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Creating Memories: Writing and Designing More Memorable Documents

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CREATING MEMORIES: WRITING AND DESIGNING MORE

MEMORABLE DOCUMENTS

by

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B.A. May 2007, Missouri State University

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ABSTRACT

CREATING MEMORIES: WRITING AND DESIGNING MORE MEMORABLE DOCUMENTS

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Old Dominion University, 2015
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If communication's purpose is to enable action or belief (Johnson-Sheehan, 2012), then communication will be more effective—and thus more ethical—if the audience can easily remember it. However, the study of memory has long been neglected in English Studies. Therefore, communicators lack strategies for enhancing documents' memorableness and an ethical framework for assessing (un)memorable documents and composing processes.

To develop an “ethic of memory” and identify strategies that enhance a document's memorableness, I asked twenty subjects—ten teachers and ten college freshman—to walk down a high school hallway in which various posters and flyers had been posted by the administration, teachers, or students. Then I interviewed the subjects about their recollections, reasons for remembering this information, and the likelihood that they might apply it. One week later, I conducted a follow-up interview to determine which information “stuck,” the subjects' self-reported reasons why, and their likelihood of applying it. I counted the number of information units and specific details that the subjects remembered at each interview, and I also categorized the types of details they recalled. I coded the subjects' reasons for remembering and (not) applying information according to commonly-accepted design and psychological terms drawn from *Universal Principles of Design* by Lidwell et al.

The subjects' memories were very consistent in both quantity and quality from the first to the second interview, indicating that documents influence long-term memory. Certain posters

and flyers were remembered much more often than others, demonstrating that rhetorical and design strategies affect a documents' memorableness. The codes "schema" and "relevance" were very consistent themes in the subjects' interview responses; so-called "self-schema" shape judgments of relevance, which then affect efforts to encode information into memory. This study describes six strategies for engaging an audience's collective self-schema, prompting the audience to ascribe relevance to documents and thus endeavor to encode them: convey practical value; use the familiar; use contrast, color, and imagery; use unexpected elements; arouse emotion and build social currency; and "break-and-remake" existing schema.

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CHAPTER 1

INTRODUCTION

According to legend, the “art of memory” originated in Ancient Greece when an earthquake ruined a perfectly good dinner party by collapsing the building’s roof on the participants. A man named Simonedes survived because he had stepped outside a few minutes prior to the disaster, and he later identified each of the victims by mentally visualizing the dining table and its occupants. By recreating this image in his mind’s eye, he was able to recall each of the dinner guests by name as well as the order in which they had been seated. This story is the earliest account of a person using mental representation to facilitate recall. Greek, Roman, Medieval, and Renaissance scholars would further develop this mnemonic technique into various overlapping systems of visualization, talismans, and spirituality (Yates, 1966; Carruthers, 2008). Though these memory arts and other studies of memory have been out of rhetorical theory’s favor since the Enlightenment and many skeptics might question memory’s relevance in our digital age, the ever-increasing competition for our limited attention necessitates understanding the memorableness of documents: how they arrest and allocate attention to their information; how they facilitate effective encoding and recall of that information; and how they communicate ethically or unethically by making certain information either memorable or forgettable. If the legend of Simonedes can be trusted, the art of memory developed in response to ineffective building design, and now I seek to rejuvenate the canon of memory by studying how documents can be written and designed more memorably, ethically, and effectively.

The fourth canon of rhetoric, *memoria* or memory, retained special significance in rhetorical theory long after Simonedes’ feat. Plato compared memory to a block of wax upon

which perceptions were impressed, suggesting that forming memories can require conscious and intentional effort. For Plato, memory also linked humans with divinity since learning consists of recovering knowledge already latent in the soul (see *The Meno*). While Aristotle viewed memory as a passive recording device, he also described recollection as deliberately seeking information and as a form of syllogistic reasoning, again showing how and why memory can be practiced, developed, and strengthened. By the time of Roman oratory, the art of memory had developed into a fully-fledged “artificial memory” or “architectural mnemonic” in which people visualized familiar places and populated them with symbolic images of important information-to-be-remembered. Medieval monks, scholars, and laymen applied the artificial memory instructions of Cicero, Quintilian, and the anonymous *Ad Herennium* to spirituality and to book decoration. A few Renaissance philosophers occulted the art of memory, creating elaborate systems and models that aspired to spiritually transform their practitioners. Enlightenment humanists’ distaste for these philosophies and practices, combined with their preference for the scientific method, contributed to the decline of the art of memory (Yates, 1966; Carruthers, 2008; Allen V. , 1993).

Despite the canon of memory’s historical importance, rhetorical theory has neglected it as a serious topic since the Enlightenment, and it has been almost completely excised from the modern field of Composition and Rhetoric. The related field of Technical Communication has even less to say on memory’s place in written and visual communication. Usability studies often address memory, or “memorability,” but these studies tend to focus on users’ memory practices rather than the memorableness of texts. Conversely, Technical Communication has extensively discussed ethics in writing, document design, and visual rhetoric, whereas Composition and Rhetoric’s ethical discussions have focused in large part on pedagogy and power dynamics in the classroom. This is unfortunate because both fields could benefit greatly from a thorough

understanding of the rhetoric and ethics of memorable communication. Effectiveness is an important ethical criterion for communication as well as a concern shared by everyone in communication-related disciplines, and memorableness is a tacit, understudied aspect of effectiveness. For these reasons, this dissertation draws on literature and theory from both Composition and Technical Communication.

Upon its publication in 1965, Edward P.J. Corbett's *Classical Rhetoric for the Modern Student* both renewed and shaped Composition's interest in rhetorical theory, including its disinterest in memory. Corbett dismisses the canon of memory as the memorization of speeches, an unnecessary consideration for written discourse, and thus not worth thinking or writing about at any length (qtd. in Reynolds, 1989, p. 246). Writing nearly thirty years later, Virginia Allen (1993) describes such cursory dismissals of memory as "traditional" in the field of Composition. This tradition remains very strong in the 21st century, even as Kathleen Blake Yancey (2004), Collin Gifford Brooke (2009), and other scholars adapt the rhetorical canon to contemporary and digital contexts. Yancey hardly mentions memory, favoring delivery instead, and Brooke describes memory as managing one's information-consumption as opposed to a quality of effective communication. The most recent Composition scholarship on memory, Tammie Kennedy's 2009 dissertation, laments that memory's "generative power remains essentially absent" from Composition studies (p. 8). Clearly, and unfortunately, memory remains on the sidelines of modern Composition and Rhetoric.

Some scholars suggest that memory's importance naturally and inevitably diminishes with the rise of print media, since people no longer need to memorize speeches or rely on the fallible recording of human memory. Others point toward humanist and modernist philosophies that devalued memory (Yates, 1966; Carruthers, 2008; Crowley, 1993), the influential Scottish

Commonsense Realists' conceptions of memory as a passive faculty (Allen V. , 1993), and the contemporary backlash against the Current-Traditional Rhetoric that perpetuated these philosophies and conceptions into the early 1960s (Francoz, 1999). But it is worth noting that even the Ancient Greeks enjoyed access to writing technology, and both Plato and Aristotle discussed memory at some length. Though exponentially more limited compared to today, the ancients still wrote and published throughout their communities, countries, and cultures. So why was memory so important from Ancient Greece through the Renaissance? More importantly, why is memory worth studying today?

To begin with, rhetorical theorists up to the present day have recognized memory's inherently rhetorical nature. Memory is far more than passive recording or "the memorizing of speeches" (Corbett, qtd. in Reynolds, 1989, p. 246). It is a dynamic, socially-situated process of reconstruction (Francoz, 1999). People do not create accurate video-recordings of events and then play them back like movies when they recall them. Rather, people rebuild the events *as* they recall them. Thus, *how* a person remembers or forgets can be just as important as *what* a person remembers or forgets (Kennedy, 2009). We may embellish, ignore, or omit various details in the process of reconstructing a memory, potentially maintaining the spirit of the memory or altering it in significant ways (Bartlett, 1932). A particular person's specific subjectivity and social context can lead him or her to remember certain information with precise accuracy while also transforming or neglecting other information (Bartlett F. C., 1932; Loftus, 2005), reinforcing the preexisting subjectivity and social context while simultaneously marginalizing others. On a collective or public level, memory can be influenced by institutional, societal, or cultural forces; so-called "public memory" can become a battleground in which dominant discourses seek to reinscribe values and control cultural narratives (Olick, 2006; 2008; Phillips, 2004; 2010). When

memory is viewed as a socially-situated process of making meaning, then its rhetorical nature emerges more clearly, and it becomes a medium and site of discourse, persuasion, and power.

On a more fundamental level, memory makes rhetoric possible. Communication cannot have any lasting impact on an audience unless the audience remembers it. Quite simply, a statement might as well have never been heard or read if it does not take up residence in the reader's long-term memory, where it can be recalled for future use or influence. If the audience does not remember the information conveyed, then it follows that the text has failed to communicate or persuade. Rhetoric, therefore, should be memorable, and the essential information in a text ought to be most memorable. Since communication must gain and maintain enough attention to be encoded in the minds of its readers, it is incumbent upon writers and document designers to use the rhetorical strategies that most effectively facilitate encoding into long-term memory. To channel Richard Lanham (2007), we must communicate information in a way that will be "attended to [and retained] rather than refused, ignored, or ... unread" (pp. 23-4). In other words, rhetoric, texts, and documents must have the quality of memorableness.¹

Readers inevitably shoulder some of the responsibility for remembering a document's information, but writers and designers can control only the qualities of documents that facilitate or hinder memory. This locus of control orients my interest toward rhetoric and composing, but it also brings forth the ethical implications of memorableness, or lack thereof, in a given document. Writers can exert a profound influence on their readers' memories through using certain techniques and strategies to make information either memorable or forgettable. Design strategies are especially powerful. As Richard Lanham (2007) says, designers can be described

¹ I use the term "memorableness" rather than "memorability" (Nielson, 1999) because I am focusing on the features of texts or documents (i.e., an object's "ness") rather than the qualities of readers (i.e., a person's "ility"). While considering the audience's importance, I argue that texts or documents should possess certain qualities that make them more memorable regardless of who reads them.

as “economists” who manage the (increasingly) scarce commodity of human attention, and it “should not surprise us that the dominant discipline, the economics that [now] matters . . . , is design” (p. 17). Managing attention can mean using design to attract more eyes than other designs, which can both increase its likelihood of being remembered and raise ethical concerns about exaggerations, pathetic fallacies, or abusing “shock value,” to name only a few. Or it can mean using design to minimize the attention information receives, reducing its chance of being remembered later. Important or concerning information can be present in a document yet almost certainly excluded from the reader’s memory, depending on its placement or (lack of) emphasis (Allen N. , 1996; Kostelnick, 1996). Contracts, credit-card, and terms of service agreements come to mind. Therefore, our views on ethical communication expand significantly when we consider memorableness.

Traditionally, ethics in communication have been evaluated based on accuracy, brevity, clarity, and achieving the reader’s goals (Dragga & Voss, 2001). These qualities have been highly valued (and rightfully so) as markers of a text’s veracity, efficiency, and communicative effectiveness. But if the purpose of communication is to enable some belief or action on the reader’s part (Johnson-Sheehan, 2012), then we must communicate the information that enables said belief or action *as memorably as possible*. Regardless of how one conceives of communication, it is difficult to define it so narrowly that memorableness becomes unimportant to either its effectiveness or its ethics. As I argue above, effective communication engages the audience’s memory. Information cannot be used, cannot facilitate any thought or action, unless the reader remembers it. A reader can often refer back to a text, of course, but then the document becomes less successful in facilitating the audience’s reading goals and/or its enactment of authorial or organizational goals; this usability issue, or ineffectiveness, is also an ethical

problem (Allen N. , 1996; Manning & Amare, 2006; Kimball & Hawkins, 2008). Taking memorableness into account forces us to view our rhetorical choices through a different type of ethical lens — an ethic of memory.

Finally, and perhaps most importantly, memory is crucial to the rhetorical situation and the rest of the rhetorical canon. The anonymous *Ad Herennium*, the most thorough discussion of memory in ancient rhetoric, describes memory as “the treasure-house of inventions, the custodian of all the parts of rhetoric” (Swadley, 2008). Using contemporary research, I will argue in the following chapters that memory also underlies the rest of the canon because arrangement, style, and delivery each affects how easily the human brain can encode a document’s information for later retrieval and use. Studying memory, therefore, can lead to a better understanding and more effective practice of invention, arrangement, style, and delivery.

Print’s prevalence and digital’s dominance do not make memory any less important than when Ancient orators memorized long speeches or when Renaissance lawyers memorized hundreds of laws and precedents. Quite to the contrary, memory is even *more* important — and deserves even more serious study — in a highly literate print and digital culture that produces trillions of texts competing for our limited attention and aiming to influence us in diverse and often contradictory directions. In a knowledge-based economy beset by information overload, the primary scarcity is human attention; attracting attention through effective design, therefore, is essential to exerting influence, creating wealth, and fostering social change (Lanham, 2007). But attention itself does not exert any inherent influence. It is simply the vehicle through which information enters long-term memory (Theeuwes, Belopolsky, & and Olivers, 2009) where it can

then exert influence. Communicators do not only need to attract attention; they also need to facilitate the viewer's remembrance of the information to which they pay attention.²

In short, memory is inherently rhetorical and ethical since it is both a medium and a site of communication, influence, and action. Better understanding the canon of memory can facilitate more effective use of invention, arrangement, style, and delivery, creating more memorable documents that rise above the din of information overload and achieve lasting influence on their readers' thoughts, beliefs, attitudes, and actions.

Since this dissertation concerns communication on a broad level, it is relevant and applicable to multiple audiences. Readers from the field of Composition and Rhetoric will gain a better understanding of memory's place in the rhetorical tradition and its treatment in modern Composition Studies. They may also benefit from learning about the influence of effective design principles on readers' attention and memories as well as the psychological research on memory and schema theory. These insights can inform one's practice of document design and one's understanding of how readers engage with texts. As I argue above, better understanding memory can facilitate the use of the rest of the rhetorical canon, making one a more effective writer and writing teacher.

In addition to each of these benefits, readers from the field of Technical Communication will gain a heuristic for assessing and developing memorable texts. Ethical guidelines act, essentially, as heuristics for one's composing and design processes, and an "ethic of memory" will provide Technical Communicators with another way of considering their work's effectiveness and ethicality. They will be able to analyze others' work and their own in terms of memorableness, and they will also be able to more intentionally engage audiences' memories

² My research builds on Richard Lanham's theoretical work on what he calls the "economics of attention" by identifying rhetorical and design strategies that facilitate remembering information.

when they write and design documents. It is important, of course, to convey essential information, and the heuristic of an ethic of memory will help writers and document designers hone in on that essential information and then accentuate it so that readers can more easily encode and remember it, enhancing the document's effectiveness in achieving its purposes.

RESEARCH QUESTIONS AND THEIR SIGNIFICANCE

To enter memory depends on attention. A person must selectively attend to the information being presented in order to “encode” it into long-term memory for later retrieval (Nairne, 2011; Wood, Wood, & Boyd, 2008). Indeed, numerous eye-tracking studies have observed a positive relationship between length of attention and accuracy of recall (Thomsen & Fulton, 2007; Lee & Ahn, 2012). Therefore, strategies for catching, keeping, and directing attention are extremely important to memorable communication. Principles of document design can be used with great effect to allocate attention. But gaining attention is only part of creating memorable documents.

Memory also depends on “encoding” information in ways that render it easily retrievable. People employ various strategies to facilitate encoding: elaboration, “the formation of connections between to-be-remembered input and other information in memory” (Nairne, 2011, p. 256); distributed practice, or separating the repetition of information to-be-remembered with non-related events or information (p. 257); and overlearning, the process of “practicing or studying material beyond the point where it can be repeated once without error” (Wood, Wood, & Boyd, 2008, p. 222). The phenomena of priming (exposing someone to a stimulus prior to asking the person to recall it) and the primacy and recency effects (the tendency to better remember the first and last items in a list) have also been shown to affect memory (Wood, Wood, & Boyd, 2008). These strategies create “retrieval cues” for the information-to-be-

remembered, making it easier to recall when needed. It follows, then, that writers can impact their readers' memory through presenting information in ways that facilitate effective encoding.

To learn how to improve a document's memorableness, this study will investigate the following interrelated research questions:

1) What design elements cause a reader to attend to information in such a way that he or she will remember that information?

2) How do these design elements enhance a document's memorableness?

The first question addresses the memorableness of documents by identifying the most attention-catching design elements in a given document and these elements' relationship to the readers' memories. Since information must receive a certain amount of attention to enter into long-term memory, the answer(s) to this question may specify which design elements contribute most effectively to a document's memorableness. The second question is more open-ended and thus may yield either more or different knowledge about the factors that make documents memorable, and it also attempts to measure the extent to which certain strategies increase readers' recall. This question's answer(s) may corroborate, extend, refine, or complicate the knowledge gained from answering the first question.

Both of these questions center on memory's potential to enable more effective invention, arrangement, style, and delivery, thereby achieving greater impact and influence on one's audience. They deeply embed memory's inherent rhetorical nature as a medium and site of communication into everything a writer does in writing and designing a document, for the writer's rhetoric is always intended for an audience. They also suggest memory's ethical nature since a writer could make certain information either more or less memorable in order to serve an agenda other than the reader's. In short, answering my research questions will help future writers create more memorable, effective, and ethical documents for their readers. Therefore, this

dissertation will benefit any audience interested in effective communication, particular audiences in English Studies, Composition and Rhetoric, and Technical Communication.

RESEARCH METHODS

Several Compositionists have argued persuasively for choosing research methods in the context of one's research problems, questions, or goals; they suggest that methodology ought to be viewed rhetorically, meaning the methods should fit the question, purpose, audience, and rhetorical situation of the research (Johanek, 2000; Charney, 1996; Driscoll, 2009). My research questions require an interdisciplinary literature review, as memory can be viewed from psychological, historical, and rhetorical perspectives. An interdisciplinary approach will allow me to place memory in its historical context as necessary and appropriate. Second, I will be able to draw from the wealth of memory research in the fields of psychology and marketing and consumer research. Third, I will use these fields' research on attention, the vehicle by which information enters into memory, to discuss an important mechanism in encoding stimuli into long-term memory. Finally, I will complement, contrast, and develop the scant Composition and Technical Communication research on memory with the knowledge of these other fields.

In addition to secondary research, I will directly investigate how readers respond to documents. Karen Schriver (1997) writes in *Dynamics in Document Design* that "document designers must understand how readers might think and feel as they interact with documents" (p. 152). She argues throughout this book, quite convincingly, for the importance of designing documents for the audience, obtaining as much input from them as possible during the audience-analysis and composing processes. With this in mind, I will interview teachers and students of traditional college age after they view flyers intended to catch their attention and convey information for their future reference and use. These interviews will generate insights into how

real readers “think and feel as they interact with documents” in an authentic rhetorical context. This is an authentic context because the flyers will be posted in the main academic building of Clearwater High School; thus, they are intended for teachers and teenage students. Moreover, they are competing for attention and attempting to be remembered and applied at a later time. This research project was reviewed and approved by the College of Arts and Letters Human Subjects Review committee (13-065).

Chapter 2, the Literature Review, will range across several interrelated and interdisciplinary discussions of memory, rhetoric, and ethics. First, I will briefly summarize the history of memory’s neglect in rhetorical theory. I will begin this history with the Enlightenment since the Scottish Commonsense Realists’ ideas about memory were influenced by this period, and the Scottish Commonsense Realists influenced Composition theory and pedagogy through the practitioners of Current-Traditional Rhetoric. Next, I will review in more detail the existing rhetorical scholarship on memory in the fields of Composition and Rhetoric and Technical Communication. Then, I will discuss how the field of Technical Communication has theorized ethics in communication and describe how an “ethic of memory” might be applied to invention, arrangement, style, and delivery. Lastly, I will explain psychological approaches to memory, focusing on its reconstructive nature and the implications thereof for effective, ethical writing and document design.

CHAPTER 2

LITERATURE REVIEW

Relatively few English scholars have seriously addressed memory's place in rhetoric and writing, and the topics relevant to this dissertation have been explored more in some subdisciplines of English than in others. Composition and Rhetoric has the most to say about the history and rhetorical theory of memory, so I draw heavily from this field's scholarship in certain sections of this literature review. Technical Communication has produced less literature on memory than Composition, but it includes more research on memorable visual rhetoric. While Compositionists have extensively discussed ethics and power dynamics in teaching, Technical Communication has produced a more thorough, germane body of work on ethics in communication, writing, and document design. Other sections focus on perspectives from outside English Studies, namely "public memory," marketing, and psychology.

In Composition and Rhetoric, John Frederick Reynolds comprehensively analyzes the field's treatment of memory and edits an important collection about memory and delivery in Composition theory. Sharon Crowley, Virginia Allen, and others contribute significant historical and theoretical discussions of the canon of memory. Marion Joan Francoz's *College English* article argues for a more embodied and scientifically up-to-date conceptual metaphor of memory. Kathleen Ryan develops the concept of "remembered knowing" and applies it to invention for writing based on personal experience. Lastly, Sharon Crowley and Debra Hawhee's textbook, *Ancient Rhetoric for Modern Students*, devotes a few pages to memory's place — and importance to invention — in ancient rhetoric.

