences, a life story is created. The choices, actions, values, and beliefs contained in this life story produce the basic sense of identity – or self – that all humans possess.

Not only does this view make sense from a theoretical view point, it has been supported by empirical research in the field of neuroscience. Neuroscientistics Matthew Roser and Michael Gazzaniga leverage a decade of functional magnetic resonance imaging (fMRI) research to argue that consciousness is the collection of modular processes in the brain. fMRI data shows that processing in

the brain takes place in disparate, localized areas, despite the fact that we experience consciousness as a unified whole. These processes are then integrated together and unified in a constructive manner. The end result of this unification is what humans experience as consciousness. At the highest levels of consciousness the unification of these distributed processes produces a personal narrative (Gazzaniga and Roser 56). This personal narrative unifies an individual's consciousness with her experiences. Individuals with severe cognitive defects have proven themselves unable to produce an explanation of the world that is consistent with their conscious experiences (57). Bits of information that seem impossible to most people due to conscious access to information that contradicts them may seem completely normal to patients with brain abnormalities, as they are only able to integrate a subset of the elements of consciousness with their personal narrative. These individuals are unable to recognize their own deficit because they are unable to reflect on the contradictory experiences (Gazzaniga and Roser 57).

In addition to fMRI data, Gazzaniga and Roser use the example of tests performed using a Muller-Lyer figure to make the argument that memory involves a consciously maintained representation. A Muller-Lyer figure is an optical illusion consisting of a set of lines with stylized arrows on each end. Each line is the same length, but the inclusion of the stylized arrows tricks viewers into misjudging the length of each line. Typically viewers are asked to mark the figure at the midpoint of each line, but due to the optical illusion they typically place the midpoint more towards the tail end of the line. Gazzaniga and Roser consider a situation in which research subjects are asked to match the distance of a line on the Muller-Lyer figure to the distance between their fingers. In this scenario, a small delay is introduced between the observation of the figure and the subject's response. Since the optical illusion provides inaccurate experiential information, it affects the subject's motor response when they attempt to estimate the length of the line from memory. As a result, most subjects misjudge

the length of the line they are asked to measure. Since these subjects lack contradictory information as to the length of the line, it is natural for them to produce the incorrect length based on the inaccurate representations of their experience that their memory provides. The illusion, despite being a trick, becomes the only representation that the subject's mind has access to. This means that the mind is interpretive and constructive, relying on the gathering of experience and the integration of that experience into the unified whole that humans perceive as consciousness. Without experience, the mind has nothing to represent and reflect on and thus no knowledge can be created. Without accurate experience, the mind is unable to contradict itself and recognize inaccuracies. This leads to a conclusion supported by constructivist learning theory that the mind learns through the construction of meaning from experience. As detailed in previous sections and supported by Gazzaniga and Roser, experience is the object of learning and narrative the tool for meaning construction.

Narrative Learning Theory

Now that narrative has been discussed in detail and a definition of it has been established, it is important to examine the nature of narrative learning theory as a whole. Narrative learning theory covers two primary areas: learning through stories and conceptualizing the learning process as an inherently narrative process.

Despite the absence of narrative in much of technical communication, learning through stories is not a new concept. The process of learning through stories can be broken down into three categories: hearing stories, telling stories, and recognizing stories (Clark 65). First, the hearing of stories implies reception and integration on the part of the learner. Not only does hearing a story directly connect the learner to the experience being shared, it engages the learner's spirit, imagination, and emotions in a holistic fashion (Clark 65). This process can evoke old experiences in the learner and for a short period of time those experiences become real. A good story engages the learner and transports them away

from the present moment. A learner listening to such a story is engaged on a natural, human level. As an example of this process, Clark discusses stories told at a funeral to remember those that recently died. The stories, Clark says, "make the person present again, and that presence is relational, speaking to the connections all of us make with others and how significant those connections are " (65). Even without knowing the deceased, the stories evoke experiences that represent what knowing the deceased was like.

The second part of learning through stories, the telling of stories, inverts this process. Instead of receiving information, the learner is now the actor in the story (Clark 65). As Clark writes, "In the classroom context, this means the learner moves from a cognitive understanding of a concept to link it to his or her own experience" (65). This means that the learner has made a connection between the experiences shared in the story and their own personal experiences. As the learner connects and relates these experiences, new learning takes place. This causes course content to become more immediate and personal, which facilitates a more complex engagement in the learner. This is because the learner's involvement now goes beyond cognitive understanding. Clark explains this notion with the example of students in an adult learning course sharing stories of transformative learning experiences (65). She makes the point that "in the telling they not only recreate those experiences but do so from within a theoretical framework about this type of learning. This positioning enables them to understand their experiences of transformative learning in a new way. Such a telling encourages the student to frame themselves in a large, complex framework that includes other students, teachers, researchers, workers, and fields of study and that goes well beyond a simple cognitive understanding of the subject matter.

The final part of learning through stories, recognizing stories, is more difficult to discuss. As mentioned in previous chapters, stories are a representation of an event or sequence of events with respect to how that representation is used. This means that as long as a text is representing an

experience, it has the potential to be considered a narrative. This reflects the fundamental narrative character of experience (Clark 65). To share any experience is to tell a story. As individuals come to understand this fact, it becomes possible to recognize "they themselves are narratively constituted and narratively positioned" (Clark 65). This applies to individuals, as well as to communities, societies, and cultures. We're all situated within stories, whether they are the stories of our families, cultures, politics, religion, or careers. We need only look for them and recognize them as such. Clark uses the example of the American cultural narrative to support this part of narrative learning theory. As Americans recognize that they are positioned within a particular cultural narrative, they are able to critique and question its underlying assumptions and power relationships (Clark 65). For example, an American might recognize that the American cultural narrative privileges individual liberty over the community. Recognizing and integrating the American cultural narrative with individual experiences allows for a more holistic understanding of this facet of American culture. It also opens up emancipatory possibilities, as individuals will be able to question underlying assumptions, inherent power relationships, and identify whose interests are served and whose are exploited by this particular narrative (Clark 66).

The three categories of narrative learning build on the tradition of experiential learning in education (Clark 66). As Clark summarizes,

> Narrative links learning to the prior experience of the learner, but at a profoundly human level. It is constructivist, but it involves more than reflection on experience. It is situated, but in a way that differs from the practical, problem-solving character of situation cognition. It is critical in that it enables learners to question and critique social normal and power arrangements, but it does so by enabling learners to see how they are located in (and their thinking is shaped by) larger cultural narratives. (66)

Thus, narrative learning opens up a host of new possibilities to both educators and learners. Rather than simply providing a cognitive understanding of subject matter, narrative learning is able to include learning opportunities in a plethora of related areas. In addition to cognitive understanding, individuals who learn via narrative are able to see how their learning is shaped and where they are located within larger groups and cultures.

The second area of narrative learning theory that warrants discussion is the conceptualization of learning as an inherently narrative process. This concept has been touched on throughout this thesis so far, but narrative learning theory formalizes it. Simply put, narrative learning offers a new way to conceptualize how learning occurs. As discussed in prior sections, meaning making is a narrative process and the constructivist definition of learning is meaning making (Clark 66). Thus, learning is a narrative process. This occurs through the creation of a narrative about whatever it is we are learning. We put language to our experiences and connect them together in the form of a story in an effort to understand that which we do not. This can be accomplished in any of the mediums that we use language in, whether it be on paper (writing) or out loud (speaking) or whether it is accomplished alone or as part of a group. This narrative construction is the way in which we make our learning visible to ourselves (Clark 66). We analyze pieces of the story that do not fit and attempt to produce a cohesive narrative that can be integrated both with the world at large and with our own individual experiences.

The notion of learning as an inherently narrative process also holds true when it comes to teaching. In order to teach, we must be able to put language to the subject matter. In other words, we must be able to narrate our own understanding in a way that a learner can understand (Clark 67). This narration not only helps others learn, but it enhances our own understanding of the subject (Clark 67). Clark cites several examples of the growing popularity of peer teaching to support this point. This process is one in which students teach concepts to other students. The student doing the teaching will

benefit from the construction of the narrative, as well as from any questions or challenges that the student learner poses. If a question or challenge is particularly effective, the student teacher will be forced to refine the narrative. Clark effectively summarizes this process by stating, "The peer teacher learns in the very act of teaching" (67).