In the field of Technical Communication, Stewart Whittemore's forthcoming *Rhetorical Memory* explores how shared or collective memory in a discourse community shapes the habits of one's composing process and expertise. His article "Metadata and Memory" critiques content-management systems (CMSs) and suggests ways to "off-load" the technical communicator's burdened memory onto a CMS designed with the principles of *memoria*. Similarly, John McNair applies the practices of artificial memory to designing more visual, memorable computer icons, and Derek van Ittersum uses *memoria* as a lens to study how writers construct and engage in "memory practices" through their digital writing environments. Ehrenberg, Dewhurst and FitzPatrick, and Regan each explicitly explore certain qualities of memorableness without invoking the art of memory. Writing in *IEEE Transactions for Visualization and Computer Graphics*, Michelle Borkin et al. study the qualities that make visualizations memorable. And usability expert Jakob Nielsen describes "memorability" as an important trait for websites, in that websites should quickly habituate users to their functions.

Beyond these scholars, memory has been mostly ignored in English Studies due to historic philosophical objections to the "art of memory" practiced widely from ancient times through the renaissance. However, some notable scholars from other fields have approached memory from a useful rhetorical perspective. Charles Scott, Kendall Phillips, and other "public memory" theorists produce interesting insights into memory's relationships to audience-awareness and invention. The fields of marketing, consumer research, and psychology have produced significant research that has clear applications to invention, arrangement, style, and delivery. In particular, Chip and Dan Heath's ideas about memorable communication can alter how we approach inventing and arranging the ideas in our writing, and psychological research reveals several ways that memory's reconstructive nature might either facilitate or impede

memorable communication. All of these applications, in turn, suggest powerful changes to our views of ethics in communication.

In the following pages, I will review the potential and perils of reconstructive memory for rhetoric; memory's historical decline and neglect in rhetorical theory; the modern rhetorical perspectives on memory; memory's implications for ethics in communication; and the applications of an "ethic of memory" for invention, arrangement, style, and delivery. Discussing memory's reconstructive nature will inform the reader about some of the unique affordances and challenges of engaging the human memory through one's writing and document design. Reviewing memory's history will ground the subsequent discussions in the historical and philosophical influences that produced memory's current standing in rhetorical theory. The modern rhetorical perspectives on memory will include contemporary research from Composition, Technical Communication, public memory studies, and marketing. By describing memory's contributions to our views of ethics in communication, I will develop a framework, an "ethic of memory," that can change how we assess the effectiveness and ethics of documents, which in turn can alter how we produce documents. And finally, I will explore some of the possible changes in our approaches to writing, rhetoric, and document design.

THE PERILS AND PROMISES OF RECONSTRUCTIVE MEMORY

In stark contrast to Composition's "conservative and mimetic model of memory," the prevailing "reconstructive view of memory has been well established within psychology, neuroscience, biology, and now marketing research" (Braun-LaTour, Braun-LaTour, Pickrell, & Loftus, 2004, p. 8). Viewing memory as reconstructive completely contradicts the "container" or "storage" models of memory dominant in Composition and Rhetoric since the Scottish Commonsense Realists. To describe memory as reconstructive is to flatly reject the idea that

people faithfully record experiences, events, and perceptions and then play them back exactly as they happened when they recollect them at a later time. Instead, memory is conceived as a creative, imaginative process of reconstructing previous experience or learning, often involving (re)interpretation and meaning-making. In short, reconstructive memory is dynamic and socially-situated.

Viewing memory as reconstructive suggests potent rhetorical implications. Even if readers pay attention to and encode a document's information, there is a very real possibility that they will alter the information through the process of remembering it. If our memories are reconstructed rather than faithful recordings, then they can be susceptible to source confusion, misinformation, false memories, and (re)interpretation. On one hand, this means memory can be difficult to trust. On the other, it demonstrates that memory is a rhetorical site, a place subject to influence and persuasion. Accordingly, reconstructive memory can be an obstacle to persuasion by leading to misunderstanding, rationalizations, or reinterpretations of an argument, even — or especially — on an unconscious level. Or reconstructive memory can facilitate persuasion by re-emphasizing established rhetorical strategies, and suggesting new and potentially powerful strategies, such as subtly altering readers' existing schema for the topic at hand. In the following discussion, I will describe and establish the reconstructive view of memory, and then I will explore in more detail the rhetorical challenges and opportunities afforded by this model of memory.

Research on Reconstructive Memory

Sir Frederic Bartlett (1932) was the first psychologist to describe memory as reconstructive and to attend to its social nature. In his seminal work, *Remembering* (1932), he recounts several experiments demonstrating that people do not record past events, observations,

or learning in their memories and then play them back later when they recall them. In general, his method consisted of giving his subjects a story, picture, or some other stimulus to commit to memory and then asking them to recreate the stimulus at a later time. Invariably, the subjects reinterpreted and reconstructed the stimulus rather than faithfully reproducing it as if they had precisely recorded it in their memories. They fixated on certain details to the exclusion of others, modified some details, or even created entirely new details. Interestingly, the subjects' cultural and/or social groups affected how they reconstructed their memories; socially or culturally unfamiliar details often changed into more familiar forms or disappeared entirely.

Reconstructive memory bears a strong resemblance to imagination, leading one to wonder whether Bartlett's experiments measured the subjects' memories or their imaginations of what they had previously seen or heard. Anticipating this objection, Bartlett (1932) distinguishes between pure imagination and the "imaginative reconstruction" of previous stimuli (p. 214). For Bartlett, the degree of scope and emphasis differentiates pure imagination from imaginative, reconstructive memory: reconstructive memory focuses on some specific events or details whereas pure imagination ranges freely among settings and interests (p. 313). His subjects were not imagining the story, picture, or stimuli because their reconstructions were focused on the specific stimuli they had heard or seen earlier. Furthermore, they reinterpreted and reconstructed various details without realizing they had done so, in some cases insisting that their version was in fact exactly what they had heard or seen. In sum, Bartlett creates a cogent argument for the reconstructive view of memory.

After Bartlett, Elizabeth Loftus is the preeminent psychological researcher on reconstructive memory. Over the last thirty-plus years, Loftus has authored or coauthored many articles describing how people often incorporate false information into their memories (Loftus,

2005). Like Bartlett, her research demonstrates that people reconstruct rather than reproduce their recollections. In her earliest and perhaps most important experiment, she observed a significant difference in subjects' estimates of the speed of cars in an accident they witnessed when the question used the word "smashed" instead of "hit." Loftus and her coauthor J.C. Palmer (1974) propose that our perceptions of events merge with information learned afterward, leading to a single memory so unified we cannot distinguish which information came from which source. In this case, the word "smashed" influenced the reconstruction of the memory of the car accident. This "source confusion" vividly illustrates the reconstructive nature of memory.

In some cases of "source confusion," people may also integrate "bits and pieces of their experience" to construct memories for events that never occurred (Loftus & Doyle, 1987, p. 75; Loftus, 1997). This can explain "memory gaffes" such as Hillary Clinton recalling sniper fire during her peaceful plane landing in Bosnia (Workman, 2012) or Mitt Romney reminiscing about attending an event for the automobile industry that occurred before his birth (Newman & Loftus, 2012). It is possible that Clinton inserted information from a briefing in which she was told to expect sniper fire into her reconstruction of her lived experience, and Romney may have reconstructed his "memory" with stories he heard from his parents and his self-conception as a long-time friend of the auto industry. Apparent dishonesty and self-aggrandizing might actually be the strongest evidence of reconstructive memory at work.

Despite strong evidence of memory's reconstructive nature, Loftus' research has been challenged on the grounds that some subjects who reported false memories may have actually misreported their memories before receiving the misinformation. If this were true, then they forgot some details that they later remembered as opposed to incorporating misinformation into their memory when reconstructing it. Others allege that the subjects may have been confused or

even “tipped off” by the researchers. However, Loftus and her colleagues have used misinformation to induce false memories for impossible events, such as meeting Bugs Bunny, a *Warner Bros.* character, on a childhood visit to *Disneyland* (Braun-LaTour, Braun-LaTour, Pickrell, & Loftus, 2004). Since these subjects could not have forgotten and then recalled an impossible meeting, one can be certain of the misinformation effect’s reality. Furthermore, a meta-analysis using more conservative definitions of “believers” highlights their strong beliefs in their false memories, validating misinformation research’s methodology (Morris, Laney, Bernstein, & Loftus, 2006) and supporting the reconstructive view of memory.

Reconstructive Memory as a Facilitator of Persuasion

Since memories are reconstructed rather than reproduced, it follows that document design and writing must help the audience encode information in a way that leads to effective reconstruction at a later time. Both Bartlett and Loftus’ research clearly demonstrate that reconstructed memories may not always be very accurate; they may abolish, embellish, or invent various details, ideas, and impressions. Informative writing must ensure its most important information will be retained by its readers when they recall, or reconstruct, what they read. Persuasive writing will be more persuasive if it ensures its readers can easily and accurately reconstruct its strongest supporting points. Viewing memory as reconstructive enhances our understanding of the challenges and opportunities of communication, re-emphasizes established rhetorical strategies, and affords new and potentially transformative techniques of persuasion.

As Bartlett’s research shows, people fixate on certain information or impressions when they reconstruct their memories, often to the exclusion of other details, and this selective reconstruction is usually affected by social and cultural influences. It follows, then, that effective writers need to consider their readers’ social and cultural backgrounds as well as how to ensure

that essential information stays in the foreground of their reconstructed memories. A given audience or discourse community may have very distinct experiences and knowledge that in turn generates very distinct perspectives from which they understand, encode, and reconstruct information (Porter, 1986). Certain kinds of statements or examples may resonate with physicists but not musicians, and vice-versa, and more resonant ideas will tend to stick with an audience.

In general, writers can help readers accurately reconstruct information by using the *Made to Stick* framework described by Chip and Dan Heath: expressing profound ideas simply, with some element of surprise, in concrete language, with credibility, with an emotional hook, and in narrative form. For a message to achieve all of these characteristics, it must tap into the audience's existing memory and knowledge as well as facilitate effective, accurate reconstruction. Most proverbs and parables, for example, have survived thousands of years and traveled across multiple cultures in more or less their original form (Heath & Heath, 2007) because they were easily and accurately reconstructed in people's memories due to their use of the characteristics above. The more accurately readers reconstruct an author's argument, the greater that argument's potential persuasiveness and influence.

The *Made to Stick* framework facilitates accurate reconstruction by creating mental "retrieval cues" that make information easier to recall. Techniques for creating retrieval cues include elaboration (relating new information to existing knowledge), distributed practice (learning information over time), overlearning (studying information more than necessary for repeating it once), and developing or modifying schema (combinations of related facts and details) (Nairne, 2011; Wood, Wood, & Boyd, 2008). When simple, surprising stories are told with concrete language, credibility, and emotion, they are easily related to existing knowledge and schema because they are clearly understood (simple, concrete language), inspire curiosity

and engagement (surprise, emotion), and seem to be worth remembering (credibility). Such stories may also facilitate distributed practice and overlearning if they are frequently repeated in one's encoding effort or general experience.

Writers can also create retrieval cues by explicitly relating ideas to each other throughout their texts, embedding elaboration into their arguments and developing a clear schemata for their thesis. Additionally, they might repeat key ideas at strategic intervals throughout the text, "distributing" the readers' learning of that information to the point of "overlearning" it. And lastly, since people more easily remember the first and last items in a sequence (Nairne, 2011), important information ought to be (re)stated at the beginning and the end of paragraphs, sentences, lists, and the text as a whole.

These rhetorical strategies are not new by any means, but a reconstructive view of memory emphasizes them and orients the writer toward using them more consciously and purposefully. As a result, the persuasive writer can more effectively embed crucial arguments in the reader's long-term memory so they will be reconstructed as accurately and thoroughly as possible.

Reconstructive Memory and Schema

Schema merit special discussion as an opportunity and mechanism for persuasion. According to Bartlett (1932), people develop schema for concepts as they learn about them, and their schema both facilitate and influence how they reconstruct their memories. Schema are clusters of related facts, details, and images associated with particular concepts. When people reconstruct their memories, they usually recall the relevant schema and sometimes they alter these schema based on new information. For example, the schemata for "car" brings to mind many different pieces of information that combine to form the concept of "car," and new

information about cars, say hybrid technology, adds another detail to the schemata. By altering the schemata, a person encodes new information into long-term memory for future reference. It logically follows, then, that writers need to be aware of the potential schema readers might bring to their interpretations of the text, and they should attempt to influence their readers so they will reconstruct their schema differently by incorporating the writer's information and arguments.

How can one know the reader's preexisting schema? Cultural and social background may be a key clue. Bartlett (1932) demonstrates that people's cultural and social background affects how they remember prior stimuli, as his subjects embellished, added, or deleted certain types of details based on their unique interests and subjectivities (p. 87). When asked to recount a Native American story titled "The War of the Ghosts," for example, each of Bartlett's British subjects transformed several elements of the story, including omitting ghosts! He observes that these transformations "were directly due to the influence of social conventions and beliefs current in the group to which the individual subject belonged" (p. 118) and that "any element of imported culture [Native American versions of ghosts] which finds very little background in the culture to which it comes [1930s England] must fail to be assimilated" (p. 125). More specifically, people are more likely to recall familiar, funny, relevant, or trivial details (p. 90), and their perception of familiarity, humor, relevance, or triviality is heavily influenced by their existing schema. Schema, in turn, are influenced by socio-cultural experiences. People even tend to change culturally or socially unfamiliar details so that they more easily fit into preexisting schema. Reconstructed memories "very often involve the mingling of materials belonging originally to different 'schemata'" (p. 205), as shown when people overestimate the speed of an auto-collision when it is described with "smashed" rather than "hit" (Loftus & Palmer, 1974). So if an

audience's schema are based on a socio-cultural factors, then memorable rhetoric can anticipate and tap into preexisting schema by considering the audience's socio-cultural background.

Furthermore, psychologists widely recognize a relationship between schema and identity in which a person's many identities combine to form a "social self-schemata," or a unique memory structure, that influences behavior and cognition (Forehand, Deshpande, & Reed, 2002, p. 1086). In the seminal article on this relationship, Hazel Markus (1977) defines and explains self-schemata:

Self-schemata are cognitive generalizations about the self, derived from past experience, that organize and guide the processing of self-related information contained in the individual's social experiences. . . . Once established, these schemata function as selective mechanisms which determine whether information is attended to, how it is structured, how much importance is attached to it, and what happens to it subsequently. (p. 64, original emphasis)

Markus conducted an empirical study which observed strong evidence of self-schemata and found that "self-schemata facilitate the processing of information about the self (judgments and decisions about the self), contain easily retrievable behavioral evidence, provide a basis for the confident self-prediction of behavior on schema-related dimensions, and make individuals resistant to counterschematic information" (p. 63). If one's self-schemata, or identity, facilitates the processing of information as Markus argues, then it must also facilitate snap-judgments about information's familiarity, humor, personal relevance, or triviality that then influence how the information is encoded into one or more schema. This explains why people from the same culture or society can have very different views, and memories, of the same information; self-schemata, arising from unique experiences or interests, focus attention on the most relevant

details. Therefore, writers and document designers must consider both socio-cultural background and the audience's identity when trying to tap into preexisting schema.

Genre may be another method of influencing an audience's schema and thus its memory. A person's schema may be significantly influenced by the genre he or she encounters. Genres invoke certain roles for audience, purpose, and context (Adler-Kassner, Majewski, & Koshnick, 2012). Rebecca Nowacek (2011) describes them as "associated constellations of knowledge domains, [as] ways of knowing, identities, and goals" (p. 39). Accordingly, genres cue writers to enact certain rhetorical knowledge or techniques learned from previous experience; for readers, genres cue previously learned expectations and reading strategies. Hence, genres can be said to function as "memory places" (Yates, 1966) to the extent that they provide the retrieval cues necessary to recall and use/expect particular discourses, conventions, or other writing strategies. Nowacek (2011) explains, in any given context people "receive cues, both explicit and implicit, that suggest knowledge associated with a prior context may prove useful in the new context" (p. 12). Genres provide "routinized epistemic spaces" that cue connections between previous writing/reading experience and a current rhetorical situation (p. 18). To put it another way, genres function as "memory places" that facilitate the recall and application of previously learned writing and reading abilities.

To better appreciate how genres function as "routinized epistemic spaces" that influence a reader's memory of a document's content, it is necessary to describe a study by William Chase and Herbert Simon from which Nowacek (2011, pp. 14, 18) draws. Chase and Simon showed a chess board to chess masters, skilled chess players, and chess novices. Each group studied the pieces for five seconds and then tried to recreate their positions on a blank board. The chess masters performed much better when the pieces were positioned in the context of an actual chess

game. When the pieces were randomly placed, however, the masters' superior performance completely vanished. I submit that this study does not only illustrate a failure in memory or skill. Rather, it primarily illustrates the power of genres as memory places. The chess masters' memories depended on contextualizing the pieces' locations within a structured maneuver or configuration, a "genre" of chess. These chess genres acted as schema that facilitated comprehension, encoding, and recall; the genres/schema cued connections between the observed configuration of pieces and a configuration the masters had previously learned or experienced, thus enabling excellent recall. Without these cued connections, the chess masters' memories were no more adept than the novice chess player.¹

For writers, genres cue specific rhetorical strategies in response to specific rhetorical situations. For readers, genres may cue schema (expectations and context) from which they interpret, comprehend, and encode a document's information. Genre, therefore, may significantly influence not only the schema which the reader brings to a particular text but also what content the reader remembers from it as well as how the writer can effectively influence or shape that schema and recollection.

Additionally, misinformation research supports the idea that writing, especially persuasive genres, might be most effective when it suggests subtle alterations to existing schema. Generally, misinformation is most likely to be incorporated as a false memory when it is plausible and subtle, i.e., when it is fairly similar to the actual stimuli that one experienced or perceived. In the Bugs Bunny experiment, for example, the subjects were susceptible to the

¹ According to the field of distributed cognition, sometimes called embodied cognition, people rely on their bodies and environments to aid their thinking. One example is "off-loading," in which one references something in the environment for information or cues (see Hitchens' *Cognition in the Wild*). Genres, posters, and flyers may be examples of such off-loading. I do not deal with distributed cognition in this dissertation because my concern lies with the memorable qualities of the documents themselves rather than a person's memory practices. It is, however, a very interesting avenue for future research.

misinformation that they had met Bugs Bunny at *Disneyland* because this *Warner Bros.* character has broad similarities to *Disney* characters (Braun-LaTour, Braun-LaTour, Pickrell, & Loftus, 2004). The subjects did not have to alter their existing schema for *Disneyland* and *Disney* characters very much to incorporate Bugs Bunny into them. Also, consider the effect of “smashed” versus “hit” on subjects’ estimates of the speed of cars involved in an accident (Loftus & Palmer, 1974). The verb “smashed” subtly altered the schema for the specific car crash that was witnessed, persuading subjects to estimate higher speeds, whereas other verbs (e.g., disintegrated) might have stretched the schema too far.

Misinformation research also indicates that writers can alter schema even more effectively if they utilize credibility, repetition, imagery, and suggestive diction. People are more susceptible to misinformation when they perceive it and/or its source as credible (Zhu, Chen, Loftus, Lin, & Dong, 2010). Repetition creates familiarity with an idea, which then increases perceptions of its truthfulness regardless of its source’s perceived credibility (Foster, Huthwaite, Yesberg, Garry, & Loftus, 2012). When text *and* imagery support misinformation, it has a stronger effect than when text or imagery is used alone (Braun-LaTour, Braun-LaTour, Pickrell, & Loftus, 2004). Choosing suggestive or “leading” words can alter how people reconstruct their memories of events (Loftus & Palmer, 1974; Loftus & Doyle, 1987). And, interestingly, the false memories created by misinformation can have a lasting influence on future preferences, decisions, and actions (Laney, Fowler, Nelson, Bernstein, & Loftus, 2008; Zhu, et al., 2012). To sum up, misinformation research demonstrates the persuasive power of these rhetorical strategies and the possibilities of reconstructive memory as a rhetorical site, a place of influence and persuasion.

Reconstructive Memory as an Obstacle to Persuasion

Despite its potential to facilitate persuasion, reconstructive memory can also act as an obstacle to it. In the process of reconstructing their memories of the text and its arguments, people may focus too much (or even exclusively) on inessential or less important information and ideas. They may over-simplify or over-embellish certain ideas, arguments, and details, misunderstanding the author's true argument. Or they might even invent entirely new information that obscures, contradicts, or alters the actual argument. Whatever the case may be, it is possible that the writer's main arguments might not be encoded into long-term memory, let alone shape the reader's schema for the topic at hand. Social, cultural, and disciplinary differences may exacerbate these natural tendencies of reconstructive memory, and a particular reader could have some idiosyncratic tendencies that the writer simply cannot anticipate or control. But for the most part, a good working knowledge of memory's reconstructive nature and its implications for crafting effective communication should enable a writer to ensure the memorableness of essential information and arguments. The more memorable the argument, the more likely it might persuade the reader during subsequent reconstructions.

Yet reconstructive memory poses a second, much more difficult potential obstacle to persuasive writing. Readers may radically reframe or revise the writer's argument when they reconstruct it later, either unknowingly or intentionally. This is particularly likely if reframing the argument reduces cognitive dissonance, a psychological discomfort caused by awareness of an inconsistency in one's knowledge, opinions, beliefs, or behaviors. According to the seminal theorist of cognitive dissonance theory, Leon Festinger (1957), people reduce the discomfort of cognitive dissonance by changing the dissonant behavior, opinion, belief, decision, or knowledge; altering the environment in which the dissonance occurs; or ignoring the dissonance

through avoidance and/or rationalization. Subjects have reported decreased dissonance “immediately on changing their attitude,” confirming that people can and sometimes do reduce dissonance through rationalization and attitude change (Elliot & Devine, 1994, p. 387). In some cases, then, persuasion will be more effective “to the extent that the indicated change of opinion reduces dissonance for that person” (Festinger, 1957, p. 265).

More often, however, a dissonant opinion, attitude, belief, or behavior will be very resistant to change. Assuming that one does not deliberately avoid any information that increases cognitive dissonance, a person may alter their perceptions of the rhetorician’s argument so that it fits their existing opinions and beliefs. This may be a conscious endeavor, but Bartlett and Loftus’ research suggests that it can also be an unconscious aspect of reconstructing the memory of the argument. By excluding, embellishing, or inventing certain ideas, impressions, or details, reconstructive memory can render the writer’s argument irrelevant and/or weaker than it is in reality. Extremely prejudiced people, for example, are especially likely to reinterpret an argument against their beliefs as somehow compatible with or irrelevant to their views. And if that does not work, people can always denigrate and discredit contrary ideas and/or their proponents (Festinger, 1957). Clearly, humans are “*rationalizing*” animals (Aronson, 1969, p. 3; original emphasis) with substantial defenses against the discomfort of cognitive dissonance. These rationalizing defenses can present a formidable obstacle to persuasive writing. Of course, knowing about these defenses is the first step to overcoming them, and the affordances of reconstructive memory described earlier suggest several weapons with which to attack them, namely subtly altering existing schema.

The reconstructive nature of memory opens numerous possibilities and challenges for persuasive writing; clearly, it is a much richer model of memory, both theoretically and

practically, than the “container” model that Composition and Rhetoric currently possesses.

Viewing memory as reconstructive rather than reproductive leads to greater emphasis on ethical communication and effective writing techniques, such as establishing credibility and repeating key ideas at strategic intervals. This view highlights the importance of knowing and adjusting to the audience’s social, cultural, and educational background as well as its preexisting attitudes, beliefs, and schema. It also indicates that suggesting subtle changes to readers’ schema may be the most effective way to persuade them. Finally, a reconstructive view of memory reveals the potential obstacles of mistaken reconstruction and (un)conscious reinterpretation to reduce cognitive dissonance. If writers are aware of both the opportunities and challenges afforded by reconstructive memory, then they can use the former in their persuasive writing to overcome the latter.

A SHORT HISTORY OF MEMORY’S DECLINE AND NEGLECT

Despite the psychological research above and the potential it suggests, the canon of memory has been and continues to be neglected in English Studies. With its publication in 1965, Edward P.J. Corbett’s *Classical Rhetoric for the Modern Student* renewed interest in rhetoric and helped launch the field of Composition (Phelps, 1996). Unfortunately, it also set up the general neglect of memory in Composition’s theory, research, and scholarship. In one brief passage, Corbett dismisses memory as wholly unnecessary to rhetorical theory and composition:

The fourth part of rhetoric was *memoria* (Greek, *mneme*), concerned with the memorizing of speeches. Of all the five parts of rhetoric, *memoria* was the one that received the least attention in the rhetoric books. The reason for the neglect of this aspect of rhetoric is probably that not much can be said, in a theoretical way, about the process of memorizing; and after rhetoric came to be concerned mainly

with written discourse, there was no further need to deal with memorizing
(qtd. in Reynolds, 1989, p. 246)

Writing nearly thirty years later, Virginia Allen (1993) describes the dismissal of memory as “theoretically uninteresting” as a “traditional” view in Composition Studies. More recently, Kathleen Blake Yancey (2004) laments memory’s separation from invention, arrangement, and style. Recent unpublished dissertations (Swadley, 2008; Kennedy, 2009; Austin, 2010) also note memory’s neglect. Memory continues to be mostly ignored due to English Studies’ flawed model of memory and the resulting misunderstanding of its nature and rhetorical significance. Memory is viewed as memorizing and as a faithful recording, storage, and reproduction of the past, rather than a rhetorical site of reconstruction, influence, and persuasion.

Understanding the philosophies and reasoning behind memory’s neglect can help illuminate its current status in rhetorical theory. Modern English Studies inherited its limited model of memory from the Enlightenment, the Scottish Commonsense Realists, and the practitioners of Current-Traditional Rhetoric. Since the Enlightenment, rhetorical theorists have tended to conceive of memory as rote memorization. Erasmus, for example, taught that “memory can be helped by places and images, yet the best memory is based on three most important things, namely study, order, and care” (qtd. in Yates, 1966, p. 127). Other leading humanists viewed the artificial memory advocated in *Rhetorica ad Herennium* — the practice of imagining familiar places populated with images symbolizing information one wishes to remember — as an oddity similar to a parlor trick and a less effective method of studying than rote memorization. Eventually, “Ramus abolished memory as a part of rhetoric, and with it he abolished the artificial memory” (Yates, 1966, p. 232). Composition inherited these narrower conceptions of memory, as shown by Corbett’s blunt dismissal, from the Scottish Commonsense Realists.

Led by Alexander Bain, the Scottish Commonsense Realists conceived of memory as a passive ability similar to perception rather than an active exercise of intellect, reasoning, or meaning-making. Memory ceased being a facilitator of invention and instead became a passive, innate recording device that could not be refined or developed (Allen V. , 1993; Crowley, 1993; Gronbeck, 1993). Nor did the Scottish Commonsense Realists consider whether memory might be relevant to arrangement, style, or delivery. Virginia Allen (1993) provides a representative quote from Bain himself: “There is no way of extending the limit [of memory] except by encroaching on some of the powers of the mind, or else by quickening the mental faculties altogether, at the expense of the bodily functions” (p. 59). In other words, we can only store and recall so much information just as we can consciously perceive only so many stimuli at once, and there is no practical way to increase these capacities. By reconceiving memory as rote memorization and passive perception, Enlightenment humanists and the Scottish Commonsense Realists separated invention from memory (Yates, 1966; Carruthers, 2008). Invention then transformed from a process of using memory as a heuristic for “finding” ideas into a mysterious and unteachable method of drawing from personal experiences and perceptions that one had previously recorded in memory; as an unteachable art, invention attracted little theoretical or pedagogical attention (Allen V. , 1993; Crowley, 1993). And for these groups, it seems that memory was always disconnected from the rest of the canon.

Memory began to languish in rhetorical theory once it was separated from invention, a trend that accelerated as writing proliferated. Interestingly, Crowley (1993) claims that writing did not supplant memory because it is more accurate or reliable. She argues that writing diminished memory’s importance because it is “friendlier ... to modern notions like the sovereignty of individuals (and hence of authors), to language conceived as a representative

medium for thought, and to method as a preferred means of inquiry” (p. 41). The rhetoricians who inherited these Enlightenment and modernist views, such as George Campbell and Alexander Bain, perpetuated memory’s separation from invention (Allen V. , 1993; Crowley, 1993; Gronbeck, 1993). The memorableness of documents was not even a consideration, and the disassociation of memory became a central component of the Current-Traditional Rhetoric that dominated Composition instruction from the late 1800s until the mid-1960s.

The Composition instructors who adhered to Current-Traditional Rhetoric were direct inheritors of the Scottish Commonsense Realists’ rhetorical theory, including their descriptions of the rhetorical canon. These instructors perpetuated the impoverished views of memory’s nature and rhetorical importance as well as its separation from the rest of the canon. Yet they also tried to strengthen their students’ abilities to perceive and record events through memory-strengthening exercises. Composition’s long neglect of memory can be characterized as part of the field’s backlash against anything associated with Current-Traditional Rhetoric, including these memory-strengthening exercises. Citing Crowley’s work on the influence of Current-Traditional Rhetoric, Francoz (1999) proposes the following reactionary relationship:

The naturalizing of method as “the writer's thought process” in current-traditional rhetoric may well have set the stage for the suspicion with which memory has since been regarded. For if traditional mistrust of memory has arisen from fear of its fallibility and has resulted in a subsequent search for certainty, surely much of the current aversion has issued from the very models and mechanisms designed to shore up the integrity of the faculty. (p. 15)

Moreover, most Compositionists consider themselves postmodernists. They almost always critique and reject modernist views, assumptions, and beliefs. The conception of memory

as faithful recording and reproduction is especially suspect since it denies the subjectivity and social constructivism simultaneously assumed and valued by Composition theory.

Compositionists strive to be comfortable with shifting subjectivity, or fallibility, in socially-constructed concepts and practices like memory. Unlike previous generations, postmodern Compositionists do not see any need to stabilize fallible memory through various techniques and practices. Absent such a need, it is that much easier to reject Current-Traditional Rhetoric's modernist model of memory and skill-and-drill-style memory exercises.

Paradoxically, (post)modern Composition and Rhetoric has not replaced the memory model of the Scottish Commonsense Realists and Current-Traditional Rhetoric despite its rejection of their modernist philosophies and its general distaste for everything they taught. Today's Compositionists continue to view memory as a faithful container comparable to digital storage (Francoz, 1999). Reynolds (1989; 1993), for example, identifies the conception of memory as a repository or database as one of the four major approaches to memory in modern Composition Studies. This "conservative and mimetic model of memory" affects judgments of its usefulness and perpetuates its separation from writing and rhetoric (Francoz, 1999, p. 12), *à la* Corbett. It is a "conservative" model — or, more pointedly, an outdated model — because computer-based metaphors of cognition and memory have been abandoned by the sciences for quite some time. Drawing on decades of empirical, psychological, and neurological research, memory is now most-often conceived as a dynamic, networked, socially-situated process of reconstruction (Francoz, 1999).

As this section shows, the field of Composition and Rhetoric generally holds the canon of memory in near total disregard due to a long history of philosophical, rhetorical, and scientific misunderstandings. The forerunners of Composition mistakenly separated memory and invention

despite millennia of rhetoricians taking their connection for granted, and current Compositionists have yet to move forward from rejecting these forerunners' philosophies and pedagogies of memory to replacing them with more current conceptions, metaphors, and theories. To conclude this section, I wish to note that memory's general neglect represents an opportunity. Where there is unjust disregard for a concept or theory, there is also an opportunity to rehabilitate its standing and realize significant benefits from doing so.

MODERN RHETORICAL PERSPECTIVES ON MEMORY

To begin this section, I will discuss how the modern field of Composition and Rhetoric has viewed and approached memory in both its theory and its practice.

Memory in Composition and Rhetoric

Though his overlapping essays are now outdated, John Frederick Reynolds (1989; 1993) provides a comprehensive review of memory's limited treatment in modern Composition Studies and identifies four common conceptions of memory that persist in the field's attitudes and practices: mnemonics, memorableness, repositories or databases, and psychological. Discussing memory as mnemonics focuses on using the page's visual appearance and the writing's arrangement as mnemonic devices.² Reynolds (1989) explains, "Writers set up sequences defined not by sound but by space: beginnings, middles, and ends of words, lines, paragraphs, and texts; pages of lines moving top to bottom and left to right; headings, chapters, notes, references, aboves, belows" (p. 247). Memorableness, for Reynolds, focuses on inventing memorable content, narratives, and details as well as using memorable language, diction, and

² This area is gaining research interest due to e-readers' negative effects on memorability. Reading on screen is more physically and mentally taxing, drawing conscious attention to the device and away from the content being read. The physical medium of the page also creates spatial and haptic retrieval cues, such as the ability to recall the approximate location of information on the page or in the document. Between the constraints of screen-reading and the haptic advantages of paper, readers generally perform better on comprehension and memory tests when they read content in the latter medium (Jabr, 2013).

style. To discuss memory as a repository or database is to connect it to invention and composing processes; writing textbooks suggest searching one's memory to invent ideas as well as relying on "memory networks" rather than "info dumps" when drafting. Finally, psychological approaches to memory link it to cognitive psychology, consciousness, and Platonic rhetoric. Each of these perspectives illustrates memory's significance to rhetorical theory and composing processes, although each perspective still remains underdeveloped in Composition theory.

Reynolds also edited a 1993 collection on memory and delivery in which several scholars address these canons in the context of Composition history, pedagogy, and philosophy. In her contribution, "Modern Rhetoric and Memory," Sharon Crowley explains both ancient and contemporary views of memory. She argues that memory and invention were inextricably linked in ancient rhetoric, but modern writers from George Campbell onward devalued memory because they reconceived invention as individual expression of experience. Since this "privatization" of invention made it rather mysterious and disconnected it from any memory practices, both invention and memory ceased being popular objects of study, theory, or teaching (p. 39). Writing, she adds, did not supplant memory because it emerged a better storage system, but because it was much "friendlier" to the modernist identity of "the author" as well as the Enlightenment's preference for writing as a systematic method of inquiry. Virginia Allen delves more deeply into Aristotle's distinctions between memory as a passive perception and recollection as a form of syllogistic reasoning. She contrasts Aristotle's description of memory with *Rhetorica ad Herennium's* elaborate artificial memory system. Then she explains that the Scottish Common-Sense Realists embraced Aristotle's views, agreeing with him that memory was akin to perception and disconnected from reasoning or intellect. Alexander Bain, for instance, categorized memory within "the mental sphere of the brutes" (qtd. in Allen, 1993, p.

59). According to Allen, embracing Aristotle's perspective contributed to memory's marginalization in modern rhetorical theory. Lastly, Bruce Gronbeck interprets memory's history from Aristotle's *De Anima* through Walter Ong's theories of orality and literacy. Reynolds' anthology remains an important contribution to Composition's understanding of memory, mainly due to the dearth of other well-known contributions both before and since its publication.

Before Reynolds' 1993 collection, only a few unpublished dissertations had focused on memory's roles in rhetoric and writing. These dissertations illustrate memory's rhetorical significance and its unrealized potential in Composition and Rhetoric. Linda Calendrillo (1989) develops a revisionist history of classical rhetoric's major approaches to memory, tracing their evolution up to the 20th century. Rhonda Grego (1990) uses Aristotle's concepts of memory and recollection to explain the development of discourse, especially enthymematic discourse. Considering Composition's sustained interest in Aristotelian rhetoric, one would expect some type of publication from Calendrillo and Grego's dissertations. Another dissertation, Janine Rider's (1993) *Memory as Muse*, would have significantly updated Composition's understanding of memory, had it been published in some form. Rider explores how psychology, philosophy, literature, and literary theory each reveal memory's role in epistemology. She emphasizes that we actively reconstruct knowledge when we recall memories, rather than replaying static recordings of past experiences. Yet her work has not been published or publicized, and Composition continues to view memory as recording, storage, and reproduction.

After Reynolds' anthology, no Composition scholarship on memory was circulated until *College English* published Marion Joan Francoz's "Habit as Memory Incarnate" in 1999. Citing Crowley (1993), Francoz (1999) explains memory's marginalization as part of the postmodern backlash against modernist views of memory and the memory-strengthening exercises of

Current-Traditional Rhetoric. Then she describes three broad conceptual metaphors of memory in Composition and Rhetoric, each of which reduces memory to a type of container, and argues for a metaphor that acknowledges the current scientific understanding of memory as a fluid, dynamic reconstruction of meaning rather than a faithful recording and storage device. She suggests that this updated theory of memory would rehabilitate its standing in the field as well as benefit English pedagogy by facilitating both critical thinking and literary study. Her orientation toward literary theory, however, leaves the qualities of memorable rhetoric and document design unexplored.

Since Francoz, only a few more unpublished dissertations, a single article, and a few pages of a chapter have addressed memory's importance to rhetoric and composing processes. In her dissertation, Kathleen Ryan (2001) synthesizes an 18th-century philosopher's theories of memory, a 20th-century feminist's historical work, and inspiration from Toni Morrison's *Beloved* to develop what she calls "remembered knowing," a version of memory that foregrounds invention from personal experience. Charles Swadley (2008) explicates the importance, theories, and applications of memory in Ancient Greek rhetoric to advocate re-emphasizing memory today. He characterizes memory as "a basic feature of discourse, involving encoders and decoders in the construction of knowledge via texts and contexts, all in dialectical interplay" (p. iv). By describing memory as epistemic, Swadley highlights the rhetorical and ethical implications of encoders constructing value-laden texts, decoders bringing their own values to their reading, and social values constraining both groups. He suggests that the "dialectical interplay" of memory could transform individuals and groups' perceptions of the past (p. 242). Tammie Kennedy (2009) defines, supports, and explores the concept of "rhetorical memory," using Feminist and postmodern theories to advocate "rhetorical memory" as a tool for critiquing

hegemonic power structures and thereby empowering students. Lastly, Keely Austin (2010) describes how conceptual metaphors can be viewed as a “trope of memory” (p. 4) with the potential to empower students’ analyses of hegemonic language and to effect change in public discourse. These dissertations not only explore memory’s rhetorical significance; they apply memory to societal change and critical pedagogy. But still, the memorableness of different rhetorical and design strategies remains ignored.

Kathleen Ryan’s “Memory, Literacy, and Invention,” a compressed version of her dissertation, is the lone published article on memory since Francoz’s “Memory as Habit Incarnate.” Ryan (2004) theorizes four components of “remembered knowing” — memory material, imagination and interpretation, context and subjectivity, and transformation (p. 39). By necessity, remembered knowing begins with some type of memory material, i.e., one’s “fluid impressions, associations, and tentative recollections.” Imagination and interpretation then create sense and meaning from that memory material (p. 40). Context and subjectivity influence what, how, and why a particular person remembers, and transformation results from the “process of shaping memory material through interpretation, imagination, and rhetorical context” (p. 42). Ultimately, redescribing memory as “remembered knowing” changes how we view writing from memory. We stop viewing it as transcribing a faithful, static recording, and we reconceive it as an interpretative, dynamic, empowering process of transformation and understanding (p. 44). Teachers who approach memory as “remembered knowing” can help their students better understand and write in genres that draw heavily from memory, thus encouraging them to become more active rhetoricians (p. 45). Ryan’s work is a rare example of a Compositionist adopting the reconstructive view of memory and applying this view to theorizing writing and

writing pedagogy. Although she limits her theories to personal narratives, her work demonstrates the impact a more expansive view of memory can have on writers' processes.

Finally, the "few pages of a chapter" mentioned earlier come from Sharon Crowley and Debra Hawhee's *Ancient Rhetorics for Contemporary Students* (2012). The authors briefly review classical rhetoric's discussions of memory and its relationship to invention. Then they emphasize memory's continued importance as the raw material of invention. Although it is significant that a major textbook on rhetoric would include a discussion of memory, it is still disappointing to see only a few cursory pages about a canon that generated significant rhetorical theory, epistemology, and philosophy for thousands of years (Yates, 1966; Carruthers, 2008), especially in a book whose title promises to update ancient rhetoric for today's students. This textbook's minimal attention to memory reflects its standing in Composition and Rhetoric as a relatively unimportant and uninteresting concept. And once again, memory's relationships to arrangement, style, delivery, and design are not even mentioned, let alone explored.

Memory in Technical Communication

The field of Technical Communication has been more reticent regarding memory, perhaps because it shares many of Composition's historical and philosophical roots in the Enlightenment and Scottish Commonsense Realists. I searched *Technical Communication*, *Technical Communication Quarterly*, *Journal of Business and Technical Communication*, *Business and Professional Communication Quarterly* (formerly *Business Communication Quarterly*), *Journal of Business Communication*, and *IEEE Transactions* as far back as the electronic databases would allow (all these journals were archived to at least the mid-1990s, some archives extended to the 1980s, and one went back to 1969). I managed to discover several articles relevant to memorable writing, rhetoric, or design. Only a subset of these articles,

however, focus directly on memory's rhetorical aspects, and there are even fewer Technical Communication books dealing with memory.

In his forthcoming book, *Rhetorical Memory: A Study of Technical Communication and Information Management*, Stewart Whittemore uses a case study approach to analyze six technical communicators' information management practices and how these practices contribute to their organizations' creative work (in this case, software products marketed to a global audience); he argues that developing writing expertise involves a process of cultivating social and embodied "habit," defined as a memory stocked with shared, collective knowledge that can be drawn upon when needed. Jakob Nielson, a usability expert whose work centers on web-design, describes "memorability" in *Designing Web Usability* as the expedience with which websites, or other documents, help users become habituated to their use (cited in Kimball and Hawkins, p. 67). To put these ideas another way, memory is essential to invention and usability.

In addition to these books, Derek van Ittersum, Stewart Whittemore, and John McNair have each published Technical Communication articles that deal with memory. Derek van Ittersum (2007; 2009) interviewed graduate students about how they negotiated the affordances of their digital writing tools to construct and engage in memory practices. He explains how writers use software such as Endnote or OneNote to create organized, searchable "memory systems" reminiscent of the "memory places" used in architectural mnemonic. The organization of information occurs through the system, not one's mental visualization or processing. According to van Ittersum's online article, "Data Palace" (2007), the writer and software mutually influence each other:

Writers must collect or write texts to construct the system, whether Word or PDF files, a OneNote notebook, or an EndNote library. These different software

packages shape the system's design through their sets of features, allowing some constructions and not others, privileging some actions and making others complicated. The software additionally impacts the search process itself, allowing for flexibility or specificity, or not.

He describes his interviewees' positive and negative experiences with the software in detail, illustrating the complexity of developing composing and memory practices in digital environments. "Off-loading" or distributing memory, then, may be more efficient than a well-stocked and efficient mental memory, and it may be less efficient.

Stewart Whittemore's "Metadata and Memory" (2008) critiques the interfaces of content-management systems used for single-sourcing for not enabling sufficient tracking of metadata, thus overloading technical communicators' short- and long-term memories as they struggle to track it themselves. As he explains, "a writer in a content database is compelled by the dearth of contextual cues in the CMS writing interface to keep a great deal of metadata about preexisting knowledge, purpose, audience, and situation in mind during discursive activity" (p. 95). Reviewing both Latin memory practices (*Ad Herennium*, Cicero, and Quintilian) and modern cognitive science, Whittemore argues that CMSs should provide distinctive three-dimensional visualizations of content and show technical communicators the larger context of their single-sourcing work (through print preview, highlighting, or annotating functions, for example) in order to reduce the cognitive load on writers' memories as well as relate different pieces of information in highly adaptable, memorable ways. In his dated article, "Computer Icons and the Art of Memory," John McNair (1996) presages some of Whittemore's contentions; he applies the principles of architectural memory to the problem of making more memorable computer icons, namely placing vivid images that symbolize their content or function against a contrasting

background. Whittemore and McNair's emphasis on visual aids suggests memory's relationships to arrangement and document design, in addition to its importance to invention.