In summary, this section detailed the two main areas of narrative learning theory, learning through stories and conceptualizing the learning process itself. Learning from stories takes place via three processes: hearing stories, telling stories, and recognizing stories. In addition to the learning of subject matter, these processes allow learners to see how they are situated within larger narratives and the complex influences that those narratives have on the world. The relationship between the three processes also facilities new opportunities for learning by allowing for complex reflection on individual experiences and the simultaneous consideration of the experiences of others. These processes go beyond tools that human use to understand the world and represent the fundamental way that humans learn. That is, the learning process itself is a narrative one and learning through narrative is the most natural form of learning a human can engage with because it is the most basic.

The Success of Narrative in Related Fields

Narrative learning enjoys wide utilization in a number of fields, despite its lack of prevalence in technical communication. This section will provide an overview of the common ways that narrative learning is implemented. These implementation methods are relevant with regard to the expansion of narrative within technical communication. This overview will be supported through empirical evidence from several research studies conducted on narrative learning.

As documented by Norm Friesen in his paper "Chronicles of Change: the narrative turn and e-learning research," narrative has enjoyed a surge in popularity over the past 25 years. As a method of both learning and analysis, narrative has been increasingly applied in literary, cultural, and film studies,

as well as the social sciences and the humanities (Friesen 297). The acceptance of narrative has been so widespread that Friesen labels these developments as a 'narrative turn' (297). Nowhere has narrative been more successful than in the field of education, where it is frequently used to explore "the values, politics, and practices of students and teachers as individuals, and as a way of understanding their identities in educational and personal terms" (297). Additionally, narrative is being used to investigate and analyze curriculum and classroom practices across all fields of education (Friesen 297). Since the field of technical communication is so focused on the education of end users, these trends are encouraging. If narrative can be successfully applied to so many fields of study, it is likely that it will find success in the field of technical communication.

Several research studies support the positive learning outcomes that narrative can provide. First, a study performed by Michael Wolfe and Joseph Mienko considers the learning and memory outcomes from reading narrative and expository texts. Ninety university students were used in the study. Students were split into two groups and given texts on the circulatory system to read. One group read expository texts, while the other read narrative texts. The researchers defined narrative texts as those texts which represented an event or series of events, while expository texts were defined as texts that describe the structure and processes involved in a system or event (Wolfe and Mienko 542). For example, a step by step set of instructions would fall into the category of expository texts. Additionally, the task oriented methods of education that technical communication commonly employs would fall into the category of expository texts. The same learning content was covered in both groups and the prior knowledge of all students with respect to circulatory systems was assessed before the study began. The study found that neither genre is universally superior to the other when it comes to delivering content to learners. Rather, the study found that the narrative texts produced better outcomes in learners with lower subject knowledge, while the expository texts produced better

outcomes in learners with higher subject knowledge. Wolfe and Mienko make the point that "this finding suggests that although expository texts may elicit the type of processing that educators wish to see in students, they may not be beneficial for students who do not have enough knowledge to process them successfully" (557). Without prior knowledge, low subject knowledge learners lack the necessary framework to connect the learning content. Narrative, however, provides just such a framework for readers to use when connecting the content. This is especially relevant to technical communication, as much of technical writing is devoted to the production of expository texts. In situations where audience research shows the intended readers to have low subject matter knowledge, narrative provides the opportunity to improve learning outcomes with respect to traditional, task oriented methods used in technical communication.

These results are supported by a similar study conducted by L. Dodge Fernald at Harvard University. In this study, undergraduate students in a course on introductory psychology were split into two groups. One group learned the course content through traditional texts, while the other learned through narrative texts. The researcher defined the traditional texts as containing "brief, diverse examples throughout each chapter, illustrating various psychological concepts" (Fernald 122). The narrative texts were defined as including "a brief story, anecdote, or other narrative structure that appeared intermittently throughout the chapter, along with the traditional examples" (Fernald 122). Students were frequently quizzed and tested throughout the course and were also given a choice of whether to take a traditional final examination or a narrative based final examination. Not only did the students learning from the narrative texts consistently score better on evaluations, but narrative showed itself to be the preferred learning method of a majority of students, as more students rated it as more enjoyable than traditional methods and selected narrative based questions for their final exam (Fernald 123).

Further support can be found in a study conducted by McQuiggan et al. on 8th grade biology students. The study made use of a narrative-centered learning environment that was built using a 3D game engine. Named *Crystal Island*, the game is a science mystery set on a newly discovered volcanic island and uses North Carolina state standard microbiology curriculum. Students were split into four groups. In the first, a control group, students were taught in the traditional classroom setting. In the second group, students were taught using a PowerPoint that contained all of the relevant learning content, but no narrative elements. The final two groups were taught using varying levels of narrative in *Crystal Island*. All students were given a pre-test prior to the course so that after the course ended learning outcomes could be measured. The study showed two results significant to this thesis. First, the students learning with narrative in *Crystal Island* achieved significant learning gains. Second, this same group of students showed increased motivational benefits from using *Crystal Island*, including higher levels of "self-efficacy, interest, involvement/control, and goal orientation" (8). As discussed in the sections on narrative, this is because narrative is able to contextualize learning in meaningful ways, while at the same time creating relevant and engaging experiences for learners.

Not only do these studies point to the notion that narrative can produce better learning outcomes with respect to traditional methods, they also show narrative to be more engaging and enjoyable. While technical writing often conveys learning content accurately, it also often fails to motivate and engage learners. As a learning tool that has been proven to accurately deliver learning content, narrative provides the means for overcoming the lack of interest often seen in the readers of help manuals, instructions, and other pieces of technical writing. The next chapter will examine the relationship between narrative and technical communication, as well as how benefits like those detailed in the aforementioned research studies specifically relate to and affect technical communication.

CHAPTER THREE: NARRATIVE LEARNING AND TECHNICAL COMMUNICATION

Now that narrative and the field of technical communication have been examined individually, it is important to examine the two with respect to each other and show how naturally they link together. This chapter will begin with a detailed examination of the influences within technical communication that has made the field so resistant to narrative. Building on this analysis with the interest of overcoming traditional resistance in the field, a detailed analysis of what benefits narrative can offer to technical communication will be provided. Real world examples of narrative use within technical communication will then be discussed and used to examine the tangible benefits that narrative can bring to technical communication.

Why is Technical Communication Resistant to Narrative?

With the widespread acceptance of narrative and the benefits it brings to other fields of study, it may seem strange that technical communication remained resistant to narrative for so long. As Mary Lay notes in a study of narration in technical communication: "narrative is usually excluded from the rhetorical patterns taught in technical writing courses" (158). Despite this, technical communication textbooks cover process description, operating instructions, and progress reports – all of which can be considered as narratives as per discussions in the previous chapter of this thesis (Barton and Barton 39). This section will focus on the significant resistances in technical communication towards narrative and expand beyond the overview provided in Chapter 1.

Perhaps the most general reason that narrative goes unmentioned in technical writing classrooms is the fact that it is associated with modes of discourse that are traditionally underprivileged in the canonical literature of technical communication (Barton and Barton 39). This refers to things like novels, comics, and popularized science texts that provided narrative accounts of discovery. An

excellent example of this devaluation can be found in *The Double Helix*, James Watson's narrative account of the discovery of DNA. This work was criticized widely for "exposing pettiness, vanity, and opportunism among the disembodied intellectuals that traditionally figure in technical literature (Barton and Barton 39)." This stemmed from the fact that Watson's story negatively characterized other scientists involved in the discovery of DNA. While the narrative mode itself was not responsible for the criticism, it made Watson's negative characterizations of other scientists possible. More traditional modes of scientific writing would not have allowed for the characterization of the other scientists at all and would have instead focused on research methods and results from an objective viewpoint. A narrative account, however, went far beyond a discussion of research on the double helix and included context about the other scientists. Criticisms of *The Double Helix* due to its content became so strong that Harvard, the campus where Watson was employed, reneged on its previous agreement to publish the book.