Two articles published in *Business Communication Quarterly* and *Strategic Communication Management*, respectively, are relevant to the memorableness of documents despite not being grounded in theories of *memoria*. In "Telling Tales at Work: An Evolutionary Perspective," Charlie Yang (2013) explores the benefits of narratives in the workplace. Among them, sharing stories among co-workers distributes knowledge and creates a collective institutional memory. Stories also facilitate recall if they feature contextual cues for the events being related. Though Yang does not cite psychological research, his analysis of stories brings to mind the memory strategies of repetition and elaboration. Writing about internal communications, Dewhurst and FitzPatrick (2006) organize commonsense strategies for enhancing memorableness into a clear heuristic. They advocate simplifying and narrowing a message to only a few key points; establishing the information's relevance to the audience; explaining its context; and specifying any action-steps that should result from it. They also suggest stating the key points in the introduction, repeating them in the conclusion, and incorporating them into headings or subheadings whenever possible. These suggestions take into consideration attention's limited capacity, memory's goal-directed encoding, and the benefits of repetition and design for both attention and memory.

The remaining Technical Communication articles on memory focus on visual rhetoric. A.S.C. Ehrenberg (2000) describes how graphs can be more memorable. First, they should convey a clear and simple message. Second, the graph and its caption can create repetition that aids recall; the reader recognizes the graph's depiction, reads the caption describing it, and then cross-references them. Third, Ehrenberg suggests minimizing the distance among related

elements to facilitate associations between them, thus improving retention. These ideas can be applied to other documents, as simplicity, repetition, and proximity each affects the reader. Though Brian Regan (1998) writes in human-computer interaction, his work contains a nugget about the memorable arrangement of documents and graphs: asymmetrical and/or irregular layouts may be more memorable. The imbalance of an asymmetrical layout may add some natural distinctiveness that attracts attention and facilitates encoding.

Lastly, Michelle Borkin et al. (2013) showed subjects a continuous stream of visuals (graphs, charts, infographics, etc.) and asked them to indicate when they noticed any second occurrences. The more subjects who recognized a visual's repetition, the more "memorable" this visual was deemed. The "memorable" visuals commonly used more color and contrast, low data-to-ink ratios (more "chart-junk"), high visual density (more "clutter"), more uniqueness, and more natural-looking characteristics. These findings contradict most views about effective visualizations. It is important to note, however, that Borkin et al. treated these visuals as images to-be-recognized and did not measure the subjects' comprehension or retention of their information. Their findings must be regarded cautiously, especially when considering the memorableness of communication.

Public Memory Studies and Marketing

During the same time that English Studies has separated memory from rhetoric, the interdisciplinary field of "public memory studies" (Olick & Robbins, 1998) has clearly demonstrated memory's rhetorical nature. As Phillips (2004) explains, "The ways memories attain meaning, compel others to accept them, and are themselves contested, subverted, and supplanted by other memories are essentially rhetorical" (pp. 2-3). Phillips (2010) also argues that rhetoric "provides the mechanism for instantiating a reified and solid sense of public

remembrance and for disciplining subsequent recollections” as well as “challenging the established enthymemes of recollection and opening spaces for remembering differently” (p. 219). Individual memories struggle against “official” cultural memories and frameworks; sometimes they are disciplined by the official remembrance, and sometimes they create new memories and frameworks. Examples of these conflicting “rhetorics of recollection” (p. 220) range from the effort to control Abraham Lincoln’s public image (Morris C. E., 2004) to the “softening” effect of substituting pictures of 9/11 victims with pictures of the Twin Towers before they fell (Zelizer, 2004).

Scholarship in “public memory studies” has also developed interesting insights into memory’s relationship to invention. Charles Scott (1999) describes how memory can be externalized and temporally transmitted through a culture’s institutions and habits. By this logic, he contends that “people cannot think similar thoughts without sharing similar cultural, institutional memories” (p. 247). It then follows that invention largely depends on memory, since writers must consider what “cultural, institutional memories” they might share with their readers before, or in the process of, inventing content for their writing. Similarly, Kendall Phillips (2010) argues that the *enthymeme* involves a type of public memory since the audience must recall the unstated premise and the rhetor must provide the cues necessary for prompting this recall. Therefore, writers must consider their audience’s collective cultural and institutional memories when trying to invent or construct supporting arguments. These memories may vary wildly from audience to audience, depending on the discourse community and the shared institutional culture or knowledge (Porter, 1986; Whittemore, *Rhetorical Memory*, Forthcoming).

Outside academia, two recent best-selling books explore the qualities that make ideas memorable. In *Made to Stick*, Chip and Dan Heath (2007) identify six common elements among

memorable, or “sticky,” ideas: simplicity, unexpected elements, concreteness, credibility, emotion, and story-telling. In short, they suggest finding the core of the idea (simplicity) and expressing it in a surprising, concrete, credible, emotional narrative. While *Made to Stick* addresses ideas’ memorableness, Jonah Berger’s *Contagious* (2013) explains the six common characteristics of “viral” ideas: social currency, triggers, emotion, public (visibility), practical value, and stories. People share ideas that make them seem knowledgeable, funny, helpful, etc. (social currency, practical value); that they are often reminded of (triggers); that they can or want to imitate (public visibility); and that they can share as a narrative (stories). If an idea has these qualities, it is likely to be remembered and then shared. That is, it is more rhetorically effective.

These texts illustrate how studying memorableness informs our perspective on “effective” writing and thus changes how we approach our rhetorical choices, especially invention. One could invent straightforward, abstract, dispassionate ideas and details for one’s writing, but Heath and Heath show that those ideas might not be very memorable to their audience and Berger indicates that they most likely will not spread. Studying memorableness, then, changes both the content that writers invent and the process they use to invent it. If a writer seeks to produce surprise, concreteness, credibility, emotion, social currency, and connections to daily life, then that writer will engage in different thinking and prewriting processes than the writer who aims only to come up with some ideas relevant to his or her thesis.

Summarizing Rhetorical Scholarship on Memory

As I conclude this review, it may seem like memory has been thoroughly addressed from a rhetorical perspective. However, Composition and Rhetoric’s attention to memory utterly pales in comparison to its volumes on invention, arrangement, style, and (now) delivery, and the little scholarship devoted to memory has not fully developed its potential value. Reynolds’ 1993

anthology is the field's only book focused on memory, but it splits its pages with delivery and dates back twenty years. In his review essays, Reynolds focuses much of his attention on other disciplines' memory research and stretches select Composition scholars' work on invention, arrangement, style, and delivery to generate relationships or applications to memory. Francoz argues for a strengthened metaphor of memory but applies it to literary studies rather than rhetorical theory or composition pedagogy.

Each of the Composition and Rhetoric dissertations reviewed here remain unpublished except for Kathleen Ryan's compressed article, and she narrows memory's focus and application to personal narratives, memoirs, and other genres that draw on personal experience. The more recent unpublished dissertations mostly neglect applications to rhetoric, composing, or design in favor of considering how memory might facilitate critical or liberatory pedagogy. Crowley's *Methodical Memory* does not merit any mention in a discussion of memory since, despite its title, it actually concerns Current-Traditional Rhetoric. And disappointingly, Crowley and Hawhee's section on memory occupies less than three pages and focuses mainly on memory as an aid to invention rather than fully exploring its rhetorical significance and potential.

In the related field of Technical Communication, Whittemore, van Ittersum, Nielson, and McNair each focus on the role and importance of memory in one's practice rather than the memorableness of documents. Habit-as-collective-memory (Whittemore, *Rhetorical Memory*, Forthcoming) certainly helps writers and designers when they develop documents, but it does not address my interest in the memorable qualities of documents or the existing/new composing processes that enhance a document's memorableness. In other words, my research questions focus on the memorable qualities of written products, not the mnemonic practices and habits of writer's processes. Similarly, the memory practices resulting from writers' interactions with

digital environments (van Ittersum, 2007; 2009) are fascinating aspects of the composing process, yet these practices are firmly situated in a cognitive view of composing, leaving the (un)memorable aspects of the digital tools' interfaces unaddressed and the rhetorical or composing implications thereof unexplored. While the "memorability" of an interface's use (Nielson, 1999) and the memorableness of icons/visuals (McNair, 1996) should be considerations for writers, document designers, and web designers, these lines of research — like most usability studies — involve only the short-term or "working" memory of the audience. The readers or users have the (print or digital) text in front of them while they read or use it. This dissertation explores why audiences remember documents' information when they are no longer viewing or using them. Research addressing short-term or working memory is certainly valuable scholarship, but I submit that long-term memory is a richer, more influential rhetorical site and medium. Long-term memory has (theoretically) an unlimited capacity and duration, and it houses the experiences and impressions that form our identities.

Similarly, Yang does not explore the implications of his ideas for documents' memorableness, instead focusing on the workplace and other qualities of narratives. Dewhurst and FitzPatrick's commonsense suggestions, while valuable as a heuristic, do not advance our understanding of memorable communication. Ehrenberg reveals interesting insights into the memorableness of graphs, but it is less applicable to writing and/or whole documents. Regan's work centers around the computer algorithms that create graphs rather than the reasons asymmetrical layouts facilitate recall or the ways they might be applied to enhance documents' memorableness. Borkin et al. asked their subjects to indicate when they saw an image for the second time during a continuous stream of images; unfortunately, they did not clearly distinguish between genuine recall and mere recognition in their subjects' performance. Moreover, their

methods treated visualizations as images-to-be-recalled and did not measure either comprehension or retention of the visuals' information, thus making their findings less relevant to my interest in communicating information more memorably.

Apart from Whittemore's forthcoming *Rhetorical Memory*, the most significant recent rhetorical studies of memory — “public memory studies,” Heath and Heath's *Made to Stick*, and Berger's *Contagious* — originate from outside English Studies. The interdisciplinary field of public memory studies has contributed valuable rhetorical perspectives on memory, but it has not considered arrangement, style, or delivery in depth or in terms of document design. *Made to Stick* and *Contagious* also offer interesting rhetorical perspectives on memory, yet they focus on business and marketing tactics such as “branding” rather than the details of writing and document design strategies.

More to the point of this dissertation, none of the existing literature on memory directly or fully addresses the memorableness of documents, the possible effects of writing strategies or design elements on making information memorable, the ethical implications of making certain information either memorable or forgettable, or the potential advantages and disadvantages of viewing memory as reconstructive rather than as a container. Classical rhetoric, the Scottish Commonsense Realists, and Current-Traditional Rhetoric each focused on memory's relationship to invention in one way or another. Contemporary English scholars have looked backward to these traditions, either emphasizing memory's significance to invention and composing processes or critiquing mistaken notions about memory. Non-English scholars have examined memory's social, cultural, and (to a lesser extent) rhetorical nature, but they have not applied their theories and principles to writing, rhetoric, or document design in significant detail.

My dissertation will attempt to close these vast gaps in the scholarship on memory, contributing to multiple fields. It will develop a heuristic for assessing and composing memorable documents, a heuristic that I refer to as an ethic of memory.

MEMORY'S CONTRIBUTIONS TO ETHICS

Viewing ethics through the lens of *memoria* changes how we evaluate the ethics of existing documents and how we ethically create new ones. Richard Johnson-Sheehan's (2012) description of technical communication as "managing technical information in ways that allow people to take action" (p. 10) directs our attention to the purpose and ethics of communicating. The communication must be effective enough to enable some action in the short- and/or long-term, and the action enabled must be ethical. As Steven Katz (2004) explains, "Technical writing ... always leads to action, and thus always impacts on human life" (p. 199). Thus, as Katz and others have shown, accuracy, brevity, and clarity are insufficient ethical standards for technical communication. Humanizing our communication (Dragga & Voss, 2001; 2003) is essential yet also insufficient. If we are to enable ethical action, we must memorably communicate the information that enables said action. Taking memorableness into account, therefore, changes how we view and approach ethics in writing and document design. We cannot focus exclusively on communicating accurately, briefly, clearly, or humanely. We should also communicate memorably, tailoring our invention, arrangement, style, and delivery to enhance the memorableness of the most important information in a given document. Writers should view their rhetorical choices through the lens of an ethic of memory. Even "information architects" who primarily manage databases, coordinate teams of technical communicators, or interface among technical writers and organizational hierarchies could potentially benefit from viewing their knowledge-work through the lens of an ethic of memory. Their databases could be more

user-friendly, or their instructions could be more memorable and usable. An ethic of memory behooves anyone who communicates information.

As noted in the introduction, Composition and Rhetoric's discussion of ethics has focused on classroom power dynamics rather than the ethics of writing and design. Fortunately, Technical Communication offers a rich conversation about ethics in communication. Edward Tufte's work on ethics in visual rhetoric has been one of the most influential — and highly debated — contributions to the field. In his widely-cited book, *The Visual Display of Quantitative Information*, Tufte (1983) describes both “graphical excellence” and “graphical integrity.” The former presents interesting information “with clarity, precision, and efficiency,” conveying to the reader the “greatest number of ideas in the shortest time with the least ink in the smallest space” (p. 51). The latter depends on eliminating any inaccuracies, ambiguities, or distortions in the graphical representation (p. 77). Tufte's arguments and examples firmly established accuracy, brevity, and clarity as the crucial characteristics of ethical communication.

Following Tufte, Nancy Allen's (1996) heuristic for creating ethical communication also emphasizes accuracy, brevity and clarity. She builds the case for her heuristic with numerous examples of distortions and misrepresentations in graphs, indirectly emphasizing accuracy and clarity. She also adds a rhetorical dimension that recurs in later considerations of ethics and technical communication when she argues, “Technical communicators want their documents to be attractive and persuasive to their readers, but they also need to remain true to their informative purposes” (p. 88). In other words, if some aspects of a visual or a text distract from its information and thereby impede the readers' comprehension and/or achievement of their reading goals, then these aspects are unethical regardless of any aesthetic value they might have.

Ten years later, Alan Manning and Nicole Amare (2006) continue the tradition of emphasizing accuracy, brevity, clarity, and rhetorical purpose. They assert that aesthetic or decorative elements should not interfere with the visual's "informative purpose" (p. 195). Manning and Amare seem to define informative purpose as enabling "an intended audience to extract the statements or ideas needed to follow the author's thoughts." Inaccurate, misleading, or difficult-to-interpret visuals and texts are an "obvious breach of ethics" even if the errors or distortions were unintentional (p. 201). And, equally important, the author's goals should match the audience's goals, meaning the former provides the information necessary for the latter's desired knowledge or action (p. 208). Even more recently, Christine Rosenquist (2012) also argues that the purpose(s) of a visual must align with the document's purpose(s) and that "the author has an ethical responsibility to communicate clearly" (p. 50).

These are just a few notable and representative examples of the field's concern for accuracy, brevity, and clarity. Sam Draggia and Dan Voss (2001; 2003) observe that virtually all scholarship on ethical communication discusses ethics in terms of distortion and deception. While they applaud these contributions, they also argue the inadequacy of focusing "almost exclusively on accuracy and honesty versus misrepresentation and deception." Ethical communication also requires "genuine sensitivity to the human implications" of the graphs, visuals, and writing (2001, p. 266). Dehumanizing the human subjects of communication exhibits what Katz (2004) calls an "ethic of expediency." As he explains, "With expediency, the only ethical criterion necessary is the perceptible movement toward the technical goal to be achieved — including expediency itself" (p. 204). We can recognize the ethic of expediency in Tufte, Allen, Manning and Amare, Rosenquist, and the numerous textbooks that focus only on

accuracy, brevity, clarity, and honesty versus deception and distortion. Clearly, these are important but insufficient standards for ethical communication.

Dragga and Voss argue that we must also humanize our technical writing with photos of people, humanized graphics like stick figures, and/or vividly descriptive writing (2001; 2003). Unless we show sensitivity to human subjects through these or similar methods, the most accurate, brief, clear, and rhetorically purposeful communication remains “incomplete and incorrect, and the persuasive (and ethical) power of its conclusions and recommendations is impaired” (2003, p. 62). In other words, emphasizing the human element of a given set of consequences makes those consequences more poignant and more difficult to ignore or forget (2003, p. 79). Here, Dragga and Voss point toward the rhetorical power of an ethic of memory — the more memorable some information or argument, the more powerful its potential impact on the audience’s beliefs, attitudes, or actions.

Building on Katz (2004), Mark Ward (2010) shows why humanizing technical communication does not sufficiently round out the field’s ethical standards. He describes an “ethic of exigence” in which exigence is understood as a type of co-constructed social knowledge. An ethic of exigence explains how and why people create and consume unethical documents. The socio-cultural situation of the time not only makes the document possible but also demands its existence. Ward exemplifies this phenomenon with a Nazi poster explaining the 1935 Nuremburg Laws governing the relationships and interactions among Jewish and Gentile Germans. The poster’s information was not horrifying to its audience. Rather, it was quite helpful to people trying to orient themselves within the political and social realities of Nazi Germany. Gentile Germans gained an accurate, brief, clear depiction that matched their purposes in reading it. The poster even humanizes its subjects, using objective and fairly detailed

anthropomorphic figures to depict Gentiles and Jews. But clearly, this poster was very unethical since it enabled racist actions.

And this is why Johnson-Sheehan's (2012) definition of technical communication ought to be modified slightly: "managing technical information in ways that allow people to take [ethical or moral] action" (p. 10). Obviously, accuracy, brevity, clarity, and aligning the writer's and readers' purposes are insufficient ethical standards since many topics require humanization to be truly representative of its subject(s) and to have the strongest informative or persuasive effect. But humanization still falls short of ensuring ethical communication, as shown in the Nuremburg Laws poster. All of these factors are important ethical considerations, of course, but technical communicators must also consider the ethics of the action they are enabling. This is why Nancy Allen (1996) says technical communicators must "weigh the ramifications of their choices in terms of personal values, community ethical standards, and content accuracy" (p. 99). We must not enable just any action (we think) the audience might desire.

Considering the "ethic of action" naturally leads to an "ethic of memory" that significantly alters both how we view ethics in technical communication and how we craft that communication to be more ethical and effective. To enable an action (or set actions), one must memorably communicate the information necessary for facilitating or performing it. Readers simply cannot act upon some idea, information, or instruction unless they remember it when they need it at a later time. It is possible, of course, to constantly refer to readily-available instructions, but in such cases the readers are clearly hindered by the text's lack of memorableness. Since the typical person has been trained by the amount and accessibility of today's information to not work too hard to obtain and process it, many people facing such a hindrance will be likely to look elsewhere for the knowledge they need and to form a negative

opinion of the service, product, or company associated with the unmemorable document. The ability to generate wealth in a knowledge-based economy depends on attracting the scarce commodity of human attention (Lanham, 2007). It is neither effective nor ethical to depend on excessive referencing, whereas memorableness can enhance both effectiveness and ethicality. Dragga and Voss (2001; 2003), for example, imply that ethical communication promotes ethical action through memorableness when they contend that humanizing technical communication will orient readers' attention in such a way that they cannot easily ignore or forget the information presented. With the information about victims and causes of accidents at the forefront of their minds, the readers will be more likely to internalize it and/or implement it in preventing future accidents. Thus, the document will be more rhetorically effective as well as more ethical.

Moreover, it is possible to communicate information accurately, briefly, clearly, and humanely without necessarily communicating ethically. Information can be accurate, concise, and humane in its content while also being located in a less-noticeable place in a document or formatted so as to attract less attention. One could argue it is not clear to the reader, but this is not quite true. It can still be clear and easy-to-understand, but it is not very visible due to its arrangement and design. Because it is not visible, it does not attract much attention and is not easily encoded into memory (e.g., the fine print on credit card or timeshare offers). Therefore, it is not ethical despite upholding other ethical standards. An ethic of memory informs our understanding and practice of ethical communication, enabling these kinds of nuanced analyses.

Considering the memorableness of documents changes our understanding of ethics in communication, which in turn changes how we communicate. Other ethical standards — accuracy, brevity, clarity, efficiency, rhetorical purpose, humanization — are very important considerations, of course, but our understanding of ethics is not complete without an ethic of

memory. Understanding the nature of memory can inform how writers and designers assess the ethics of existing documents and how they invent, arrange, express, and deliver information for maximum memorableness. In turn, the memorableness of certain information in a document orients readers toward one or more beliefs, attitudes, or (in)actions. If the purpose of technical communication is to enable ethical action, then writers, document designers, and technical communicators are simultaneously obligated and behooved to evaluate their rhetorical choices through an ethic of memory.

THE RHETORIC AND ETHIC OF MEMORY

Psychological research on memory reveals many ways writers can make certain information in a document more memorable, and thus more ethical and effective. Both short- and long-term memory depend on being able to recall specific information. Recall depends on effective “encoding” of information. Encoding creates “retrieval cues,” or “any stimulus . . . that aids in retrieving a particular memory” (Wood, Wood, & Boyd, 2008, p. 203). To enable action, then, a technical communicator must facilitate the readers’ encoding of the information that enables said action into their memories. This new ethical perspective can — and should — influence the writer’s rhetorical strategies as well as his or her evaluation of the ethics of a given document.

According to psychological research, people employ various memory strategies to facilitate their encoding of information into memory: elaboration, “the formation of connections between to-be-remembered input and other information in memory” (Nairne, 2011, p. 256); distributed practice, or separating the repetition of information to-be-remembered with non-related events or information (p. 257); and overlearning, the process of “practicing or studying material beyond the point where it can be repeated once without error” (Wood, Wood, & Boyd,

2008, p. 222). People also develop mental “schema” — “large clusters of related facts” (Nairne, 2011, p. 264) — that organize or “chunk” information into concepts that are more easily understood and remembered (e.g., the schema for “car” brings together “tires,” “wheels,” “doors,” “windows,” and many other separate stimuli and facts). In the following discussion, I will demonstrate how an ethic of memory changes our understanding of both ethics and effectiveness in communication by describing how writers, document designers, and technical communicators might apply these encoding strategies in their rhetoric. When we consider how to facilitate the encoding of information — i.e., enhance its memorableness — then we find ourselves approaching invention, arrangement, style, and delivery much differently than before.

Memorable Invention

Until the Scottish Commonsense Realists disassociated memory from rhetoric, memory and invention were thoroughly intertwined in ancient and medieval rhetorical theory. The historians Frances Yates and Marry Carruthers construct detailed accounts of the study of memory from the ancient Greeks through the Renaissance, and their accounts demonstrate, both directly and indirectly, how memory was intimately tied to invention, cognition, and metaphysics throughout the history of rhetoric. Yates (1966) and Carruthers (2008) each emphasize memory’s importance to invention as a heuristic for “finding” ideas. As Carruthers says, “All mnemonic organizational schemes are heuristic in nature. They are retrieval schemes, for the purpose of inventio or ‘finding’” (p. 23).

Both Plato and Aristotle perceived memory as essential to invention. While Plato distrusts its accuracy and reliability, he also views memory as a connection to the soul’s divinity since “learning” actually means recollecting knowledge latent in the soul (see the *Meno*, where Socrates leads a slave boy in “remembering” trigonometry). For Plato, then, invention is a type

of metaphysical recollection of some innate knowledge or belief. In *De Memoria et Reminiscentia*, Aristotle describes memory as passively experiencing mental imagery of past events, experiences, or people, whereas recollection deliberately seeks out something in one's mind. Thus recollection is a form of reasoning, a syllogism, and thus directly connected to inventing ideas for one's speeches (Carruthers, 2008; Yates, 1966; Crowley, 1993; Phillips, 2010; Swadley, 2008).

The significant Latin texts on memory also stress its relationship to invention and extend the discussion into what Francis Yates calls "the art of memory" (p. 4) and what Mary Carruthers describes as "architectural or Herennian mnemonic" (p. 23). The anonymous *Ad Herennium* calls memory "the treasure-house of the ideas supplied by Invention," and Cicero echoes this praise when he describes memory in *De Oratorie* (qtd. in Swadley, 2008, p. 51). By implication, invention and memory are linked because speakers or writers cannot use any ideas they invent unless they can recall them when they need or want to use them. To successfully practice invention, then, one must have an effective memory.

Thus *Ad Herennium* teaches its readers how to practice "mnemotechnic" or "artificial memory" — that is, how to construct and use "memory places" that one populates with mental images symbolizing important information one wishes to remember for later use. This text suggests using real-life, well-known places and vivid, striking images to create a very detailed and descriptive schemata. It describes, for example, remembering the details of a legal case by constructing an image of a dying man surrounded by vivid images symbolizing those details, such as a bull (Yates, 1966, pp. 10-12). One can easily see how this artificial memory could aid invention, since it provided details and facts for the rhetor's use in similar legal proceedings.

If the art of memory facilitated invention so well, why is it not still widely practiced today?³ Unfortunately, the occultist Renaissance philosophers who promoted artificial memory systems began to separate memory from invention. Giulio Camillo's wooden "memory theatre" boiled down to memorizing, and rhetoric virtually disappeared from Ramon Lull's system of geometric shapes and Giordano Bruno's combination of Camillo and Lull's systems (Yates, 1966). Enlightenment humanists already disliked artificial mnemotechnics and the occultist views of memory, so they had little reason to respect the connection between memory and invention after memory's proponents de-emphasized this relationship and writing became more prevalent in society. The Scottish Commonsense Realists solidified the separation of memory and invention, and Current-Traditional Rhetoric perpetuated their views of memory as a faithful recording device and a static container.

In contemporary Composition and Rhetoric, most of the scholarship on invention focuses on strategies or heuristics for generating content (Lauer, 2006), and its emphasis lies on developing a topic, a thesis, or thesis support. Very little of the field's attention has been paid to inventing content that will be easily or vividly remembered. Some popular writing textbooks imply that successful invention will produce "memorable subjects, words, phrases, sentences, passages, and texts," but this is "an implicit notion of memory" rather than an explicit, sustained theoretical or practical discussion of memorableness and strategies for creating it (Reynolds, 1993, p. 10). Even the article "Memory, Literacy, and *Invention*" limits memory to the raw material that writers reinterpret and reconstruct when they write in narrative-based genres (Ryan, 2004, emphasis added).

³ In *Moonwalking with Einstein: The Art and Science of Remembering Everything*, Joshua Foer (2012) recounts learning from other "mental athletes" how to use artificial memory en route to his winning the United States Memory Competition. A BBC incarnation of Sherlock Holmes also uses a "memory place." These artifacts show that artificial memory is still practiced yet is also regarded as an oddity or parlor trick rather than a serious study.

By emphasizing memorableness, an ethic of memory changes the practice of invention. Stating connections among ideas at strategic intervals throughout a text, for example, could enhance an audience's encoding of key information through elaboration, distributed practice, and overlearning. Stating such connections explicitly, even at the risk of repeating the same ideas, would not be effective or ethical according to the standards of accuracy, brevity, and clarity. An ethic of memory, however, inverts these ideas about what makes an effective text, leading writers to invent content they might have left implied. Such connections increase the ethics and effectiveness of the document, as it must convey its main ideas memorably if it is to achieve its purpose for the audience.

Some scholars from the field of public memory studies have connected memory to invention via the audience. In his philosophical treatise *The Time of Memory*, Charles Scott (1999) describes how memory can be externalized and temporally transmitted through a culture's institutions and habits. By this logic, he contends that

people cannot think similar thoughts without sharing similar cultural, institutional memories. The limits of shared memories define the limits of thoughtful understanding. Bodies of knowledge and method also enable people to communicate with other people who share in such knowledge and methods.

People can communicate on the basis of similar experiences Without a play of shared memories, a thought would not appear to be possible, much less shareable or encounterable. (p. 247)

It follows that invention depends *entirely* on memory. If the boundaries of collective memory define the boundaries of understanding, then writers must consider what “cultural, institutional memories” they might share with their readers before, or in the process of, inventing content for

their writing. The “limits of shared memories” are also the limits of mutual understanding, and invention must be aware of the audience’s unfamiliarity with certain events, people, and ideas. Scott pushes his argument even further, suggesting that intelligent thought, and thus invention, cannot occur without collective memory. If thinking “enact[s] memories” involving language, culture, and institutions, then neither thought nor invention can occur without possessing memories of a common language, culture, history, *ethos*, *mythos*, and so forth (Scott, 1999, p. 247). Scott’s arguments lead to a greater emphasis on audience, as the audience’s experiences determine what thoughts can be “shareable or encounterable,” which then determines what content a writer can or should invent.

Kendall Phillips (2010) constructs a similar argument for considering an audience’s collective experiences and memories when inventing ideas. Using Aristotle’s assertion that “*recollection is like a syllogism*,” Phillips argues that the Aristotelian *enthymeme* involves a type of collective memory since the audience must think, or recall, the logic’s unstated premise. Thus, the *enthymeme* has the “capacity to bypass steps in syllogistic reasoning” (p. 217). However, this capacity requires the right cues to prompt a particular thought, or recollection, in the reader’s mind, or else the unstated premise may not be supplied and the syllogism will fail. To prompt a certain thought, or memory, the writer must have some knowledge of the audience’s cultural and institutional experiences, i.e., its collective memory. And the knowledge of this collective memory will determine what and how the writer invents arguments, especially *enthymemes*.

Modern advertising simultaneously invokes and shapes public memory by striving to be memorable; therefore, marketing research can yield helpful insights into the relationships among memory and invention. Two recent best-sellers merit special attention: *Made to Stick* by Chip and Dan Heath and *Contagious* by Jonah Berger. These texts illustrate how studying

memorableness informs our perspective on “effective” writing and thus changes how we approach our rhetorical choices, especially invention. One could invent straightforward, abstract, dispassionate ideas and details for one’s writing, but Heath and Heath show that those ideas might not be very memorable to their audience and Berger indicates that they most likely will not spread. Instead, invention should aim for qualities that are counter-intuitive to traditional rhetorical theory and technical communication ethics.

In *Made to Stick*, Heath and Heath (2007) review a plethora of successful and not-so-successful marketing campaigns to identify six common characteristics of memorable ideas: simplicity, unexpected elements, concreteness, credibility, emotion, and story-telling. Simplicity, refers to finding an idea’s core message and expressing it in a straight-forward fashion. In other words, memorable invention must “pack a lot of meaning into a little bit of messaging” by tapping into “the existing memory terrain of [an] audience” (p. 52), especially its preexisting schema. Creating connections between a message and the audience’s collective memory enables the invention of core, compact, *profound* ideas. Unexpected elements engage interest by “breaking” schema. Schema help us guess what to expect next from an object, situation, or story. Unexpected elements create interest in an idea by alerting us to flaws in our schema. Our invention can be more engaging, then, if we provoke questions before answering them, rather than simply conveying information. Concrete detail ensures clarity in one’s communication since sensory details and actions have the same meaning for all audiences; therefore, memorable invention will avoid abstraction in favor of more concreteness. The more credible an idea, the more likely it will be taken seriously and encoded into memory and/or schema. Appealing to an audience’s emotion involves engaging both individual and collective memory, as invention can create empathy for specific individuals, make associations with highly valued things, and/or

entreat self-interest and self-identity. Finally, stories “make people act” (p. 206) because they simulate real-life experiences, and these simulations prompt the natural response of mentally rehearsing or preparing a response.

While *Made to Stick* addresses the memorableness of ideas, Berger’s *Contagious* (2013) explains why some ideas not only “stick” but also “go viral.” He identifies six qualities that lead to the social transmission of ideas: social currency, triggers, emotion, public visibility, practical value, and stories. An idea has social currency when it is remarkable. Talking about a remarkable idea, event, or product makes the speaker seem remarkable as well — hence why people are more likely to share ideas that make them seem knowledgeable, funny, helpful, etc. Ideas may also gain social currency from public visibility and practical value. Since people use others’ behavior to guide their future actions, an idea will have more social currency, and influence, if it leads to some public action (e.g., Livestrong wristbands signal one’s charitable inclinations by publicizing a private action, thereby making the person look charitable). The practical value of a story makes it more helpful to its listeners, which in turn makes the teller seem knowledgeable and helpful. Of course, one must remember a remarkable idea in order to share it, so it follows that invention should convey the “interesting, surprising, or novel” (p. 42) qualities in an idea to make it more memorable. Ideas are also more likely to be shared if they are “triggered,” or recalled, by associations with things in everyday life, and they will be more likely to generate action, such as encoding-into-memory or sharing, if they invoke arousing emotions like awe, anger, or anxiety. Finally, stories can package social currency, arousing emotion, or practical value into a form familiar to our way of thinking. When writers imbue their invention with these concepts, their ideas will be more memorable because they must first be encoded before they can be recalled and shared.

To sum up, studying memorableness changes both the content that writers invent and the process they use to invent it. If writers seek to produce “sticky” and “contagious” ideas, then they will engage in different thinking and prewriting processes than the writer who aims only to come up with some ideas relevant to his or her thesis. If writers view their work through an ethic of memory, then they will generate different content and communicate it much differently than if they strive only for accuracy, brevity, concision, and humanity. Stories, surprise, emotion, triggers, and so forth become just as important as clarity, concision, and precision, and the content that one might have viewed as extraneous suddenly attains great significance for the effectiveness and ethics of one’s communication.

Memorable Arrangement

Of course, writers must also arrange what they invent. Some arrangements are easier to process and understand than others, so it follows that certain arrangements might be more or less memorable. Writers have long known intuitively that a clear, easy-to-follow arrangement facilitates comprehension. Comprehension, of course, helps accurately encode information into long-term memory, as a stimulus will be retained better if it is understood and processed effectively. Katz’s “Ethic of Expediency,” Heath and Heath’s *Made to Stick*, Kimball and Hawkins’ *Document Design*, and psychological research all suggest effective methods of memorializing arrangement.

Steven Katz (2004) begins his argument with a brief rhetorical analysis of the Nazi memo which exemplifies what he calls an “ethic of expediency.” He then describes the preferred method of arrangement in most technical, professional, and academic writing. As he explains, “By any formal criteria in technical communication, [the Nazi memo] is an almost perfect document. It begins with what, in recent composition theories and technical writing practices, is

known as the problem or ‘purpose statement’” (p. 256). This statement sets up the problem to be solved, creating exigence for the rest of the argument. The document then presents three numbered paragraphs demarcated by white space, each describing a particular problem related to the overarching issue and arguing for a specific solution. Each of these arguments follows the structure of one or more of Aristotle’s *topoi* (Katz, 2004, p. 257). The conclusion briefly emphasizes the necessity of the proposed changes. The description of this memo’s overall structure could be applied to many technical, professional, and academic documents.

Composition teachers, for instance, generally require a clear thesis statement embedded at or near the end of an introduction, body paragraphs that directly support the opening thesis by developing more particular aspects of it, and a conclusion that restates the thesis and its major supporting details. Dewhurst and FitzPatrick (2006) echo these requirements in their advice for making communication more memorable.

In short, the Nazi memo described above is clear, logical, and memorable. By opening with a statement of purpose, problem, or thesis, the writer can create exigence for reading the rest of the paper. This exigence increases the reader’s interest in encoding the information into long-term memory; there is a problem to be solved, and this information provides the solution. The greater the reader’s interest in this problem and its solution, the more likely he or she will try to encode the information so it can be easily recalled and applied at a later time. The use of *topoi* and *enthymemic* reasoning similarly engage the reader, as they introduce a problem, point, or rationale and then develop a solution, support, or example. The introductory information creates interest in the subsequent details, which then influences how they are encoded. So it seems that the preferred arrangement of formal writing does not only create cohesion and focus; it also uses audience-awareness, purpose, and repetition to present important points memorably.

To put it another way, the preferred arrangement of formal writing opens and then closes knowledge gaps, and this sequence can engage a reader's interest and generate more memorableness in a document's information. As Heath and Heath (2007) suggest, based on the work of behavioral economist George Loewenstein, a rhetor can make an idea "stickier" by opening up gaps in the audience's knowledge or expectation and then closing them in a satisfactory fashion. In other words, memorable arrangements begin by informing the readers what they do *not* know so that they realize they need to read the rest of the document. Then, the rest of the document can maintain interest by parceling out the new knowledge, much like a mystery gives its audience one clue at a time. The Nazi memo, for example, opens multiple gaps in knowledge (Why do these train cars need to be modified? What problems will be solved? How will these modifications solve them?) before closing them one at a time. When writers use *topoi* or *enthymemic* reasoning to solve a problem-statement or support a thesis, they create or utilize existing knowledge gaps (If this is the cause, what is the effect?) to engage the reader's attention and provide the information necessary for the reader's learning, persuasion, or action.

In their textbook *Document Design*, Miles Kimball and Ann Hawkins (2008) describe the importance of arranging a smooth visual "flow" and placing important information in "power zones." Although readers can look wherever they choose, "good page design provides a clear and natural *flow* for users' eyes to follow from design object to design object," characterized by a "clear entry point to the page" and a "clear path through the rest of the objects on the page" (p. 124, original emphasis). Technical communicators can use either "patterning" or "focusing" to create such a flow, especially if they keep in mind the readers' cultural background. Since people from Western cultures read from left to right, their eyes learn to move in a "z-pattern" across the page. Therefore, the top and left-hand side of a visual field catch Western readers' attention both

before *and* more than the rest of the field, creating so-called “power zones” that possess inherent emphasis and make good starting points for a document’s flow (Kimball & Hawkins, 2008; Kostelnick & Roberts, 2011). “Patterning,” then, is simply arranging the document in such a way that readers quickly identify the “entry point” in a power zone and then easily determine where to look or read from there. In contrast, the strategy of “focusing” tries to grab attention with a dynamic focal point, such as a central or dramatic image. Then the document directs “the user’s eye to related objects connected by the principles of design” (Kimball & Hawkins, 2008, p. 128). Patterning works well for text-heavy documents, like brochures, that users will read closely, whereas focusing works better for documents that users will more likely skim or scan, such as posters or flyers. Both strategies foreground the importance of a strong, easily-navigable, memorable arrangement.

Psychological research reveals more direct ways that arrangement can influence memory. The primacy and recency effects, for example, suggest that information will be remembered best when it is placed at the beginning or end of a list or sequence (Nairne, 2011, p. 257). Researchers theorize that the first and last thing we see or read takes on a natural distinctiveness due to its location, and this natural distinction helps us encode it into memory (also see Regan, 1998). Sequencing information, then, takes on extra importance in the context of an ethic of memory. Putting things “in no particular order” does not help readers encode information, and it may lead to less important information attaining more memorableness than it deserves by virtue of happening to be placed first or last. Similarly, approaches to arranging sentences also change when one considers an ethic of memory. In addition to clarity, concision, and precision, sentences should state their most important information at their beginning or their end, as often

as possible. Messages should be simple and clear (Heath & Heath, 2007; Dewhurst & FitzPatrick, 2006).

The phenomenon of “priming” is another insight from psychological research with significant implications for both invention and arrangement. Foreshadowing later points can function as “priming,” prepping both the audience’s memory and its reception of that information. Studies on priming have found that brief exposure to a word or image will increase the speed and improve the accuracy of naming that stimulus, or a related stimulus, at a later time. Foreshadowing information in one’s introduction, then, might increase that information’s memorableness for the reader (see Dewhurst and FitzPatrick, 2006). Also, readers may react more positively to key ideas, controversial statements, or difficult concepts if they receive some exposure to them earlier in the document. For example, priming research has discovered that brief exposure to abstract art elicits a greater preference for that type of art, and subliminal exposure to photographs of people prompts greater interaction with those people at a later time (Wood, Wood, & Boyd, 2008, p. 202). Priming not only strengthens memory for the primed information; it also generates more familiarity and thus more affinity.

An ethic of memory highlights the fact that an ethical arrangement should consist of much more than clarity and efficiency. Arrangements should also render information more memorable by engaging the reader’s interest through opening knowledge gaps and tapping into the mind’s natural attentiveness to distinctive and repeated stimuli. The preferred method of arranging technical, professional, and academic writing inherently uses these strategies, but this method can be employed with varying degrees of effectiveness. If we view arrangement through the lens of memory, then we can more carefully sequence information and ideas, like a mystery novelist, to arrest and sustain a reader’s attention. Effective arrangement can influence readers’

attention, memories, and even their preferences and receptivity to information; this powerful influence shows the importance of an ethic of memory and its guidance for creating more ethical, effective documents.

Memorable Style

Information is simply easier to recall if it is encoded with (or due to) a certain vividness, and the writer's style can make information more or less vivid, noteworthy, and engaging for the reader. Whereas previous ethical discussions of style have focused almost exclusively on clarity and efficiency, an ethic of memory adds an emphasis on making important ideas more memorable through vivid descriptions and imagery, Heath and Heath's concept of "simple" ideas, content-lexical ties, and other stylistic devices.

Dragga and Voss (2003), for example, argue that more vivid and descriptive writing can make information more poignant, which I believe strengthens its memorableness. They critique "the deliberate omission of the human element" in technical writing, especially accident reports with human victims, as self-defeating. Such "objective" reports convey an incomplete picture and dispose readers to feel a cold objectivity bordering on "callous indifference" (p. 78). Instead, Dragga and Voss argue, "we must communicate clearly the human dimension of accidents, making the loss of lives and the anguish of survivors impossible to ignore" (p. 79). By extension, the impossible-to-ignore should also be quite difficult-to-forget. The style of writing has a huge influence on whether information demands the reader's attention and memory.

Consider the contrast between the following caption from an actual accident report and Dragga and Voss' suggested revision. The original caption reads, "Damage to 404, 406, and 408 Alabama Avenue." This caption does not mention any of the people harmed in this accident or give any context that might convey the disaster's scope. It would be easy to ignore this vague

and impersonal style of writing. As Dragga and Voss lament, “street addresses get top billing in a caption of a scene where three people lost their lives.” They recommend as an alternative, “Three persons died and six were injured when an explosion caused by a gas leak during an excavation project demolished these three buildings in Bridgeport, Alabama” (p. 75). This caption mentions the victims, implies the horrific nature of their demise, and contextualizes the scope of the explosion, all while avoiding sensationalism. After reading this description, a rational person very much wants to avoid a similar accident in the future. The concrete details create imagery that evokes emotion — shock, grief, regret, motivation — *pathos* makes information more memorable (Carruthers, 2008).

Separately, Chip and Dan Heath (2007) and Jonah Berger (2013) champion the power of narratives and of expressing complex ideas simply; these strategies help information to “stick” in one’s memory and to spread throughout a culture. Heath and Heath’s description of simple ideas is especially applicable to writing style. Simple messages are both core and compact, meaning they express an exact, essential idea in a very concise and precise manner. Proverbs are the ideal standard. They express profound ideas in very simple and memorable ways. For instance, the proverb, “A bird in the hand is worth two in the bush,” states the core idea of taking the guaranteed opportunity over the uncertain speculation; it uses concrete language and even a little poetry to express this idea in a way that connects with people and sticks in their memories (pp. 45-7). This proverb and other “simple ideas” provide easily-processed information that can be clearly recalled for guidance in more complex, difficult situations. By implication, writers should invent important ideas, ideas worth remembering, and then express them concisely and precisely through a descriptive, concrete style.