Another reason for narrative's devaluation can be traced back to the creation of technical communication as a field of study. From its creation onward, technical communication has focused itself on the features that make it distinct from other fields, rather than the features that it shares with other fields. This resulted in a focus on strict, binary comparisons such as "technical versus non-technical writing" or "exposition versus narration" (Barton and Barton 39). This helped the emerging field create its own unique identity, but it also placed narrative in direct opposition to what was considered to be technical writing. Thus, it has been traditionally held that narrative was a mode of discourse that could only find application outside of technical communication. As a field concerned only with technical writing, it became a matter of fact that the field need not concern itself with non-technical modes of writing like narrative.

The devaluation of narrative within technical communication is further explored by Johndan Johnson-Eilola in his paper "Relocating the Value of Work: Technical Communication in a Post-Industrial Age." Johnson-Eilola correctly identifies technical communication as traditionally occupying a support position with respect to the academic and corporate spheres. Occupying this support position has had a lasting and pervasive impact on the field as a whole. This role encouraged technical communicators to focus on technological products and the aspects of a user's project that required the technological product (Johnson-Eilola 246). According to this view, well written technical documentation would allow end users to complete their primary work. The problem that this presents "is that real work easily becomes defined in reductive, context-independent ways: small decontextualized functional tasks rather than large, messy, 'real world' projects" (Johnson-Eilola 246).

For example, telling a user which drop down menu they need to access in order to create a spreadsheet in their text document is generally easier than teaching both that task and the broader, more sophisticated basics of rhetoric and page design. The shift in technical communication towards only teaching the user the former – i.e. the task itself and not the broader context in which that task occurs – was viewed as movement away from a purely technological focus and towards the user's context. As Johnson-Eilola points out however, this movement was deceptive at best. This is due to the fact that "the user's tasks are defined almost completely in relation to the technology: the user's contexts are typically invisible" (247).

Furthermore, this support position meant that technical writing teachers in decades past were – and in many contemporary cases still are – pressured to instruct their students based on industry job requirements. Rather than teaching basic rhetorical, usability, and visual design techniques, the focus was on teaching student application-specific skills in programs like FrameMaker, Doc2Help, and Microsoft Word. Johnson-Eilola points out the primary problem with such a system: "Focusing primarily

on teaching skills places technical communicators in a relatively powerless position: technical trainers rather than educators. Responding to the demands of industry, almost by definition, disempowers technical communicators, relegating them to secondary roles in education, industry, and large social spheres of importance" (247). As Johnson-Eilola shows, such a system leaves technical communicators virtually powerless to affect change either in their own field or in the subject matter they are writing about. Rather than discovering or creating knowledge, technical communicators are simply describing knowledge that others in the fields of education and industry already possess.

This is especially relevant to the devaluation of narrative in technical communication, as narrative by its very nature stands opposite to the notion that technical writing should teach decontextualized functional tasks. This is because narrative is not reductive or context-independent. Rather, it conveys knowledge to a leaner through non-reductive, context rich recreations of sequenced events. This is because narrative connects experience directly with meaning. As discussed in Chapter 2, Genette's definition of narrative states that narrative is a representation of an event or sequence of events. This view is based on a view of language as signifiers and signifieds, where the former conveys a representation of the latter. When producing a representation of an event, context must be a part of the representation in order for it to be understood. To return to the Calvin and Hobbes example from Chapter 2, each frame of the comic provides valuable context. In the first frame he can be seen walking along unobstructed ground. The fact that the ground is unobstructed is a piece of important context, as Calvin trips in the next frame. Further context is provided in the second frame, as the ground is still unobstructed and Calvin is by himself when he falls. This solidifies the notion that Calvin was not pushed or tripped by a third party, but that he accidentally tripped over his own feet. In the third frame he lands in an upright position. This is important context because if he had fallen on his face or on his back the final frame of the comic would not have made sense. In the final frame he is standing upright

like a gymnast completing a tumbling routine and attempts to act like his fall was part of a planned routine instead of accidental. Additionally, Calvin is not wearing a gymnast uniform nor is he seen walking through an area where gymnasts would typically perform. While each frame of the comic represents an event in the story, each event is composed of one or more pieces of context like Calvin walking, the unobstructed ground, Calvin falling, the absence of a gymnastics environment, or Calvin landing upright. Thus, context is provided so well via narrative because it constitutes the events of the narrative itself. As Johnson-Eilola showed however, technical communication traditionally placed no value in such context. The field believed that the best way to convey technical knowledge was to boil the information down to the simplest, most task oriented set of instructions possible. Despite this, technical documentation has been in continuous conflict with end users that view it as overly technical, hard to use, and too abstracted from their daily work.

As discussed in the first chapter of this thesis, it was only in the 1970s that the field of technical communication began to address this conflict and replace technology with the needs and contexts of the audience as its main focus. The traditional resistances detailed in this section represent the main factors preventing a more widespread acceptance of narrative in technical communication both before the 1970s, as well as in contemporary times. The next section will address the specific ways in which narrative has begun to overcome the objections discussed in this section and the benefits it can provide to technical communication.

What Narrative Offers Technical Communication

The literature on narrative has already pointed to several general advantages that technical communication could benefit from. Numerous research studies point to the notion that narrative, as opposed to expository, texts are read faster (Graesser, Hoffman, and Clark), processed more effectively (Britton), and remembered better (Wolfe and Mienko, McQuiggan et al., Thorndyke; Graesser, Haupt-

Smith, Cohen, and Pyles). These features translate into direct benefits for technical documentation and cement the notion that the use of narrative instruction would improve learning outcomes in end users as compared to expository instruction.

Additionally, research studies show that narrative texts are more believable and persuasive than exposition (McQuire). This is due to the fact that narrative texts are "more concrete and more easily grasped than universals," referring to the universal knowledge that expository text attempts to produce (McQuire 134). This link that narrative possesses to the concrete is also shown in experiments reported by Nisbett et al. In one scenario, Nisbett et al. describe an individual that is interested in buying a car. The individual is interested in the longevity and economy of the new car, so he narrows his decision down to a Volvo or a Saab. While investigating these two types cars, he goes to *Consumer Reports* and reads the reviews of both experts and regular drivers. The consensus is that the Volvo is both mechanically superior and has a better repair record. The individual in question then goes to a cocktail party armed with the information he read on *Consumer Reports*. At the party, he announces his decision to buy a Volvo to a friend. However, his friend reacts with alarm, telling him a story about how his brother-in-law's Volvo was the worst car he ever owned. After numerous repair problems, the Volvo in question had to be sold for junk. From a logical perspective, the impact of this new knowledge would be a tiny shift in the data gathered from *Consumer Reports*. This means that, for example, the individual in question would now view a 60% consensus on *Consumer Reports* that Volvo is the better car as a 59.9% consensus instead. This makes logical sense because *Consumer Reports* aggregates thousands of stories just like the one the individual in question heard at the party. Adding one more negative story to such a large amount of data should only result in a small change in the results and Volvo would still appear to be the superior car.

However, Nissbett et al. note that "anyone who maintains that he would reduce the encounter to such a net informational effect is either disingenuous or lacking in the most elemental self-knowledge" (129). Rather, the data that Nissbett et al. gather show that people are unlikely to use abstracted, consensus style information like that found on *Consumer Reports* when making a decision. Concrete knowledge on the other hand, like that found in the story told about the poorly functioning Volvo at the party, has been shown to heavily influence human judgment. Simply put, this means that human beings are much more likely to learn from information presented as concrete experiences than they are from considering a collection of highly accurate scientific data or from the abstracted consensus of many people.

This advantage is extremely important to technical communication, as much technical documentation is heavily abstracted from experience, technical data, and expert consensus. As discussed previously in this thesis, such abstraction causes difficulty among end users, especially with regard to motivation. It has become evident that simply providing the technical information is not enough – users must be motivated to use it. Narrative provides this motivation by grounding instruction in the concrete rather than the abstract. By providing concrete examples and experiences to users in the form of stories it becomes much more likely that the information will be regarded as potentially useful, thus creating the motivation needed to access it.