As helpful as these ideas can be to writing with memorable style, Dilin Liu's description of "content lexical ties" (2000) most clearly connects writing style to our modern psychological understanding of memory. Content lexical ties are words that tie together different pieces of content, enhancing the text's cohesiveness, coherence, and memorableness. Dilin Liu (2000) identifies four types: synonyms, antonyms, and direct repetition; superordinates and hyponyms; related words; and text-structuring words. The first group connects new information with older information by either directly or indirectly repeating key words, concepts, and ideas. A superordinate is a broad category while hyponyms are its constitutive members, enabling writers to create organizational hierarchies in a text. Related words are not normally considered synonyms or antonyms, but they can have a synonymous or antonymous relationship in context (p. 29). Finally, text-structuring words are simply transitions that jog the reader's memory of previous information while also preparing the reader for new content (p. 30).

Arguably, content lexical ties enhance a document's memorableness through "elaboration," by forming "connections between to-be-remembered input and other information in memory" (Nairne, 2011, p. 256). Content lexical ties also utilize the encoding strategy of "distributed practice" by separating the repetition of important information to-be-remembered with other information that is either less important or yet to be reiterated through one or more content lexical ties (p. 257). Ultimately, the elaboration and distributed practice of important ideas should lead to "overlearning" for the readers, as they will be exposed to the information more than necessary to recall it accurately.

Two important theorists, Richard Lanham and Collin Gifford Brooke, have addressed style in ways that apply to the canon of memory, but I have placed them at the end of this section because their theories actually concern document design, the next section, more than style. In

English Studies, traditionally, style has referred to the clarity, precision, concision, and “voice” of written expression. As I will argue below, neither Lanham nor Brooke discusses style as it is traditionally conceived. Clear, efficient, and tone-appropriate writing is also highly valued in Technical Communication, but one could view document design as the field’s “style” since designs also need to be clear, precise, and concise. If one takes this view, then Lanham and Brooke’s ideas are certainly more relevant to the section on design rather than the section on style. I address them here, however, because I am aware that some readers could disagree with my interpretation of Lanham and Brooke and/or might not share the view that design is Technical Communication’s “style.”

In *The Electronic Word*, Lanham (1993) describes rhetoric “as an information system that functions economically, that allocates emphasis and attention” (p. 61), by prompting readers to oscillate between looking “AT” a document’s “stylistic surface” and looking “THROUGH” a document’s surface in order to focus on its content (p. 72, original emphasis). According to Lanham’s *The Economics of Attention* (2007), we oscillate our focus in response to information overload: “The more we are deluged with information, the more we notice the different ways it comes to us” (p. 143). In other words, the “style” of a text determines its points of emphasis, and we have become more sensitive to these points as a means of coping with the information-glut. The points of emphasis allocate readers’ attention. Lanham does not say they will influence what readers remember from a text, but that implication seems clear. Though Lanham focuses on digital environments, his ideas apply equally to print documents — perhaps more than ever as print and digital documents seem to increasingly resemble each other.

Following Lanham’s lead, Collin Gifford Brooke (2009) argues in *Lingua Fracta* that the way users oscillate between looking “at” and “through” an interface creates a particular position,

or “perspective,” from which users experience the interface and its information (p. 140). If we accept that any digital or written text can be an interface since it mediates between the writer and the reader, then Brooke’s ideas can be applied very easily to written and digital documents. Since one must pay attention to something in order to encode it into long-term memory and recall it at a later time, the way that a written or digital document’s “perspective” directs a reader’s attention will determine what and how much the reader remembers from the text. For example, a webpage that uses discrete textboxes will narrow the reader or user’s attention to the specific textboxes one uses most often; other textboxes and their information may be ignored — forgotten — completely. A more open design will generate a perspective in which readers or users notice, consume, and remember more of the information presented.

I argue that both Lanham and Brooke actually mean “design” when they theorize style in digital media. Lanham speaks very little of writing style when he describes the “stylistic surface” of digital texts, yet he frequently discusses the importance of design to directing and allocating readers’ attention. He even refers to designers as the new “economists” in an information-economy (p. 17). Brooke defines perspective/style as “a method for displaying three-dimensional objects and/or scenes in two-dimensional space” (p. 120). This definition positions style as design — as “displaying” information through its arrangement and delivery — rather than written expression. Brooke even uses the *World of Warcraft* interface’s viewing options as an artifact or example of perspective. In short, Lanham and Brooke focus on how a text’s design creates an overall “style” or “perspective” that influences one’s reading, attention, and memory.

When Brooke describes memory in his remediation of the canons, he calls it “persistence” and defines it as “the practice of retaining particular ideas, keywords, or concepts across multiple texts, be they websites, journal articles, or chapters of the same book” (p. 157).

Readers engage in persistence as they construct and retain connections across different texts. As Brooke's ideas illustrate, modern rhetorical theory has positioned memory as praxis, as something that a reader/user does while consuming information or that a writer does while composing or managing research. The most significant Technical Communication scholarship on memory also approaches it as praxis (Nielsen, 1999; van Itersum, 2007; 2009; Whittemore, 2008; Forthcoming). I do not wish to tear down this valuable perspective. But I submit that memory can also be positioned as a characteristic or set of characteristics of effective, ethical texts (hence why I use "memorableness" rather than "memorability"). To create these characteristics, one's writing and design processes may evolve to include considerations how to create them. The practice of "persistence" can be heavily influenced by writers' (un)memorable invention, arrangement, delivery, and expression of ideas. Whether working in digital or print environments, in the field of Composition and Rhetoric or in Technical Communication, writers and document designers can present ideas in such a way that the audience can effectively (or ineffectively) encode and retain those ideas.

Memorable Delivery

Delivery usually refers to the medium or media used to communicate a message. In "Re-situating and Re-mediating the Canons," for example, Paul Prior et al. (2007) suggest reconceiving the canon of delivery as "mediation" or the transfer of information. Delivery often involves choosing a medium, of course, but I argue that delivery can also entail design choices that make information either memorable or forgettable. As Richard Lanham (2007) points out, the ancient Greeks viewed delivery as "communicating the message in such a way that it would be accepted and attended to rather than refused, ignored, or ... unread" (pp. 23-4). In the *polis*, effective delivery was a speaking style that arrested attention. In writing, delivery becomes the

design elements that attract and direct attention, first hooking and then guiding the reader. Effective design can also allocate different emphases to different information in a document, ensuring it is noticed — that is, *paid attention to* — in the order and the manner the writer wishes (Kimball & Hawkins, 2008; Lanham, Economics, 2007; Kostelnick, 1996).

According to Malkewitz et al. (2003), attention has been defined metaphorically as a filter, skill, resource, spotlight, or a glue (p. 8). Raymond (2003) notes that attention both selects and ignores information: “Selecting is when neural mechanisms actively facilitate processing of certain chunks of information ... that are relevant for appropriate action (including thinking) in an ongoing situation” (p. 62). In other words, when we “pay attention” to something, we selectively focus on a particular set of information that possesses some immediate relevance to our goals or context. Our attention can be determined by either “bottom-up” or “top-down” processes. In the former, a stimulus catches attention regardless of one’s will. In the latter, a person directs his or her attention in accordance with a present goal (Lee & Ahn, 2012).

Whether elaborating, practicing, or overlearning, one must selectively attend to the information being presented in order to “encode” it into long-term memory for later retrieval. Numerous eye-tracking studies have observed a positive relationship between attention and memory (Lee & Ahn, 2012). For example, the accuracy of recall has been shown to increase along with duration of attention (Thomsen & Fulton, 2007). As cognitive researchers Theeuwes et al. (2009) quip, “attention is the vehicle by which information is stored in working memory” (p. 110). Therefore, it is important both for practical and ethical reasons to attract or direct the audience’s attention to the most essential information-to-be-remembered. This is accomplished through the principles of document design.

Donald Norman's concepts of "visibility" and "perceived affordances" further illuminate how design can influence memory and why it can be discussed as delivery. According to Norman (2007), the affordances of an object — the actions that a person can perform upon or with an object — should be highly visible and thus easily perceived. Visibility reveals the relationship, or "mapping," between a person's intended actions and the actions that are possible for an object to perform, enable, or facilitate (1988, pp. 8, 23). The more visible an affordance, the more quickly and easily someone will perceive how to use it. A chair, for example, needs little explanation before being used for sitting. It is not as obvious, however, that one could place a rectangular lectern on its side and use it as a seat. Extending these ideas to written texts, it logically follows that effective design can enhance the visibility of certain information. A centered and bolded title at the top of a page will have more visibility than the superscript for a footnote or the fine print of a contract. Visibility, of course, gives information the type of distinctiveness that facilitates its encoding into memory, as shown in the primacy and recency effects for instance. Thus, ethical documents must deliver their information through designs that allocate the reader's attention and facilitate his or her encoding in ways that fulfill the document's rhetorical purpose and enable ethical action(s).

An ethic of memory pushes technical communicators to view design choices as having significant impact on what information comes across in their documents, rather than considering design only in aesthetic terms as potentially pleasing or distracting ornamentation. As Charles Kostelnick (1996) argues, the visual elements of a document's design should "orient us perceptually and rhetorically" (p. 9) by revealing "global structure" through divisions and hierarchy as well as "establish[ing] cohesion among parts" through coherence and parallelism (pp. 24-5). Effective design can draw readers' attention to or away from some information,

establish a certain tone and sense of credibility, and emphasize some ideas while underplaying others (pp. 26-7). Emphasizing certain information, or patterns of information, over other material can dramatically impact readers' interpretations of a document, raising obvious ethical concerns about the possibility of deception, either intentional or unintentional (Kostelnick & Roberts, 2011). Since design orients and directs attention by making some elements more visible than others, it is essential to producing memorable, ethical documents. We must notice and attend to a stimulus before we can remember it.

Several influential theorists provide detailed guidelines for creating effective, aesthetically appealing designs, and their principles of design can be applied as heuristics for either assessing documents' memorableness or creating memorable documents. Below, I will review some of the major design gurus and principles that inform most technical communicators' document design.

In *The Non-Designer's Design Book*, Robin Williams (1994) provides a useful heuristic for creating and assessing effective, ethical document design. Her four principles of design include contrast, repetition, alignment, and proximity. Contrast adds visual interest as well as attracts and directs attention by exploiting our natural tendency to notice different and/or distinctive elements. Repetition of visual elements "develops the organization and strengthens the unity" of a document by establishing consistency among similar ideas. Alignment refers to one element's "visual connection" to another; it creates a "clean" look and organizes the document in hierarchical terms, adding to its cohesion. Finally, the principle of proximity involves grouping related items, turning them into "one visual unit rather than several separate units" so they are more easily perceived as being closely related in meaning and/or importance, which contributes to the document's organization (p. 13). Williams' principles achieve the

greatest impact on a document's clarity, cohesion, and organization when they work in tandem, creating what Steve Krug (2006) calls a "visual hierarchy" that "preprocesses" the document for the audience so its content can be understood quickly and easily (p. 31). To put it another way, these principles can make information highly visible, comprehensible, and thus memorable.

What is memorable can then influence action.

Richard Johnson-Sheehan (2012) reinforces Williams' description of effective design and also adds the principle of balance. He explains, "some items on a page or screen attract readers' eyes more than others — these features have more weight. A picture, for example, has more weight than printed words" (p. 483). An element's location on a page determines its attractiveness or weight. When a document has balance, the weight of its elements is arranged in a way that creates stability in the document. For example, a page might appear "unbalanced" if it has a large amount of white space on one side, or a centered font so enlarged it overwhelms the rest of the text. Johnson-Sheehan concludes that effective design should create easy-to-read layouts that highlight important information. In a sense, he argues for the effective delivery of information.

Kimball and Hawkins (2008) identify the following design principles: similarity, contrast, proximity, alignment, order, and enclosure. They distinguish between similarity and contrast since readers naturally assume similarity among similar-looking design elements but also assume different meanings when elements appear different. Their additions, order and enclosure, refer to the reader's tendency to perceive importance according to the order of presentation and using design elements to enclose or set apart objects or groups of objects. Like the previous theorists, they argue that effective design principles should create documents whose visual relationships reinforce their logical relationships. Good design, Kimball and Hawkins assert, "uses visual cues

to create order among the chaos of words, to guide users through the information held in the document, and to help users get what they need out of the document” (p. 121). Again, design is the delivery of information, of meaning.

In *Universal Principles of Design*, William Lidwell et al. (2010) frequently connect effective design to attention and memory, explaining how various design principles can highlight certain information, attract attention, or facilitate easier recall. Most notably, they suggest making information distinctive to encourage “elaborative rehearsal” or “deep processing” (p. 72) that increases recall (p. 254); using pictures and text together to facilitate better recall (p. 184); and using Heath and Heath’s framework for making ideas “sticky” (p. 222). Similarly, Kostelnick and Roberts (2011) describe how “emphasis strategies” can make information more distinctive and thus “draw the reader’s attention to key elements in a visual field” (p. 175).

Eye tracking and other empirical studies from psychology, cognitive science, and consumer research support the preceding design advice. Location, size, color, format, and visual “clutter” all affect viewing behavior, attention, and comprehension (Graham, Orquin, & Visschers, 2012); people spend more time viewing centered information and the information at the top of a document (Graham & Jeffery, 2011); headings facilitate scanning but excessive special formatting hinders the recall of text (Maat & Lentz, 2010); large type leads to skimming while small type encourages close reading (Cooke, 2005); images require less cognitive effort to process than text (Thomsen & Fulton, 2007); consumers will give more attention to products with fewer and simpler images rather than complex imagery; novel messages and/or abstract images spur more interest and attention (Seva, Go, Garcia, & Grindulo, 2011) and are located faster, viewed longer, and more likely to be recalled (Peterson, Thomsen, Lindsay, & John,

2010); and prominently-located images receive primary attention, which then significantly improves the ease and accuracy of recall (Thomsen & Fulton, 2007).

The eye tracking research also speaks to the importance of effective design. Theeuwes et al.'s (2009) eye-tracking study found that "selecting information from visual working memory is similar to selecting information from an actual visual representation" (p. 108), suggesting that an easily-visualized layout can enhance the reader's ability to recall information from a document. One study discovered that subjects were more likely to judge statements as true if their font and background colors were easily read; the ease of visual processing produced a feeling of familiarity and thus an "illusion of truth" effect (Winkielman, Schwarz, Reber, & Fazendeiro, 2003, p. 80). To enhance the readers' acceptance or persuasion, then, one should simply facilitate their visual processing and enhance their aesthetic experience of the document.

Of course, individual expectations, interests, and motivation can dramatically impact a reader's engagement with and memory of a document's content and layout. To begin with, no document can be analyzed without considering its cultural context (Kenney & Scott, 2003). Since Westerners read left to right, for instance, the top and left-hand side of a page receive the most attention or weight, although design elements can draw the eye elsewhere (Kimball & Hawkins, 2008). Similarly, Kaspar and Konig (2011) empirically demonstrated how individual context affects attention to a document. Their study showed that unfettered attention shifted from a global to a local focus from the first and second exposure to an image, but personal interest in the image moderated this effect and led subjects to retain a more global focus. Finally, people are most likely to attend to something if they have both the motivation and ability to understand it. While writers cannot easily increase motivation, effective design can improve ability by facilitating visual processing (Graham, Orquin, & Visschers, 2012).

As previously mentioned, long-term memory depends on encoding, and encoding can involve elaboration, distributed practice, overlearning, or schema. Theoretically, well-used design principles can facilitate each of these encoding techniques by increasing the text's cohesion and/or highlighting the relationships among the text's visual elements and content. Proximity (grouping related and separating unrelated blocks of information), repetition (consistently repeating design elements), and alignment (spatially arranging elements in relation to each other) can each help the reader see relationships among different segments of the document. If this type of elaboration draws readers' attention to the repetition of key ideas, then it could also become a form of distributed practice. Similarity and contrast might also help highlight important information, simultaneously elaborating on (inter)relationships and creating distinctiveness that facilitates recall. In fact, Lidwell et al. advise designers to use "chunking" or proximity, consistency, pictures, and novel or noticeably different design elements to facilitate viewers' recall of information. And as shown in the eye-tracking research, the order of ideas also adds emphasis and aids recall. Collectively, through attracting, directing, and organizing attention, the effective use of design principles may enable a document's content to have more input on a reader's preexisting schema for the subject at hand.

With all that said, document design might have its most powerful influence on an unconscious level. Large bodies of research have demonstrated significant unconscious effects resulting from various elements and principles of design. For example, numerous studies have shown that repeated exposure increases how much people like a given stimulus (Winkielman, Schwarz, Reber, & Fazendeiro, 2003). This attitudinal change is stronger when the viewer cannot recollect the exposure, meaning repeated exposure seems to be more powerful when perception of the stimulus happens unconsciously (Pimentel & Heckler, 2003).

Interestingly, this so-called “mere exposure effect” decreases as conscious attention increases; multiple studies reveal that frequent eye fixation improves attitudes toward the visual stimulus while longer eye fixation negatively affects attitude (Lee & Ahn, 2012). Most repetition studies using advertising as visual stimuli support these findings. Viewers’ preferences and emotional responses display “an inverted U-shaped pattern, where initial exposures generate increasing familiarity and positive affect” but later exposures decrease positive emotions toward the stimulus (Nordhielm, 2003, p. 91). But when experiments use “nonpersuasive stimuli,” especially for short durations, they report only increasing positive affect with each repeated exposure (p. 93).

According to Nordleheim’s (2003) research, the difference in response results from differences in cognitive processing. When people process visual stimuli in a deep manner, they analyze it in more detail and thus eventually come to dislike it after many repetitions. When people process stimuli in a shallow fashion, they increasingly like it regardless of the number of exposures. During shallow processing, repeated exposure makes perceiving the stimulus easier, and viewers are likely to misattribute easier processing to any aspect of the stimulus that seems like a plausible cause, such as simply “liking” it more. Interestingly, Nordlheim’s (2003) experiments imply that “the amount of semantic content possessed by a particular feature tended to determine which type of processing was employed” (p. 103).

Design assumes even more importance if it can facilitate easy reading, or shallow processing, and thereby increase the reader’s subconscious affinity for the document and its content. Repetition/consistency may not only organize a document but also increase positive feelings about the document simply due to the “mere exposure effect.” If proximity/grouping

makes text easier to scan, then it might also generate positive affect by facilitating shallower processing. Similar interpretations can be made for contrast, alignment, order, and balance.

Document design may also exert subtle influence through “priming effects.” According to Shantz and Latham (2011), “priming is defined as the temporary nonconscious activation of a behavior” (p. 290). Wood et al. (2008) elaborate that priming can increase the speed and accuracy of recall, influence preferences, and affect interpersonal behavior. Subjects who display priming effects do not report awareness of the priming stimulus, demonstrating that “a primed goal affects behavior in the absence of conscious attention or awareness of pursuing a goal” (Shantz & Latham, 2011, p. 290). In fact, Loersch and Payne (2012) demonstrate that a prime will be most successful when people misattribute it to their own thoughts, whereas the same prime will have no effect when subjects correctly attribute it to an external source.

Similarly, Laran et al. (2011) empirically showed that priming will not work — in fact, it will produce negative emotions — if the subject perceives the stimulus as an attempt at persuasion. Slogans, being more obvious persuasive devices, tend to generate a reverse priming effect. People know advertisements seek to persuade them, so they counter their messages both consciously and unconsciously. Brands, being less obvious in their persuasion, are not processed deeply enough to activate the same defensiveness. And if a message’s intended influence is not obvious, then it can have a strong priming effect (Lidwell, Holden, & Butler, 2010). As Nordheim (2003) explains, deeper processing involves more elaborate, detailed analysis of the stimulus, which inevitably leads to more negative thoughts as the stimulus repeats. So if any stimulus — including a design element — is to prime cognition, emotion, or behavior, then it should be subtle enough to be processed shallowly, perceived as non-persuasive, and attributed to internal thoughts.

Document design, therefore, can exert powerful unconscious influence. Visual elements may have far more impact than the document's actual text, by virtue of requiring less cognitive effort to process and thus being processed on a relatively shallow yet influential cognitive level. The aesthetic qualities of a document do not merely enhance its visual appeal; they also improve its usability by encouraging creative thinking (Norman, 2007) and its persuasiveness by influencing attitudes, beliefs, and behavior on a subconscious level.

CONCLUSION

As shown, memory is much more theoretically significant and interesting than typically thought. Memory is not memorizing; it is a reconstructive, socially-situated, dynamic process of making meaning. An ethic of memory changes our evaluations of ethical communication, reinforces established rhetorical strategies, and suggests new approaches to invention, arrangement, style, and delivery/design. A rhetoric of memory uses the principles of document design, the qualities of "sticky" and "contagious" ideas, and insights from marketing, eye-tracking, and psychological research to influence the audience's attention and encoding of information so that memories will be reconstructed readily and accurately. Thus writing and document design can achieve indelible impact.

In Chapter 3, the Methodology chapter, I will briefly advocate researching based on methodological rather than ideological concerns. Then I will describe in detail the methods, sampling, instruments, procedures, etc., for the study I will conduct to answer my research questions. My description will enable other researchers to replicate my methods and thus possibly extend, expand, or simply corroborate my findings.