Next, narrative provides the means to address a chronic problem in technical communication: the knowledge gap between subject matter expert and end user. Traditionally, this gap was addressed through an attempt to use expository writing methods to produce technical documentation that informed end users of universal knowledge. Defined in general terms, exposition refers to writing where the purpose is to explain, inform, or describe. This type of writing can take many forms, including scientific reports/papers, instructions, textbooks, personal letters, news articles, and five paragraph

essays among others, and is the type of writing most often used in technical documentation. This can be contrasted to narrative texts, whose primary purpose is to represent an event or series of events. One of the many problems with this expository approach, as noted by Barton and Barton, is that it is an acquired skill that is relevant only in specialized fields (44). The traditional expository approach not only requires the end user to learn new information, it requires him to learn a new method of learning. This is because exposition can take many different forms depending on the perspective of the field of study it is used within. For example, an individual with no scientific background that had never read an expository scientific paper would likely have a difficult time understanding articles in a scientific journal. This is because the individual in question would lack an understanding of how the exposition in the journal was taking place. Scientific articles are typically structured in a specialized way to include an introduction, description of methods, results, and a discussion of findings. Additionally, specialized terms are used in these journal articles that the individual would be forced to learn from sources outside the journal. Lastly, the individual would lack an understanding of the culture that the article is embedded within. While a scientist with a background in the field would be able to read the article and understand its significance, the individual in question would struggle to make the same connection without additional context. In order to get meaningful information from the article, the individual in question would need to become familiar with how scientific articles are written and formatted, as well as the culture of the field that the article was written within. Since technical documentation is often expository in nature and so few people use it, the same is often true when an individual is given a piece of technical documentation and asked to learn from it. Before any learning can take place from an expository text, the individual must first acquire a specialized understanding of how the expository form was used in the situation in question.

This is even more detrimental considering the individual might not need to use the expository learning mode in other areas of his work or life. As established in Chapter 2 and in direct contrast to the aforementioned specialization, narrative is a universal learning mode possessed by all humans. Thus, narrative tends to connect people and bridge knowledge gaps through the familiar process of sharing experiences, while traditional expository approaches tend to alienate people by presenting them with a new and foreign process. While an expository technical document presents foreign information via a foreign learning process, narrative possesses the advantage of presenting information, no matter how foreign or familiar, via a familiar learning process.

In summary, narrative texts are read faster, processed more effectively, and remembered better than the expository texts typically used in technical communication. In addition, as per Nisbett et al.'s Volvo/SAAB example, narrative texts are found to be more believable and persuasive than exposition. Lastly, narrative provides a universal mode of learning that can be used to easily and effectively connect subject matter experts with end users. While these benefits are all significant and warrant narrative's consideration as a primary learning mode in technical communication in their own right, the benefits that narrative provides go further still. As Barton and Barton write,

> For the old view of organizations as monoliths, with commonality and convergence of goals, is now largely discredited in the literature of organizational science (e.g., Pfeffer or Keen). One finds, rather, an increasing recognition of pluralism in organizations, of politically-based coalitions with competing goals, and a recognition as well of the need for new communication models to foster negotiation and compromise in these competitive situations. (45)

In light of this, narrative seems a promising candidate for the new communication model that Barton and Barton mention. Stories have been proven as an alternative to traditional methods of intra-organization conflict resolution due to their ability to provide rich context to both sides of an argument

(Mitroff and Kilmann 18). Rather than creating a single story and applying it to the conflict, this kind of conflict resolution takes into account the narratives of everyone involved. First, all individuals involved in the conflict should be gathered together (or representatives of each group if there is a large amount of people). Next, each individual or representative is asked to write a summary statement of his view of the problem. Additionally, each individual is asked to write a story describing how the problem arose, which individuals were involved, what got them to see the problem in their own particular way, how they approached the problem, and what an ideal resolution of the problem would be like. The individuals are then split into groups and asked to share, discuss, and integrate their stories with each other. After group discussion, each group shares its single, integrated story to the other groups. Lastly, individuals from each group meet and attempt to integrate the four larger stories. Throughout this process, individuals are encouraged to critically question and address their own story's strengths and weaknesses in the interest of producing as much context about the conflict as possible. Such context, even if it does not lead to agreement, typically fosters greater understanding across the aisle and increases the likelihood of a solution. Additionally, stories have been proven to increase tolerance of alternate corporate models, goals, and plans for the same reason that they are effective in conflict resolution (18). Just as narrative helps to connect the cognitively disparate subject matter expert and end user, it can also help connect workers with their own organization, disparate departments, other organizations, bosses, and co-workers.

Overview of Narrative Use in Technical Communication

Despite its constant devaluation, narrative has slowly become a part of technical communication over the past several decades. Narrative can already be found in the histories of science and technology. As established in chapter 2 of this thesis, narratives can also be found in progress reports, process descriptions, procedure outlines, and instructional manuals. Going further still,

narratives are found in the legends told about iconic figures in science and technology. As Barton and Barton summarize,

> These legends, for example, serve in conveying the attitudinal and methodological themata of enterprises, themata such as optimism (through the story of Einstein's math failures as a student), diligence (through the story of Edison's dogged search for a filamentary material for his incandescent lamp), care (through the story of the meticulous measurements of the velocity of light by Michelson and Morley), and analogy (through the story of Newton's conception of gravitational attraction after an apple fell on his head. (40)

All of the aforementioned instances of narrative within science and technology are indicative of a large dependence on narrative within scientific and technical communication. The pervasiveness of narrative, however, goes even further.

At a general level, there are narratives that govern scientific and technical enterprises, as well as affect institutional values (Barton and Barton 40). These narratives affect the way research is conducted, as well as the way scientists and technical specialists think about their jobs and fields. These narratives underlie the editorial policies of scientific and technical publication institutions, causing any given publication's articles in a given subject area to follow a common narrative (Barton and Barton 40).

At a more specific level, scientific and technical texts such as scenarios, scripts, frames, simulations, games, and case studies all make use of narrative. Each of these texts involves the account of sequences of events that can then be associated with typical human behavior patterns within the given contexts. These narratives are often flexible and allow users to pick between different sequences of events. Upon selecting a specific sequence of events – or plot – the user is provided with concrete information that is specifically related to his or her choice. This type of narrative is seeing increased use

in decision support, artificial intelligence, and computer-based systems for knowledge representation (Barton and Barton 41).

It can also be effectively argued that even the equations of science and technology are essentially condensed narratives. This is because equations are shorthand representations. The meaning behind these representations "depend on procedural descriptions incorporating tacit knowledge – descriptions that, as we have noted, are widely regarded as narrational" (Barton and Barton 42).

Moving beyond the general, narrative has already begun to be employed within technical communication. In his article "Cars, Culture, and Tactical Technical Communication," Miles A. Kimball notes two such examples of technological narratives being employed in practice. Specifically, Kimball considers two cases of technical documentation: *How to Keep Your Volkswagen Alive! A Manual of Step by Step Procedures for the Complete Idiot* and *Build Your Own Sports Car for as Little as $250.*

In *How to Keep Your Volkswagen Alive* the author avoided using anonymous or institutional viewpoints, instead speaking through his own subjective narrative and with his own voice. Additionally, instead of presenting ideal procedures, the author adjusted his instructions based on what resources an average car owner might have on hand. This greatly increased both the accessibility and usability of the manual, as the information was presented from the subjective view point of an average car owner. Furthermore, the author empowered his readers to have control over their vehicle by subverting many institutional practices that would have been included in a manual produced with more traditional methods. For example, the author "called the PICT-30 carburetor 'another one of those engineering dreams that went wrong' and tells readers how to subvert its pesky electromagnetic cut-off jet" (Kimball 75). While turning off the electromagnetic cut-off jet was not recommended by Volkswagen, it proved

itself to be both reliable and advantageous advice in the real world of maintaining a Volkswagen automobile.

Building further on this, the author of *How to Keep Your Volkswagen Alive* inserted his own stories into the manual. Not only did these stories provide concrete examples of experiences that end users could draw on in their own work, but they helped emphasize the end user's ability to adapt to local conditions and humanize the technology that was being worked with (Kimball 76). Instead of acting as a mere operator in an institutional relationship with the car manufacturer, the reader is situated in a personal relationship with the car and the manual. The best example of this comes from the electromagnetic cut-off jet example in the above paragraph. In their official manual, Volkswagen recommended keeping the cut-off jet turned on at all times and even touted it as a marvelous engineering achievement. Despite this, story after story from operators claimed that the cut-off jet caused problems with the car. Thus, the author of *How to Keep Your Volkswagen Alive* included the narrative advice about turning off the cut-off jet. This created a relationship between the experiences of human operators, the car, and the manual, in which the information most useful to a human operator was sure to be included in the manual. Volkswagen, on the other hand, did not include any experiential information from human users and relied on a relationship between the car as a piece of technology and the manual. This resulted in an official Volkswagen manual that was more concerned with the technology of the car and how to explain it in the manual, rather than whether or not the technology actually worked for car operators. Perhaps even more indicative of this manual's success is the fact that it was self-published by the author in 1969 and sold 2.3 million copies. This equates to roughly 1 copy for every 4 Volkswagens ever sold in the United States until 1978 (Kimball 74).

In a fashion similar to the Volkswagen manual, *How to Build Your Own Sports Car for as Little as $250* leveraged the author's own stories about his efforts to build a low cost sports car. Not only have

hundreds of thousands of people used this manual, but many of them then went on to use the Internet to create their own technical documentation reflecting their own stories. This is due to the fact that the author left room for readers to adapt his work. Rather than presenting universal knowledge, he encouraged readers to make the text their own and to adapt it as they saw fit. Saturated with stories and his own personal accounts, the author gave his readers general guidance and a set of tools to work with as they saw fit. This can be contrasted sharply with typical car manuals produced by the automobile manufacturers, which tend to take the route of traditional technical documentation and present ideal, universal information. Unlike these two car manuals, the manuals produced by automobile manufacturers leave little to no room for interpretation. Instead, the manufacturer manuals presented abstracted sets of instruction that, by design, could not be related to any specific circumstance. This made them difficult to use and helped to encourage the massive success of the two narrative based manuals.

Beyond use in technical documentation itself, narrative has also seen application within technical writing classrooms. An example of such an application can be found in the teaching of Jack Bushnell, a technical writing professor at the University of Wisconsin. In the class in question, a senior-level seminar in technical communication that is meant to act as a capstone course, Bushnell attempts to move beyond the teaching of skills as dictated by industry. Instead, his course rests on three assumptions that have been discussed at length in this thesis:

> (1)Technology and science are not neutral but function within social, political, historical, and cultural contexts or 'narratives'; (2)Because of this, technical and scientific communication can be expected not only to reflect but to help create those narratives; (3)A technical writing student who understands the power of technical communication to influence perceptions and

> behavior in the workplace, and in the culture at large, will therefore have an advantage over the student who has simply been taught to be a practitioner. (181)

As a result of using these guidelines, Bushnell's students learn to examine the various narratives of technical and scientific writing. This includes critiquing the notion that technical and scientific writing are objective and impersonal. Unlike many technical writing professors, Bushnell shares his own industry writing and tells his own stories about how he shaped the information to be most effective. Bushnell requires his students to revisit pieces of writing that they produced in other classes and identify the inherent narrative that was there even though the student did not know it at the time. Bushnell's students examine a host of instruction manuals, including those from laboratory and diagnostic testing, industrial arts woodworking, groundwater sampling, and even a peer/parent curriculum guide on adolescent sexuality. One manual on employment testing, for example, claimed that affirmative action created a climate of 'confusion' and that in order to avoid making expensive hiring and promotion mistakes more testing on current and future employees was necessary. In this example students correctly identified a narrative of anxiety. In this case, the anxiety was centered on hiring and promoting the wrong individuals and costing the company money. Since no one wanted to be responsible for a mistake, more testing was required to make sure nothing went wrong. The anxiety that this produced was found to be a common narrative in manuals that wanted to establish the need for help. His students found that each manual contained a narrative like this that was constructed based on the culture, history, and perceptions of the field and that this construction shaped the document.

These examples show that narrative has started to find use within technical communication. They also show that the benefits of narrative have not yet been fully recognized by the field, as examples of technical writing professionals explicitly engaging with narrative in their work are few and far between. Given all of the advantages that narrative can provide to technical communication,

however, it appears evident that we must train technical communication students to leverage its full potential in their work. The next section will examine several research studies that detail the transfer of technical information to students via narrative methods. These studies will serve as examples of how narrative can vastly improve the efforts that technical communicators make to educate others in a variety of technical fields.

Research Studies: Narrative Learning in Practice

Perhaps the most successful and well documented example of the success of narrative in technical communication can be found in the use of the case study. Case studies apply learning content and theory to what amount to simulations of real-life situations. Case studies have an intrinsic story-telling quality, in which characters are given names, titles, personalities, and responsibilities. Settings are created and populated with real world objects like floor plans, policies, laboratory reports, and instruction manuals. Learners are then provided with the case and asked to follow the story, making decisions and asking questions based on the information that the case provides. In short, case studies provide learners with concrete narrative-based simulations of the real world.

An excellent example of a modernized case study approach can be found in a research study conducted by Cynthia Deaton and Michelle Cook titled "Using Role-Play and Case Study to Promote Student Research on Environmental Science." Deaton and Cook used case studies as the context for students to investigate science issues. In addition, they facilitated the development of role-playing activities to engage students regarding how the issues found in the case studies impacted the community and community members (71). The role-play allowed students to become part of a social environment and study not just the scientific content, but the behaviors, perspectives, and interactions of other members of the community.

The integrated role-play and case study activity that was used in the study was named *Green Slime*. The case study portion told the story of a boy named Nathan that goes to a lake to fish with his friends after school lets out for the summer. Upon arriving at the lake, the boys find that it is covered in a green slime. The case study then goes on to provide concrete details of what happened at the lake, including the boy's inability to catch any fish where they were once able to catch many. Nathan goes home and tells his mother, who informs Nathan of an article in the newspaper about an algae bloom affecting the lake. His mother also tells him that there is going to be a public hearing downtown to discuss the problem.

At this point in the case study the role-play portion began and each student was given the role of a member in the community and was asked to examine the issue from that perspective. Students were provided with the roles of farmers, town council members, owners of local restaurants and markets, and environmentalists. Students received brief descriptions of their character's backgrounds, experiences, and job responsibilities. In the interest of further encouraging communication and collaboration, multiple students were assigned the same role and asked to work as a team. Student knowledge and participation were assessed through the use of a rubric and results were positive. Students showed measured improvement in the areas of communication, teamwork, science knowledge, and critical thinking.

Another study conducted by Robb Lindgren and Rudy McDaniel shows the positive impact that narrative and increased choice can have on students when compared to traditional classroom environments. Lindgren and McDaniel created a survey course that explored the field of digital media titled "Adventures in Emerging Media" (AEM). AEM was designed as a junior-level elective with no pre-requisites in the interest of attracting both digital media majors and students from other departments. Seven weeks of the sixteen week course were designed to allow students to make branching decisions

regarding which learning modules they wished to participate in for that week. Every learning module was designed and delivered by an instructor with subject matter expertise. The remaining nine weeks were taken by all students and contained content that Lindgren and McDaniel thought to be fundamental to the field.

The narrative backstory for the course began over the first two weeks. During this time, students were required to submit an original project along with a hypothetical job application for a corporate position at an organization run by the fictional character Nelson Von-Berners. The character of Von-Berners was that of a whimsical, slightly scatterbrained inventor. Story components were released to students throughout the semester in the form of videos featuring Von-Berners giving instructions or encouragement from exotic locations. By releasing the story in parts, Lindgren and McDaniel aimed to motivate students in a fashion similar to story-driven videogames. In order to see the next part, students needed to complete various course work and progress to the next section. The course was delivered via a Learning Management System developed by Lindgren and McDaniel using PHP and MySQL.

Data was gathered from the 96 students that participated in the course via student projects, examinations, surveys, and online activity. This study also included a control group from four other courses taught online at the same university consisting of 129 students. All together the students represented 20 different academic majors from within the university. Additionally, survey questions regarding student interest and engagement with course topics were administered both before and after the course.

Results showed very positive results in the AEM course with regard to both learning and engagement. More than two thirds of the students rated both the narrative structure of the course and the ability to select learning modules as ‘mostly positive’ or ‘extremely positive.’ There was also a clear

difference in attitudes between students from the AEM when compared to the other four courses with regard to their perception of their own career goals after courses ended. Students from the AEM reported a statistically significant change in the way they thought about their careers, suggesting "that the course narrative – pursuing one's dream job – permeated student thinking about the course and its impact on their learning" (350).