CHAPTER 3

METHODOLOGY

Many respected researchers advocate choosing the research methods that best fit one's research problems or questions, meaning the methods most likely to produce the data one needs to best understand the research problem(s) and/or answer the research question(s) (Johanek, 2000; Lerner, 2003; Driscoll, 2009; Driscoll & Perdue, 2012; Creswell, 2012). In rhetorical terms, research methods should be selected based on the purpose, audience, and goals of the research project (Driscoll & Perdue, 2012). To achieve the purpose of understanding memorableness so that writers and document designers can create better documents, this study posits the following research questions:

- 1) What design elements cause a reader to attend to information in such a way that he or she will remember that information?
- 2) How do these design elements enhance a document's memorableness?

To attempt to answer these questions, I asked my subjects to walk down the main hallway of Clearwater High School and then complete an oral interview about their recollections. This hallway was already decorated with bulletin boards, flyers, and posters by the school's administrators, teachers, and students. Then I interviewed them about which documents caught their attention, what information they remembered from the documents, and their reasons for recalling this information. The interviews also collected some basic demographic information as well as asked about the typical contexts in which the subjects notice or pay attention to flyers (see Appendix B).

One week later, I conducted follow-up interviews with the subjects who reported remembering documents at the time of their first interview. These follow-up interviews were

intended to determine what information (if any) “stuck” over time and why (see Appendix C). I chose the time interval of one week based on Hermann Ebbinghaus’ “Forgetting Curve,” which demonstrates gradual and predictable memory decay. Ebbinghaus was the first psychologist to systematically study memory; he memorized nonsense groups of letters and then tested himself at various intervals, generating his now famous Forgetting Curve. In a 1991 study, Conway et al. replicated Ebbinghaus’ results with college psychology students (Wood, Wood, & Boyd, 2008), confirming that human forgetting can occur in a stable, regular pattern and can be measured. For the purposes of this study, the Forgetting Curve provides guidance for choosing a time interval at which subjects can be expected to recall something from the documents they observed, but most likely only the most attention-catching and memorable information.

To analyze the interview data, I coded the subjects’ responses with commonly-accepted design terminology and psychological concepts (see Appendix D). Then I analyzed the resulting data for overall trends. Next, I separated and further analyzed the data according to the subjects’ demographic information and their prior exposure to the documents (if any). Additionally, I took photos of the bulletin boards and the most-often remembered flyers, and I analyzed the content and design of these flyers, mapping their discourse against the subjects’ interview responses. My data analysis yielded multiple, complementary comparisons, both deepening and broadening my understanding of the memorableness of the documents used in my study.

DESCRIPTION OF THE STUDY

The following sections describe in detail the study’s populations, instruments, procedures, potential benefits and risks, and methods of data analysis. This study was reviewed and approved by the College of Arts and Letters Human Subjects Review committee at Old Dominion University (13-065). As I designed it, my overriding concern was creating or

maintaining an authentic context so that the resulting data would be generalizable to similar rhetorical situations. This concern directed virtually every decision about the study's subjects, documents, procedures, and so forth.

Populations

My study's populations consist of high school teachers and college-aged students in my local community of Piedmont, Missouri. In total, the study included ten teachers (eight female, two male) and ten students of college-age (five female, five male). I chose these populations because they were an authentic, real-world audience for the documents I decided to use as instruments. Several of the documents posted in the hallway of Clearwater High School were aimed specifically at teachers. The rest of the documents presented content intended to engage people in their late teens and early twenties. Also, both populations were readily accessible to me and eighteen years or older at the time of the study, thus avoiding legal and ethical issues with researching minors. Besides belonging to one of these two populations, all subjects were selected based solely on their willingness to participate in the study; I did not offer any incentive for participation, and there were no negative consequences for nonparticipation.

I utilized both "convenience" and "snowball sampling" to obtain the subjects. By convenience sampling, I mean that I asked people from my local community if they would be willing to participate in the study because they were accessible to me and also more willing to participate without special incentives. I did not need any special or particular characteristics in my population to answer my research questions, besides being an authentic audience for the documents, such as a teacher or young adult. Therefore, convenience sampling of these groups was an acceptable and logical option for my study. After meeting with subjects at the research site and completing their participation in the study, I then engaged in snowball sampling by

asking each subject for recommendations of other potential participants. I used this method to help build my pool of potential subjects, as I recognized that I might be unaware of some people who would be willing to participate in the study if asked (Creswell, 2012).

Instruments

I conducted oral interviews of the subjects after they walked, individually, down an academic building hallway, viewing the documents posted there as they went. Specifically, these documents consisted of bulletin boards, flyers, and posters placed by Clearwater High School's administration, teaching staff, and student organizations. These documents have specific target audiences (teachers and students), and these audiences happened to be convenient, accessible populations for this study. The natural alignment among the subjects, documents, and research site culminated in an authentic context for studying the attention-catching and memorable qualities of documents.

In educational research, the word "authentic" generally refers to real-world tasks, simulations, or problem-solving that applies course content. Authentic learning is supposed to be more relevant, meaningful, and memorable because of its similarity to real-life experiences and situations (Nicaise, Gibney, & Crane, 2000; Perkins & Blythe, 1994). The documents used in this study are not merely similar to the populations' real-world experiences; they *are* their real-world experience. The documents are located in a familiar and frequented environment and are intended for these populations. They are also authentic in terms of my study's purpose, for they are competing among other documents to gain attention and to be remembered and applied at a later time. Although it is always difficult to conduct a study in an authentic context, especially since study procedures usually add an inauthentic element, I believe my study manages to preserve a high level of authenticity.

I chose to conduct interviews because they are a widely-accepted research method in English Studies, and they reduced the mnemonic effects of written surveys. Had I used written surveys, the act of writing down recollections may have influenced the subjects' retention and confounded the data about the documents' memorable qualities. In other words, it would have been difficult, if not impossible, to separate the influence of writing one's recollections and the influence of the documents' designs and content. Oral interviews minimized these potential pitfalls.

As shown in Appendix B, I began the initial interviews with a few broad demographic questions:

- 1) Name?
- 2) Grade/Year (if applicable)?
- 3) (Intended) Major (if applicable)?
- 4) (Intended) Minor (if applicable)?

Collecting this information achieved two primary purposes. First, it inserted some time between viewing the documents posted in the hallway and recalling them. Thus, I ensured I measured long-term rather than short-term or "working" memory, which lasts only a minute or so. Second, collecting some demographic data opened the possibility of interesting correlations in the data. I anticipated that certain (intended) majors or minors, or even certain grade levels, might be more attentive or attuned to the flyers than others. I thought it likely, for example, that an English, marketing, or graphic design student might pay more attention to flyers in general or certain posters over others. I also considered it probable that teachers of certain subjects or grades might find certain documents more memorable than others. I did not ask for more detailed demographics, such as race, sex, or age, because it was easy to independently identify this information while conducting the interviews.

Next, I asked the following questions (as well as clarifying questions as necessary) to conclude the first interview:

- 5) In general, describe the typical context in which you notice flyers or posters. Where are you? What are you doing?
- 6) After walking down the hall just now, which flyers or posters do you remember?
- 7) Why do you remember these flyers or posters?
- 8) Do you remember any specific information from the flyers or posters?
- 9) What, if any, specifics do you remember from the flyers or posters?
- 10) Why do you remember this information?
- 11) How likely would you be to use or apply this information in the future, and why?
- 12) Do you recall previously seeing the flyers?

Asking subjects about the typical context in which they notice flyers revealed common reasons for looking at them. By asking which flyers the subjects remember, I determined which flyers caught their attention since a stimulus must gain attention in order to enter either short-term or long-term memory. Asking for specific recollections from the flyers and posters, I learned how the documents' designs influenced the subjects' long-term memories (albeit over a short time-period).

I conducted follow-up interviews one week later to ask subjects who had previously reported recollections what they still remembered from the documents at that point. In this follow-up, I asked subjects what flyers or posters they remembered from last week, and then I used Questions 7-10 from the above list (see Appendix C). These follow-up interviews enabled me to test the subjects' long-term retention. To account for attrition among my subjects, I recruited more participants than necessary, in anticipation that significantly fewer subjects would be involved in the follow-up interview.

Some might view previous exposure to the documents as a confounding variable, but previous or repetitive exposure to a given flyer is part of the context and rhetorical situation for these documents. Teachers and students may pass these bulletin boards multiple times in a day, or a given flyer may be posted multiple times to the same bulletin board. In either case, it will be interesting to compare responses from subjects with and without previous exposure to the documents.

Procedures

For each subject, I described the study's purpose and then read the Notification Form verbatim (Appendix A). As part of describing its purpose, I explained that I was studying what makes documents memorable, and I asked each subject to let his or her attention naturally wander around the hallway's posters, flyers, and bulletin boards. I also informed the subjects about the follow-up interview so they would know how much of their time might be required. Next, I asked each subject to walk, individually, down the main hallway of Clearwater High School, naturally observing the bulletin boards, flyers, and posters as he or she went. I emphasized the importance of letting their attention wander naturally as they walked down the hall. Afterward, I conducted the initial interview and recorded the subject's verbal responses in my notes. If the subject reported memories of the documents, I arranged to meet with him or her one week later for the follow-up interview (only one subject did not report any memories after her initial trip down the hall). For this interview, the subjects did not view the documents or the hallway again. Instead, they relied on their memories to recall information they had previously encoded, and I added these responses to my notes. At a separate time, I took photographs of the hallway and its posted documents for later analysis. I analyzed the content and design elements of the most-often remembered documents, focusing on correlating their characteristics with the

subjects' responses and then describing how those characteristics seemed to make the documents more memorable than others.

Potential Benefits and Risks to Subjects

Although the study did not provide tangible benefits, the subjects may have become better communicators in terms of writing and document design thanks to greater awareness of how a document affects their attention and memories. Participation itself did not pose any potential risk or harm to the subjects. Although the subjects were directly identifiable and connected to their responses, their responses did not (and will not) place the subjects at any risk of criminal/civil liability or damage to their financial standing, employability, or reputation. The demographic information is limited to name, grade/year in school, major, and minor. The flyers and posters were typical informational and promotional material that one would expect on a bulletin board aimed at students and teachers, such as advertisements for student events or cautionary warnings against drinking and driving. The data generated by the interviews was not of a sensitive or potentially damaging nature. Additionally, the subjects were not offered any incentive or other influence that might raise questions about coercion or similar harm.

To exercise an abundance of caution, however, I replaced the subjects' names with alphanumeric codes upon completion of their participation in order to preserve their long-term anonymity. The records of the subjects' responses are stored in a locked filing cabinet in my office, and no one else has access to these records. Five years after the study's completion, I will destroy the records.

Data Analysis

To analyze the interview data, I coded the subjects' responses using common design and psychological terms (Appendix D). I separated the resulting data for the initial and follow-up

interviews, and I counted the amount of information and specific details that the subjects recalled at each interview. Then I further broke down the data based on subjects' ability to recollect information from the documents, previous exposure to the documents (or lack thereof), and demographic information. With this done, I was able to more easily identify the most frequently remembered information and the most commonly cited reasons for remembering it. Lastly, I compared the survey responses to the actual documents, observing connections among the subjects' perceptions of the documents and their actual design elements, written content, writing style, etc. This discourse analysis enabled a more detailed understanding of the interaction(s) among the texts and their readers' attention and memories.

To count the amount of information and specific details recalled at each interview, I had to make some qualitative judgments about the subjects' reported memories. First, I considered what constituted a "set" or "unit" of information. This was usually a straight-forward decision, but a few cases required some nuance. One part of the CHS hall, for example, features framed copies of the Constitution, Bill of Rights, and Declaration of Independence. These are literally three different posters/flyers, but I counted them as one "set" or "unit" of information since they form a three-part schemata that subjects recognized and encoded as a unit and then reported accordingly. In other words, I counted any response that indicated a coherent memory as a single unit of information. Second, I assessed whether a recollection should be considered information or a specific detail of that information. If a subject said, "The FBLA flyer was bright yellow," did that response indicate one specific detail or two? After some thought, I decided to count two specific details in such responses. After all, to label a flyer according to its title or sponsoring organization, the subject had to remember that specific text.

Coding the subjects' interview responses also required subjective, qualitative analysis. At times, the subjects' responses did not necessarily fit neatly under a particular term or concept. I interpreted the responses' relationships to terms and concepts as logically as possible, though there may be some inevitable differences with others' interpretations. Furthermore, I used multiple codes for a given unit of information, specific detail, or reported reason-for-recalling either information or a detail. Since certain characteristics of documents and particular types of interview responses cannot be described in exclusive terms, using multiple codes was more accurate and appropriate than unnecessarily limiting my coding.

Appendix D lists the terms and concepts I used as codes. The rest of this section details the codes' origin, why I chose them, and how I applied them.

The codes for subjects' reasons for recalling information and details come from Lidwell et al.'s *Universal Principles of Design*, Karen Schriver's *Dynamics in Document Design*, Heath and Heath's *Made to Stick*, Berger's *Contagious*, and the psychological research on memory and attention. I reviewed the 125 principles of design and usability that Lidwell et al. list and identified a large number that seemed relevant to memorableness. Many of their principles apply more to design *processes* than the design *products* my subjects would view (e.g., "prototyping," "satisficing," or "feedback loop"), or they assume the reader/user will interact with the document to a greater extent than in my study. I eliminated these principles from consideration and focused instead on the principles regarding how documents are perceived, especially principles that Lidwell et al. describe as having an impact on memory (e.g., "stickiness" or the "Von Restorff Effect"). I used Schriver's text for more specific codes for images. Lidwell et al. and other design theorists discuss the power and memorableness of images, but Schriver goes a step further and describes five distinct types of image-text relationships that may affect the viewer's

attention, perception, and memory: redundant, supplementary, complementary, juxtapositional, and stage-setting. I chose to use Heath and Heath as well as Berger because if their “sticky” and “contagious” frameworks can apply to ideas, then they should also be useful in coding the memorable and/or viral qualities of documents. Lastly, the psychological research yielded codes for the subjects’ attention, perception, and explanations for why certain content or design elements caught their attention or “stuck” in their memories (e.g., “primacy effect” or “elaboration”). I asked subjects to explain why the recall information, and psychological terms seemed more relevant to such responses.

After compiling a rather lengthy list of codes, I conducted a pilot study before beginning the current study described in this dissertation. The pilot study involved ten subjects and field-tested the interview questions and the coding scheme. I chose to conduct field testing to ensure that my questions would produce data that could offer insight into my research questions, but more importantly, I wanted to both validate and determine whether to expand or narrow the list of codes. I feared that an untested coding scheme would be revealed as inadequate once I began analyzing the data. Fortunately, I found that the interview questions efficiently yielded answers relevant to my research questions, and the coding scheme effectively described each subject’s answers as well as facilitated identifying recurring responses, patterns, and trends in the data. Several codes remained unused after interviewing ten different subjects, so I discarded them as irrelevant to my study. I found myself coding some responses with “relevance,” meaning the personal relevance of the information remembered. Otherwise, I did not have difficulty coding any responses, so I added only “relevance” to my list. Thus the field testing led to the narrowed, more focused list of codes in Appendix D.

Several of the codes were applicable to tangible design elements, both within a given document and in the hallway as a whole. I used “similarity” to code responses that credited any consistency or repetition in specific design elements as the reason for recalling information, since the distinctive feature drawing attention to the consistent or repeated element is similarity. I reserved “repetition” for responses referring to the repeated appearance of a document, such as multiple postings of the same flyer. I coded a description of an image’s brightness against a dark background or the emphasis of enlarged, bolded, and/or colored text as “contrast.” When subjects referred to an unusual text alignment or a hierarchical organization, I used “alignment” as the best code. “Proximity” was used for the density or spacing of information in a given document or the spacing of flyers and posters relative to each other. The “primacy” and “recency” effects were used when subjects indicated that a document or some information in a document was the first or last thing they noticed. If a subject referred to a flyer’s bright colors, then I coded that response as “color.”

There are multiple terms referring in distinct ways to the memorableness of images. If a subject recalled a flyer because it had a dynamic or engaging image, then I coded this response as “images.” But if a subject specified that the image had a certain relationship to the flyer’s text, then I coded the response according to the five image-text relationships Karen Schriver identifies in *Dynamics in Document Design* (redundant, supplementary, complementary, juxtapositional, or stage-setting). In practice, I used only the redundant and juxtapositional text-image relationships; redundant described relationships in which images reinforced some text but weren’t necessary for understanding its message, and juxtapositional explained relationships in which the image and text contrasted in an interesting way. In cases where the image depicted a concept, person, or idea in a memorable way, I used the code “Iconic Representation.” (I use Lidwell et al.’s

definition of “iconic representation,” which uses “iconic” to refer to recognizable representations of something else.) If the subject attributed the depiction’s memorableness to an archetypal quality (e.g., good versus evil), then I chose “archetypes” as a more appropriate code.

Additionally, I used the SUCCES and STEPPS frameworks whenever appropriate. “Simplicity” was used for references to a clean design or a clear message; “unexpectedness” for responses indicating surprise; “concrete” for mention of sensory details; “credibility” for crediting the trustworthiness of a poster’s information and/or source; “emotion” for references to feeling engaged by a document; and “stories” for responses about any narrative(s) or association(s) created by the document. I used “social currency” for responses about the value subjects ascribed to remembering some information to share at a later time; “triggers” when subjects say a document’s content caused them to think of something else, making that content more memorable; “public visibility” when subjects explain information’s memorableness as the result of their desire for others to see them implementing it; and “practical value” for answers that cite information’s perceived usefulness as making it memorable.

I chose to use the code “schema” for two types of responses. If subjects said they noticed or recalled some information due to their personal interests, responsibilities, or contexts, then I used “schema” because they seemed to be encoding this information within a broader conceptual framework. Similarly, I also used “schema” if the subjects said they remembered something because it challenged, changed, or extended their preexisting ideas about a topic. These responses seemed to demonstrate that the subjects altered their conceptual frameworks to more effectively encode the new information into their long-term memories and knowledge.

The rest of my codes require some delicate parsing due to their similarities. “Elaborative rehearsal,” for instance, refers to the extent to which people think about material; the complexity,

distinctiveness, and/or relevance of a document can lead readers to more deeply engage a document, thus remembering it better (Lidwell, Holden, & Butler, 2010). Since elaborative rehearsal can involve three different, distinct factors, I coded any responses about a poster or flyer's content compelling some thought as either complexity, distinctiveness, or relevance as appropriate, rather than as elaborative rehearsal. Something could be elaborately rehearsed due to its distinctiveness but not its relevance, or vice-versa. Lumping these differences under the umbrella of elaborative rehearsal did not seem sufficiently refined or accurate.

If the distinctiveness of recalled information resulted from a highly unusual stimulus, however, then I used the "von Restorff effect" as a more appropriate code. Similarly, I used the term "elaboration" to code responses that indicated an active effort on the subjects' part to form connections among information. Finally, I coded responses about the semantic complexity, surprise, or double entendre of a flyer as "propositional density," since in these cases "complexity" refers to the layered meaning of information rather than the sheer difficulty in processing and understanding it (see Lidwell et al., 2010).

For some of the subjects' responses, multiple codes seemed equally accurate or appropriate. In the pilot study, one subject recalled an image of a hunchback wearing a green tunic and brown pants because it reminded him of Frankenstein. Another subject said this image reminded him of the Hunchback of Notre Dame. Each of these response can be interpreted as indicating simultaneously "iconic representation," "archetype," and "schema." The image is itself a memorable or iconic representation that invokes the archetype of the physically ruined creature. Each subject, however, related this depiction and archetype to a different schema, Frankenstein and the Hunchback of Notre Dame respectively. A third subject mentioned noticing and remembering trophies in a display case because they symbolize the hard-work and

dedication necessary for athletics. She specified that she knew how much work a championship team requires since she plays sports. This response clearly indicated “propositional density,” since the trophies symbolize something beyond their obvious meaning (winning a championship). But it also involves the subject’s schema, as she interpreted, encoded, and recalled this meaning because of her sports background. These are just a few examples of instances where multiple codes were accurate and appropriate for a single response; therefore, I decided to use multiple codes whenever necessary. Later, in my data analysis, I separated the multi-coded responses to observe if multiple “elaborations” on the documents enhanced their memorableness in comparison to other documents or information that needed only one code.

As I reviewed their responses, I noticed an interesting trend in the subjects’ recollection of specific details. The subjects recalled either images or text, but there were several possible sub-categories for each. I decided to code the specific details that subjects recalled to more specifically parse the types of details that “stuck” with subjects at both the initial interview and the follow-up interview one week later. I settled on using the following codes for images, all hyphenated with this broader classification: archetype, iconic representation, person, scene, object, and aesthetic. “Archetype” refers to images of characters, metaphors, etc. “Iconic representation” identified cartoonish depictions of real-life people, places, objects, or actions. I used “person” when subjects reported recalling a person specifically or exclusively and “scene” when they indicated remembering the overall scene of a poster/flyer, including but not limited to people. “Object” seemed most appropriate for specific or exclusive recollections that were not archetypes, iconic representations, or people, and “aesthetic” refers to responses about the overall appearance or impression of a document.

For text, I used these sub-categories, also hyphenated with the broader class: name, title, date, slogan, and action. “Name” and “title” were used for recollections of the names of specific people and organizations, respectively. “Date” was for responses including specific dates for meetings, events, etc. “Slogan” refers to reported memories of the most emphasized statements of the flyers or posters, such as “Don’t Drive Drunk,” and “action” refers to memories of any statements requesting or promoting a desired actions, like paying club dues. Finally, I observed that many subjects remembered both text and imagery, and there was always a relationship between them. I used Karen Schriver’s analysis of text-image relationships (see above) to code this data.

Chapter 4, the Results, will describe the analysis of my data and present the resulting information. This chapter will feature tables and graphs of the most significant, relevant results as well as detailed analysis and explanation of the data. It will conclude with a synthesis of the major results.