The surveys also probed students to see which types of mental activities were elicited by the courses. Students in the AEM course reported less memorization was required as compared to the other courses (42% in AEM versus 61% in comparison courses). Seemingly this freed AEM students up to perform more analysis and engage in higher level critical thinking, as AEM students also reported that they engaged in more analysis than the students in the other courses (65% in AEM versus 49% comparison courses). The biggest difference was reported in the area of application, where 72% of AEM students reported the highest levels compared to 39% for the other courses. The researchers set out to provide a more engaging learning experience to students that also had a more substantial impact on student understanding and skills. The data quite clearly support successes in these areas through "the student perceptions that they performed more critical analysis and applied learning, and less rote memorization" (351).

Lindgren and McDaniel also used more direct means to measure student learning. Specifically, a blind assessment of pre and post course competencies was administered to students. This assessment measured learning according to five competency areas: Technical Competence, Interactivity/Engagement, Aesthetics/Artistic Design, Message/Audience, and Professionalism. The post assessment showed significant improvements in all competency areas. As the researchers point out, while it may not be surprising to see improvements over a semester-long course, "the comprehensive

gains on these fairly general and potentially transferable skill areas indicates a potent overall learning effect in this important domain of digital media design" (352).

In another study, Jonathan Rowe et al. examine the effect of a narrative-centered learning environment on both learning outcomes and student engagement – the same narrative learning environment examined by McQuiggan et al. in Chapter 2 of this thesis. Rowe et al. present findings from a study conducted with 153 eighth-grade students interacting with a narrative-centered learning environment called *Crystal Island*. The study pays close attention to factors theorized to be associated with engagement, including presence, situational interest, and problem solving efficiency.

This study differs from the previous studies, in that *Crystal Island* is essentially a videogame built with Valve Software's Source engine. The curriculum in the game is derived from the North Carolina state standard course of study for eighth-grade microbiology. Intended as a supplement to classroom instruction, *Crystal Island* blends both inquiry based learning and direct instruction through an overarching narrative. This narrative consists of a mysterious illness that is afflicting researchers stranded on a remote island. The student assumes the role of a visitor on the island arriving to see their sick father. The student is able to explore the research camp, converse with characters, and use lab equipment to solve the mystery.

Using basic pre and post-tests, researchers found that learning gains from *Crystal Island* were significant. The study also found that increased student engagement with *Crystal Island* was directly associated with improved learning outcomes and problem solving skills. While the researchers found that prior content knowledge often caused students to become more engaged, they also found that students experienced increased engagement across the board independent of prior knowledge – including both prior microbiology and videogame knowledge – recorded on pre-tests. These findings support the notion that the students were more engaged with the narrative learning environment that

Crystal Island provided and, as a direct result, they experienced greater learning gains and increased problem solving performance (15). These findings also support the notion that no prior knowledge is needed to productively engage with narrative-centered learning environments (15).

Moving away from new technologies, Dominic Golding, Sheldon Krimsky, and Alonzo Plough examine the notion that people respond better to risk communication when it closely reflects the conditions of their social and cultural lives. In the interest of raising awareness and knowledge regarding radon gas, researchers placed two series of articles in local newspapers. The first series of articles was purely technical in nature. It presented authoritative, factual risk information with regard to radon in a passive voice, scientific style with generalized and impersonal language. The second series of articles was narrative in nature. It consisted of stories of individuals making decisions regarding radon testing and mitigation written in a personalized style. Focus groups were conducted both before and after the articles were printed to gauge prior knowledge and efficacy of the articles. In addition, residents of the town filled out questionnaires and responded to phone surveys. Results of the study found that the readership levels over the week the articles were printed declined less rapidly in the narrative article than in the technical article. This fact points to the notion that the narrative series was better at retaining the attention of readers than the technical article. This is interesting as both formats increased levels of knowledge about radon equally, but people were more likely to continue reading the narrative series with each subsequent publication. In contrast to this, readers of the technical series tended to start ignoring the subsequent articles. This further illustrates narrative's ability to engage an audience and deliver valuable information.

Each of these studies represents narrative success at a different level of complexity. At the lowest level, the radon study showed that by simply printing a narrative article with the same information as a technical article, readers were more likely to stay engaged with the subject matter. At

an intermediate level, Deaton and Cook show how narrative can be combined with traditional oral practices to teach students in a classroom setting. At a more advanced level, Lindgren and McDaniel show how narrative can be combined with modern online teaching solutions to provide learning gains that go far beyond that of typical online education. Lastly, Rowe et al. show the most complex level of narrative success in the teaching of technical information by creating an entire 3D environment inside a computer and telling an educational story about it. By populating the 3D world with characters, places, and real world situations, they are able to tell concrete stories that students can follow along with and apply directly to the real world. All of these studies showed increased engagement and motivation as compared to traditional methods, as well as learning gains that were at least as good as traditional methods and in many cases significantly better.

Finally, it must be noted that despite the encouraging results of these research studies there is a lack of research being conducted on narrative from within technical communication. It seems as though many in the field are either reluctant or unable to produce instructional manuals in the vein of *How to Keep Your Volkswagen Alive*. The aforementioned research studies all deal with situations and subject matter content that a technical writer may encounter while working, but each study is written by experts from outside technical communication and from the perspective of general education. As a result, there is little to no scientific data to consider on the effectiveness of narrative learning solutions from the perspective of technical communication. This illustrates the need for further research on the impact of narrative from within technical communication.

CHAPTER FOUR: THE FUTURE FOR NARRATIVE IN TECHNICAL COMMUNICATION

Technical communication has evolved far beyond the supporting role chronicled by Johndan Johnson-Eilola, Russell Rutter, and Robert Johnson. The view that technology should be the primary focus of technical communication has been replaced by the social constructionist view that technological development, values, and knowledge are community driven (Johnson 95). Users are now able to influence the creation of technology and technical documentation based on the needs and circumstances of their own lives. Despite this, technical documentation often goes ignored by end users that do not find it worth using. This is due in large part to the fact that traditional technical documentation sets out to discover information about the technological product and present it to the user as a universal, one size fits all solution. Technical communication has taken notice of this trend and has begun to produce new forms of documentation in an effort to address the problem. While several forms have found success, narrative is positioned to best address the inaccuracies between the real world use of a technological product and the representation of that use found within technical documentation.

The instructional manual *How to Keep Your Volkswagen Alive* is an excellent example of this narrative approach. As a manual written by a user with a large amount of experience maintaining his Volkswagen during typical day to day activities, it was found to more accessible and useful to Volkswagen owners than the factory produced manual. The factory manual often failed to represent what it was like to use a Volkswagen in the real world because it was written from the perspective of the manufacturer. This is a symptom of the traditional approach to technical documentation, specifically the notion that the author of a technical document need only study the technology to produce acceptable documentation. The manufacturer studied and tested the car in factory conditions, while the author of *How to Keep Your Volkswagen Alive* used the car as an average driver would. *How to*

Keep Your Volkswagen Alive included representations of the user's experiences, while the manufacturer manual contained no such stories. Consider the following example from *How to Keep Your Volkswagen Alive* on the removal and cleaning of an air cleaner:

> My friend Dick says the two main causes of Volkswagen engine failure are tight valves and dirty oil bath air cleaners. The air cleaner should be cleaned at every oil change in a dusty clime and every other in clean air. All you have to do is unscrew, unbolt, or unclip the air cleaner, take it off and wash it clean with solvent and rags, then add oil up to the red line. Put the air cleaner back on and tighten or snap the clamp around the carburetor. I let the filter part, all full of copper wool, soak in solvent or even gasoline all the time it takes me to do a tune-up and then let it dry out before I put it back. It's just another dirty chore that will add many miles to the life of your engine. (123)

Compare the above example to one from another Volkswagen service manual written using the traditional approach as described in this thesis:

> **Every 20,000 miles (30,000km) or 24 months**
>
> **1** Release the spring clips securing the air cleanser lid and remove the lid
>
> **2** Cover the carburetor entry port to prevent any dirt entering it when the element is lifted out. Remove the element. Wipe the inside of the air cleaner with a moist rag to remove all dust and dirt and then remove the covering from the entry port.
>
> **3** Fit the new element. Clean the cover, position it in place, then clip it down whilst ensuring that the two arrows are aligned. (Coomber and Rogers 64)

Both examples address the removal and cleaning of an air cleaner, but the example from *How to Keep Your Volkswagen Alive* contains several valuable pieces of additional information based on the author's experiences. First, the author John Muir reinforces how important the cleaning of the air cleaner is

through anecdotal reference to his friend Dick and by stating the fact that cleaning it will add miles to the life of the engine. In contrast, a reader of the traditional manual would likely not understand the importance of cleaning the air cleaner since no references to the benefits of doing so are made. Next, Muir gives the added advice that the air cleaner should be cleaned more often in dusty climates. The traditional manual only states the factory specification that the air cleaner should be cleaned every 20,000 miles or 24 months. This equates to cleaning the air cleaner every other oil change just like in *How to Keep Your Volkswagen Alive*, but leaves out the important fact that dusty air will dirty the air cleaner faster. Finally, Muir provides an added step for cleaning the filter by soaking it in solvent or gasoline. The traditional manual does not mention soaking the air cleaner filter in anything, as this is a trick that Muir learned from his experiences maintaining the car. Muir found that soaking the filter will clean it beyond what a rag can accomplish and further improve the life of the engine. Pieces of information like these were representations of events that Muir experienced and included in *How to Keep Your Volkswagen Alive* because of their success in practice. In contrast, the traditional Volkswagen manual simply details the procedures for cleaning the air cleaner and leaves out crucial pieces of contextual information.

The success of *How to Keep Your Volkswagen Alive* can be attributed to narrative's ability to function as the basis for the construction of meaning according to constructivist learning theory. Users of traditional manuals are frequently unable to connect their own experiences with the disembodied procedures presented, while users of manuals like *How to Keep Your Volkswagen Alive* are more likely to find meaning in the story of the author's experiences. The inability to connect personal experience to the information in traditional documentation is the primary problem that narrative manuals like *How to Keep Your Volkswagen Alive* can be expected to address in the future.

Employing Narrative in Technical Communication

Based on the research in this thesis, three primary areas of technical documentation have been identified that would most benefit from integration with narrative methods. Before discussing these areas, it is also important to note that the use narrative means changes for technical writers. In order to produce relevant stories, technical writers will need to accumulate experience with the technology they are documenting. This means that technical writers will need to use the technology extensively or stay in close contact with individuals that are. In addition, it would be important that technical writers gather experiences from as many demographics of users as possible. The goal of this approach would be to create technical writers that are also users in the same vein as the author of *How to Keep Your Volkswagen Alive*. The more experience that a technical writer can represent in his documentation, the more likely it is to successfully help a user. Without this experience, it is much more likely that the documentation will not accurately represent the real world.

Moving beyond this general requirement, the first area for consideration is the use of narrative to improve instruction manuals. Many instruction manuals are task-oriented and provide users with step by step instructions. The tasks themselves are typically as decontextualized as possible and tell users only what steps to take. By employing a narrative approach to writing instruction manuals, technical writers would be embracing the well supported notion that end users need more than a set of step by step instructions to follow. By including stories, anecdotes, and other contextual information based on experience, technical writers would improve their chances of connecting with an end user and conveying relevant information. Examples of this approach can be found in *How to Keep Your Volkswagen Alive! A Manual of Step by Step Procedures for the Complete Idiot* and *Build Your Own Sports Car for as Little as $250*. The following introduction to a section on changing flat tires from *How to Keep Your Volkswagen Alive!* is indicative of the narrative approach:

> It may seem redundant to most of you to have a chapter on the lowly tire but perhaps there are some who would like specific direction in this most common of road emergencies. I really hate to disagree with the Volkswagen people, but the way they show to change a wheel in their driver's instruction booklet just won't make it. I twisted one of the pressed lug wrenches into scrap trying to get one of the lugs off after an overenthusiastic tire man with an impact wrench had put them on. I now carry a lug wrench made like a crank that you can kick down with your foot to loosen the lugs and I also kick them tight. It's really more a stomping motion than a kick. Outside of that their procedure of: block the car on the other side, remove the hubcap with a big screwdriver, loosen the lugs before jacking, jack up so wheel is barely off the ground, remove the lugs and the wheel, then roll the spare wheel into place, find a lug that will start with the tire still on the ground and get one started, then jack just a bit more so the wheel can be rotated to get another lug started, tighten the lugs all around, let the jack down and kick the lugs really tight – will do the job. If you can't find a lug wrench made like a crank, and they are hard to find, then one of the cross-type lug wrenches like they use in tire shops is a necessity. (38)

In addition to Muir's story about the ruined wrench and a summary of how to change to a flat tire, the section goes on to detail with step by step instructions and illustrations how to repair punctured tires so that they can be used again. This also shows that the use of narrative does not mean that traditional elements cannot be used. *How to Keep Your Volkswagen Alive!* acts as an example of this as well, as much of the manual is taken up by step by step instructions, diagrams, and illustrations of procedures. Muir uses technical terms, but takes the time to explain them – often through the use of stories. By combining story with traditional methods the reader can be provided with context, motivation, and technical information all from the same document.

It is important to note that a technical writer like Muir also functions as a user of the technological product. It is this relationship with the technological product that allows the writer to accurately represent experiences with the product to others. It is precisely the lack of experience using technological products that results in the low quality, unused instruction manuals that plague the market today. The research in this thesis points to the idea that getting technical writers to extensively use the technology they are writing about will produce better, more frequently used documentation. However, while examples like *How to Keep Your Volkswagen Alive* do exist, there has been very little research conducted on the empirical outcomes of such manuals. In order to both verify the success of such offerings and to begin to explore the best practices for implementing narrative, additional research needs to be conducted specifically on instructional manuals from within technical communication.

The second area for consideration involves the use of narrative to improve 3D learning environments. Unlike narrative use in instructional manuals, the use of narrative in 3D learning environments is not a new idea. One example of this, *Crystal Island*, is discussed in Chapter 3 of this thesis. The advantage of such 3D environments is that they can function as simulations, giving users a virtual recreation of the real world. Any learning content can be created in the 3D environment exactly as the user would encounter it in real life. Rather than reading a manual and applying the information to their work, users of a 3D environment are able to apply the information immediately within the simulated world. Additionally, a rich narrative can be created in the virtual world through the creation of characters, plots, settings, and goals. In a 3D learning environment like *Crystal Island*, the simulation provides the learning content. In this case, students are learning micro-biology by conducting experiments, collecting results, and reading micro-biology texts. The narrative of a mysterious illness that is afflicting the members of a research camp on a remote island provides the motivation for learning to take place. Figure 3 shows characters that the player can interact with in the island's

infirmary. As the player gathers information from these patients and other sources, the story begins to unfold.

Figure 3 – Patients in the Crystal Island infirmary that players can engage in conversation regarding their symptoms. The posters on the wall are microbiology themed and also contain information. Source: Rowe, Jonathan P., Lucy R. Shores, Bradford W. Mott, and James C. Lester. "Integrating Learning, Problem Solving, and Engagement in Narrative-Centered Learning Environments." *International Journal of Artificial Intelligence in Education* 21.1 (2011): 115-133. Web.

The following is an example of part of the story driven interactions in *Crystal Island*:

> Beyond gathering information from virtual scientists and other instructional resources, the student can conduct tests on food objects using the laboratory's testing equipment. The student encounters food items in the dining hall and laboratory, and she can test the items for pathogenic contaminants at any point during the learning interaction. For each test, the student must specify the type of test she wishes to conduct and select a justification for that test. A limited number of tests are allocated to the student at the start of the scenario, but additional tests can be earned by answering microbiology multiple-choice questions. Therefore, if a student squanders her available tests by using a haphazard problem-solving strategy, she must demonstrate her understanding of microbiology concepts in order to continue advancing the story. After running several tests, the student discovers that the sick team members have been consuming contaminated milk. (Rowe et al. 6)

Once the student discovers this, they are sent to the lab technician for an analysis of the milk specimen. Figure 4 contains an example of the diagnosis worksheet that players use when analyzing the specimen.

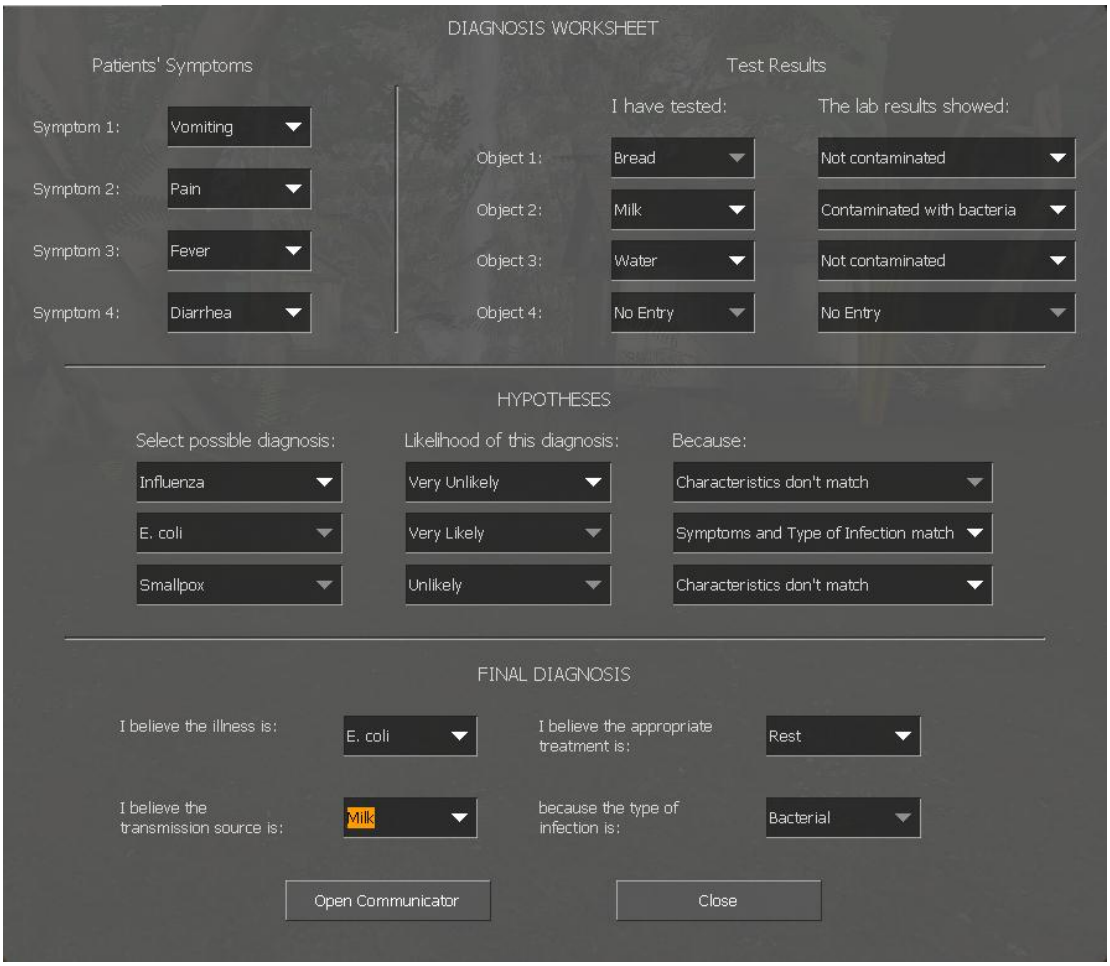

Figure 4 – An example of the diagnosis worksheet that students use to record their findings in Crystal Island Source: Rowe, Jonathan P., Lucy R. Shores, Bradford W. Mott, and James C. Lester. "Integrating Learning, Problem Solving, and Engagement in Narrative-Centered Learning Environments." *International Journal of Artificial Intelligence in Education* 21.1 (2011): 115-133. Web.

The lab technician looks at the specimen under a microscope and finds bacteria. The camera zooms in on the bacteria and the student is asked to label the parts of the bacteria cell. After completing this task, the student is free to search through the camp's books in order to investigate which bacterial diseases are associated with the symptoms on display in the research camp. As the player uncovers each piece of the puzzle, motivation builds to solve the mystery of the illness. Additionally, as the player

gets to know the virtual characters and become more connected to them, motivation builds to help them (see Figure 5 below). Lastly, the narrative environment of the game allows players to connect their learning to practical applications like diagnosing the sick. This further increases motivation to learn, as players can apply their learning as they learn.

Figure 5 – A conversation with the camp nurse in Crystal Island
Source: Rowe, Jonathan P., Lucy R. Shores, Bradford W. Mott, and James C. Lester. "Integrating Learning, Problem Solving, and Engagement in Narrative-Centered Learning Environments." *International Journal of Artificial Intelligence in Education* 21.1 (2011): 115-133. Web.

While the learning gains from 3D learning environments like *Crystal Island* have been proven to be substantial, it is the motivational gains that are the most exceptional. In a field where technical documents are often viewed as dry and boring despite having accurate information, narrative based 3D environments provide an exciting way to motivate learners to seek out information that they would otherwise avoid.

These learning and motivational gains are the direct result of the narrative learning theory discussed in Chapter 2. Based on work from Gerard Genette and David Rudrum among others, it has been established that narrative represents a sequence of events or experiences, with respect to how that representation is used in practice. Through this process of representation – specifically by giving language to experience – meaning is made. This notion is supported by constructivist learning theory, which states that learning is the construction of meaning from experience. Under this theory, narrative functions as the tool that is used to construct meaning from experience by giving it language. The story functions as a representation of experience and the language used to create that representation gives it meaning. Thus when reading or listening to a narrative, learners are engaging with the lived experience of another human and knowledge is gained through an understanding of the language used to represent those experiences. The learning and motivational gains from narrative learning solutions like *How to Keep Your Volkswagen Alive* and *Crystal Island* are so substantial because the learner is engaging directly with experience to create meaning. In the case of *How to Keep Your Volkswagen Alive*, the author represents his own experiences with stories. These stories provide additional context and information that Volkswagen manuals produced with traditional methods would never contain. In the case of *Crystal Island*, the player creates his or her own experiences in a virtual world. The characters and the environment of the 3D world motivate the player to continue learning so that the knowledge can be applied to help the research camp and reveal the mystery illness. Additionally, the 3D world allows the player to make concrete connections between learning and application, increasing the likelihood that complex information will be remembered.

The third area for consideration is the use of narrative in the technical writing classroom. Two examples of narrative use in the classroom were included in Chapter 3 of this thesis. In the first, Jack Bushnell teaches students in a senior-level seminar in technical communication to examine the various

narratives that their work is embedded within. The goal was not just to teach students that these narratives existed, but that they had the power as technical writers to change them. By teaching students to recognize, produce, and alter narratives we empower them to influence behaviors and perceptions in the workplace and the field of technical communication. It is for this reason that narrative should be a required subject in technical writing classrooms. In addition to being a required subject in technical writing classrooms, narrative should be employed to teach technical writing students in a fashion similar to the AEM course referenced in Chapter 3. Not only do the motivational benefits of narrative learning methods extend to the classroom and improve learning outcomes, they encourage students to consider aspects of their field that would not have been covered via standard course content. In the AEM course, this can be seen in the overarching narrative of the job hunt that forced students to consider the culture of the workplace and how they would fit into it. By employing narrative, professors can move beyond the teaching of skills as dictated by industry and help students learn to adapt to an ever changing workplace.

Summary of Thoughts and Predictions for the Future

In addition to its function as a basis for meaning creation and its ability to empower users, the research in this thesis has shown that narrative has much to offer technical communication. Studies have shown that narrative, as compared directly to the expository methods traditionally used in technical writing, are read faster (Graesser, Hoffman, and Clark), processed more effectively (Britton), remembered better (Wolfe and Mienko, McQuiggan et al., Thorndyke; Graesser, Haupt-Smith, Cohen, and Pyles), and are more persuasive (McQuire, Nisbett et al.). While it has been noted that narrative is already being used sparingly within technical communication, such comprehensive benefits warrant increased use.

Despite these positive findings, there are several factors that continue to constrain the use of narrative in technical communication. First, the use of narrative seems best only when it can be integrated at the very beginning of a project. This is because the technical writer would need to possess a large amount of experience with the technological product he is writing about. If it was not possible to accumulate this experience, it would be likely that any narrative based documentation produced would not be effective. Additionally, this process means that it will likely be more expensive to produce narrative documentation, as the writer would require additional time using the product as compared to a more traditional exposition only approach. However, the actual cost of implementing narrative documentation as compared to a traditional expository approach has not been studied or documented. Moving forward it will be important for technical communication to explore the cost and logistics of narrative solutions, as they show many well documented motivation and learning advantages over traditional methods.

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