CHAPTER 4

RESULTS

This study involved ten teachers and ten students, for a total of twenty subjects and more than 6500 words of interview responses and coding. The teachers represent a variety of grades and disciplines. Most of the students attend a nearby community college, and their majors reflect a pragmatic, career-oriented motivation for pursuing higher education (e.g., nursing). The vast majority of subjects were able to recall information and specific details at both their initial and follow-up interviews, and their memories at the second interview were largely consistent with what they reported at the first one. It is clearly possible, then, for a document to exert a strong influence on an audience's memory over time through effective writing and design. But what writing and design strategies exerted the influence observed in this study?

The results indicate that there may be interrelationships among 1) the audience's existing schema and identity, 2) the personal relevance of a document's information, and 3) the document's use of color, contrast, familiar content, and text-image relationships. A person's schema and identity may lead to noticing and engaging with information on a certain topic over other stimuli, making that information more relevant and thus more worthy of encoding into long-term memory. Familiar content like titles and slogans also enhances memorableness, especially if the text is reinforced by an image. Color, contrast, and imagery help things "stand out" for their novel appearance. But the audience's schema and identity stubbornly influence which novel stimuli stay in long-term memory. Color, contrast, and vivid or novel imagery can gain attention, but they do not necessarily make documents memorable.

Taken together, these results answer the study's research questions:

- 1) What design elements cause a reader to attend to information in such a way that he or she will remember that information?
- 2) How do these design elements enhance a document's memorableness?

The color, contrast, imagery, and familiar content of a document can gain an audience's attention and facilitate encoding its information and details into long-term memory. Color, contrast, and imagery are naturally and inherently attention-catching. Familiar content like well-known slogans or the titles of well-known organizations is easy to encode and thus easy to retrieve. But these elements are most effective if they appeal to readers' existing schema and identities, leading them to ascribe relevance to the document's information.

LIMITATIONS

It is possible that the subjects performed better in their follow-up interviews because they saw the documents in between interviews, this time with greater cognizance of them. I cannot completely rule out this possibility, but I believe it is unlikely for three reasons. First, most of the subjects in this study observed, or had opportunity to observe, the documents many, many times before participating in my study. If repetition was a decisive factor, then there would have been more significant differences in performance in both interviews between the subjects who reported prior exposure to the documents and those who did not. But as Table 3 shows, repetition did not give any subjects an advantage, and in fact, some subjects without any previous exposure to the documents performed better than subjects with it.

Of course, subjects may have been more cognizant of the documents in the hallway thanks to their participation in the study. This brings me to my second reason for doubting a significant impact from this limitation; three subjects, all teachers, remembered more information in their second interview than the first, but none of them spend time in the part of the hallway where I conducted the study. Two work in a different school building, and one works in

a different section of the high school. Additionally, subjects FT1 and FT2 were absent from work for most of the week in between interviews, yet they performed about the same on both interviews. It is unlikely, then, that greater cognizance of posters and flyers had a significant impact on the study's results.

Finally, the subjects' responses were very consistent from one interview to the next (see Tables 3, 4, and 5). Across the board, at the follow-up interview, the subjects remembered most of what they recalled at the first interview. There were some additions, deletions, and rephrasing, of course, but the general content of their recollections was quite consistent. It is possible that repeated exposure and/or greater cognizance brought their performance in the second interview up to the level of their first interview, but I would expect a much better performance if the limitation of possible repeated exposure with heightened awareness had exerted a significant influence.

Rather, I believe it is much more likely that the simple act of reporting memories helped further encode them into long-term memory, an unavoidable limitation. To obtain memories from subjects without them reporting what they remembered, a researcher would have to design a very carefully, tightly controlled experiment in which the subjects indirectly revealed their recollections. The documents in such a study would need to be manipulated so that their elements/variables were few. For example, a study could ask subjects to view documents that use only Robin Williams' principles of design (contrast, repetition, alignment, and proximity) and to complete some kind of test or survey about the information in these documents. The researcher could then extrapolate which principles influenced the subjects' memories based on their answers on the text or survey. While such a design might (theoretically) avoid the confounding influence of reporting memories, it would also use an inauthentic context, circumscribe the

study's scope to only a few design elements or principles, and prevent the subjects from contributing any surprising or unexpected responses about what they remembered and *why*. Since I was quite surprised by some of the responses in my more authentic design, I prefer to accept the possible limitation of the influence of reporting memories.

Along the same lines, the subjects may have been more cognizant of the hallway's posters and flyers between interviews (and thus performed better in the follow-up) because they felt like they were preparing to be "tested." This could be especially true of the students, who are often put in the position of proving their knowledge or ability to an instructor. They may have paid special attention to the posters and flyers they reported during the first interview, so that they could "pass the test" of the second interview by recalling the same documents. This is an unavoidable limitation that I cannot control for in this study's design. Even a more tightly controlled, inauthentic study (like the one described in the previous paragraph) would likely suffer from the possibility of subjects striving to equal or exceed their performance in the first interview.

One possible limitation might be the distance between the college students in this study and the intended audience of the posters and flyers in the CHS hallway. The college students may not have remembered the documents' information and details as well as they could have, since they may have had difficulty relating to documents intended for a younger audience with a different set of experiences and concerns. For example, a poster advertising joining the FBLA club does not have much relevance to college students. I admit that this is an avoidable limitation; one could perform this study with different documents or a different audience.

Yet I do not believe this limitation significantly affected the study's results. In Tables 6 and 7, I list the most-frequently remembered information for the teachers and the students

(respectively). By “information,” I mean the broad, general content that a subject referenced when recalling the poster or flyer. Referring to “the FBLA poster” was coded as “FBLA,” for example. As groups, the teachers and students share three pieces of information in common, and these happen to be the three most-often recalled pieces for each group: “FBLA,” “teachers’ commitments,” and “drunk driving.” One would expect more variance between the teachers and the students’ interview responses if the students’ distance from the documents’ intended audience was a significant confounding variable. Indeed, “FBLA” and “teachers’ commitments” are exactly the type of information that college students should find irrelevant.

Another potential limitation stems from the time-period of my data collection. I collected data from some subjects in early to mid-September and the remaining subjects in mid to late-October. Therefore, some subjects did not have an opportunity to observe some posters or flyers that were removed or posted later. It is possible, then, that some posters or flyers might have earned greater representation among the data if more subjects had had an opportunity to notice, encode, and recall them. It is also possible that some documents might have been over-represented because of the smaller sample size. However, I believe this limitation had little actual effect on the results. The most commonly remembered posters and flyers were posted throughout the study’s duration. If a document would have been reported by later subjects if it had not been removed, then it would have been reported more often by the earlier subjects. If a document was overrepresented by a smaller sample size, then it would not have been reported by the larger group of later subjects. Instead, the most-remembered documents were available to all of the subjects. And to some degree, I am testing subjects’ memories rather than the documents themselves.

DESCRIBING THE SUBJECTS

My interview began with some general questions about the subjects:

- 1) Name:
- 2) Age:
- 3) Grade/Year:
- 4) Major:
- 5) Minor:

Asking the subjects' names was intended only for identifying and organizing their responses.

Upon completion of their participation in the study, I replaced their names with alphanumeric codes. "F" and "M" identify gender, "T" and "S" distinguish teachers from students, and the numbers differentiate each teacher/student from the rest. In other words, the subject labeled "FT1" is a female teacher and the first subject among the teachers to participate in the study. The a subject "MT7" is a male teacher and the seventh teacher to participate.

Of the ten teachers, seven teach at the high school, and six of those seven teach a range of grades and courses. The remaining teachers teach seventh and/or eighth grade subjects (Table 1).

Table 1. Teachers' Disciplines and Grades

	Discipline	Grade	Age
FT1	Math	11 th – 12 th	50
FT2	Social Studies	9 th , 11 th	27
FT3	Family & Consumer Science	9 th – 12 th	42
FT4	Library	9 th – 12 th	48
FT5	Science	8 th	44
FT6	Special Education/Counseling	9 th – 12 th	41
MT7	Math	9 th – 12 th	34
MT8	Science	10 th – 12 th	52
FT9	English	8 th	45
FT10	Math	7 th – 8 th	49

N=10

Six of the ten students are college freshmen, two are sophomores, one is a junior, and one is a graduate student at an online university. Four are majoring in nursing, two are studying agriculture, two are completing general education degrees, one is a fire science major, and one is in religious studies. Most do not have a minor (Table 2).

Table 2. Students' Majors and Year in College

	Major	Year	Age
FS1	Nursing	Junior	20
MS2	Agriculture	Freshman	18
MS3	Agriculture	Sophomore	20
MS4	Religious Studies	Graduate	43
FS5	Nursing	Sophomore	32
MS6	Nursing	Freshman	23
MS7	General Education	Freshman	18
MS8	General Education	Freshman	19
MS9	Nursing	Freshman	33
FS10	Fire Science	Freshman	18

N=10

CONTEXTUALIZING ATTENTION TO FLYERS AND POSTERS

After asking about the demographic information, I asked subjects to describe the typical context in which they notice or pay attention to flyers, posters, and the like. The subjects responded in remarkably similar ways whether they were teachers or students, nursing or agriculture majors, near retirement age or fresh out of high school. In so many words, each subject reported noticing flyers and posters while waiting somewhere or casually walking to or from someplace. Most subjects stated that they did not pay much attention to their surroundings if they had a purpose or goal in traveling to a destination. The phrase, “on a mission,” was used

several times to describe the focused state of attention and cognition in which flyers and posters on the wall might be effectively invisible.

The remaining questions in the first interview asked subjects which flyers or posters they recalled and why, what specific details (if any) they recalled and why, how likely they would be to use or apply the documents' information, and whether they remembered observing the documents before participating in the study. The second interview reiterated these questions. Instead of reviewing the results question-by-question, I will present various syntheses of the results in order to best display, compare, and analyze the data.

REMEMBERING INFORMATION

In my interviews, I asked subjects what information they remembered and why. This section details their responses. The next section provides the responses about which specific details the subjects recalled and why. I distinguish between "information" and "details" based on scope. If a subject recalls the "drunk driving poster," then I consider that an indication of information. If a subject remembers the colors on the drunk driving poster, then I evaluate that as a specific detail. In some cases, the nuances were not quite so clear. When subjects remembered "the FBLA flyer," they were simultaneously reporting a set of information and a specific textual detail. In such cases, I counted the response as both information and specific detail.

Most of the subjects remembered seeing the flyers and posters in the CHS hallway prior to participating in the study. This is unsurprising since some of these documents have been posted for a long time. Other materials were posted more recently, and thus a few subjects remembered seeing some of the flyers and posters they noticed and encoded, but not others. For simplicity's sake, I considered the balance of subjects' responses when I assigned these subjects to the group with or without repetitive exposure to the documents — that is, I coded a subject as

not having previous exposure to the hall's documents if the majority of his or her recollections involved documents he or she did *not* recall seeing previously, and vice-versa. Six of ten teachers and seven of ten students reported memories of previously seeing the posted documents.

Table 3 displays the numerical amount of information recalled by each subject in each interview as well as whether they reported previously seeing the documents in the CHS hallway. There was good consistency in the subjects' memories from the first to the second interview. The teachers tended to remember more information in both interviews, and three of them actually remembered more information in the second interview, probably because the act of reporting information helped them recall things they noticed and encoded but did not think to report at the initial interview. Though I cannot be 100% certain, I am reasonably confident that none of these three teachers was exposed to the documents between the interviews, as one works at the hall's opposite end and stated in her interview that she never went to the end used in the study and the other two work in the middle school. Two of these three subjects were outliers, making the teachers' overall number of recollections seem disproportionately large. Previous exposure to the documents did not appear to have any significant influence on the amount of information recalled. The most important result is that the subjects consistently remembered information from their walks down the hall, indicating that documents can and do influence memory. In subsequent tables, an asterisk next to a given subject's alphanumeric code indicates that the subject reported *not* previously seeing the documents.

Table 3. Amount of Information Remembered, First and Second Interviews

Teachers	1 st	2 nd	Previous Exposure?	Students	1 st	2 nd	Previous Exposure?
FT1	4	4	Yes	FS 1	4	3	No
FT2	9	4	Yes	MS 2	3	1	Yes

Table 3 Continued

Teachers	1 st	2 nd	Previous Exposure?	Students	1 st	2 nd	Previous Exposure?
FT3	3	2	No	MS 3	3	2	No
FT4	12	18	No	MS 4	5	1	No
FT5	3	3	No	FS 5	3	3	Yes
FT6	5	4	Yes	MS 6	4	4	Yes
MT7	3	1	Yes	MS 7	5	5	Yes
MT8	5	3	Yes	MS 8	2	1	Yes
FT9	10	11	No	MS 9	3	2	Yes
FT10	5	7	Yes	FS 10	2	2	Yes
Total	59	57		Total	34	23	

N=20

Information Teachers Remembered

Table 4 lists the teachers' reported memories during both the first and second interviews. In this and subsequent tables, I put exact quotes from the subjects inside quotation marks. The remaining content is my summarized, condensed version of the responses rather than word-for-word transcriptions. I paraphrased whenever possible to maintain the concision and consistency of the data, but I quoted when the precise phrasing of a response was very unique or yielded clear insight into how the subject encoded and recalled the memory.

To further explicate how I paraphrased and quoted the subjects' responses, I will provide several representative examples as well as the rationale behind my interpretations and decisions. To begin, subject FT1 reported remembering, "Christy had folders for her classes on her door," in her first interview. At the follow-up interview one week later, FT1 recalled, "the folders outside Christy's door." For the sake of concision, it made sense to distill these recollections into "Christy's class folders" (Table 4). This paraphrase also maintained consistency in the response from one interview to the next, facilitating side-by-side comparison. Condensing the responses did not eliminate any essential information. In contrast, I quoted "don't do drugs" since FT1 used

this exact wording as a retrieval cue for a drug prevention poster. Other subjects used the titles (or most prominent words) of posters to encode, recall, and report them, such as “Why Study History?” or “Why Study Multiculturalism?” Such wording does not only label the poster; it also reveals how the subject’s memory worked in this instance. Similarly, the subject’s wording, “BETA ‘thing,’” illustrates that she recalled a document related to BETA club although she had not encoded its details beyond the title (Table 4).

In some cases, paraphrasing also helped maintain consistency across the subjects’ responses. For example, FT2 recalled in her first interview a “poster with race car driver about drunk driving,” which I rearranged as “drunk driving poster with race car driver” for a little more clarity as well as grammatical correctness. But FT4 recalled the same document except she described the “race car driver” as a “racing guy or athlete.” In her second interview, FT4 recalled a “race car driver” instead. By changing “racing guy or athlete” to “race car driver,” I was able to maintain consistency from one subject to another as well as across the same subject’s interviews (Table 4). This consistency facilitates comparing the data in Table 4 and the counting of units of information in Table 3. Had I let “racing guy or athlete” remain, then the data would have had distinct phrases for the same document and the same basic recollection, and one would need to mentally edit the data before analyzing it.

Table 4 shows the entire edited data-set for the teachers’ reported memories of information. A close reading of the table reveals the consistency of teachers’ responses as well as how the teachers sometimes rephrased or added to their recollections in the process of recalling them. This is consistent with the literature on the reconstructive nature of memory. Subjects who reported *not* previously seeing the posters or flyers are marked with an asterisk in Table 4 and

subsequent tables. Previous exposure to the documents did not seem to affect how much, or how well, subjects remembered. Refer to the appendices to view photos of the documents.

Table 4. Teachers' Reported Memories, First and Second Interviews

	1 st	2 nd
FT1	FBLA dues; "don't do drugs" poster; Christy's class folders; BETA bulletin board	FBLA dues; Christy's class folders; BETA "thing"; senior's bulletin board
FT2	spaghetti supper flyer; drunk driving poster with racecar driver; why study posters outside classrooms; Bill of Rights, Declaration of Independence, and Constitution; skeleton; teachers' commitments bulletin board; list of clubs	race car driver; spaghetti dinner; Constitution, Bill of Rights, and Declaration of Independence; FBLA dues
FT3*	trash on ground; strap hanging from locker; cigarette box on ground	trash on floor; strap hanging from locker
FT4*	two drunk driving posters with race car driver; two similar alcohol abuse posters; drug abuse poster with trash behind girl; "why study history?" flyer; "why study multiculturalism?" flyer; bathroom signs; A+ bulletin board; counselor bulletin boards; Constitution, Bill of Rights, Declaration of Independence; Henson's bulletin boards for drama, speech, and miscellaneous; teachers' names on doors; Findley's decorations	drug abuse poster with trash in background; two drunk driving posters with race car driver; two similar posters about alcohol abuse; Bill of Rights, Constitution, Declaration of Independence; "why study history?" flyer; "why study world history?" flyer; Three Rivers College Poster; Tiger poster next to Henson's door; Findley's decorations – Experiment with Learning – Read; Henson's bulletin boards for speech, drama, and miscellaneous; counselor's bulletin boards; Mineral Area College poster; counselor's memo; class bell schedule; concession stand sign-up; teachers' names on doors; teachers' commitment bulletin board; A+ sign
FT5*	tiger picture; Halloween display ; BETA club poster	tiger picture; BETA club poster; Halloween display

Table 4 Continued

	1 st	2 nd
FT6	drunk driving poster; “friends aren’t disposable” drug abuse poster; FCCLA poster; names on doors; Mr. Silvester’s “peace-to-all-who-enter” sign	drunk driving poster; FBLA poster; Mr. Silvester’s sign; “spike out cancer” sign
MT7	“Don’t drink and drive” poster; “No drugs in our school” poster; “Don’t throw your best friends away” poster	drunk driving poster
MT8	teachers’ commitments bulletin board; ACT test October 25th; “Experiment with Learning” display; SEMO flyer; BETA club poster	“Experiment with Reading” display; SEMO flyer on counselor’s bulletin board; blood drive flyer
FT9*	Constitution, Bill of Rights, Declaration of Independence; drug abuse poster with girl sitting in trash heap; green sign for FBLA; blood-drive flyer; inspirational quote “when you get to the end of your rope, tie a knot;” post-it notes on Henson’s wall; teachers’ commitments bulletin board; celebrity on poster; multiculturalism poster; FBLA sign	drug abuse poster; girl on couch in trash dump; blood drive flyer; celebrity race car driver; Henson’s drama club flyer for choosing play; inspirational quote “When you’re at the end of your rope, tie a knot and hang on;” two different FBLA posters (one bright yellow, one bright green); Constitution, Declaration of Independence, Bill of Rights; multiculturalism poster; teachers’ commitments bulletin board
FT10	FBLA poster; blood drive flyer; orange flyer with new bell schedule; teachers’ commitments bulletin board; concession stand sign-up	FBLA poster; blood drive flyer; concession stand sign-up; new bell schedule on orange paper; teachers’ commitments bulletin board; Mrs. Findley’s decorations; ACT test date poster

N=10

Information Students Remembered

Table 5 lists the students’ reported memories during both the first and second interviews. Again, I placed exact quotes from the subjects inside quotation marks, and I paraphrased responses whenever possible or desirable. I will review some representative examples of how I processed this part of the data. For example, subject MS3 recalled in his first interview,

“Findley’s room, both sides of the hall were covered.” In his second interview, MS3 said, “I remember Ms. Findley’s door” (Table 5) Both these recollections refer to the large decorations covering a teacher’s door and much of the nearby hallway (Appendix N). Adding “decorations” clarifies the responses, while deleting the inessential words adds to the data’s concision and consistency. For another example, in the first interview, MS9 reported, “Something about a race car, a race-car driver on it.” In the second interview, MS9 recalled, “the flyer with the race car.” As shown in Table 5, I paraphrased in a way that accurately represents the subject’s recollections at each interview. I rephrased the first response as “poster with race car” and “poster with race car driver” and the follow-up response as “poster with race car.”

However, when a subject’s reporting was indicative of his or her encoding, I let the subject’s original wording speak for itself. MS4 described Findley’s decorations as a “huge Halloween wall.” This is somewhat vague, so I added the word “decorations” (see Table 5). But I did not change the wording to “Findley’s decorations” because MS4 clearly encoded the content and theme of the decorations as “Halloween” (as shown in Appendix N, a hunchback reminiscent of Igor, skeletons coming alive, and phrases like “Experiment with Learning”). For another instance, MS7 said he remembered the “[flyer] on the bathroom door that said ‘make a call, help us all.’” In his follow-up interview, he recalled the “[flyer] with a stick person that said ‘make a call, help us all’” (see Table 5). The subtle difference should be preserved since it reveals a change in the subject’s retrieval. In the initial interview, the flyer’s location helped the subject encode and recall it. In the follow-up, the flyer now has a stick person stating its slogan. If I had paraphrased these responses, then this subtlety would have been lost. Table 5 shows the entire edited data-set for the students’ reported memories of information. Students’ memories were consistent, and previous exposure to the documents did not exert a significant influence.

Table 5. Students' Reported Memories, First and Second Interviews

	1 st	2 nd
FS1*	Beta club poster; FCCLA club poster; History stuff; A+ flyer	Beta club poster; FCCLA club poster; A+ flyer
MS2	“Join FBLA” poster; A+ poster; Restroom signs	“Join FBLA” poster
MS3*	BETA club poster; teachers' commitments bulletin board; Findley's decorations	Findley's decorations; tiger picture
MS4*	Constitution, Bill of Rights, Declaration of Independence; “why study history?” flyer; “huge Halloween wall” decorations; teachers' names on doors; cross hanging above door	“why study history” flyer
FS5	gun raffle flyer; family meals flyer; drunk driving poster	drunk driving poster with race car driver; family meals flyer; gun raffle flyer
MS6	teachers' commitments bulletin board; Declaration of Independence; two drunk driving posters; “why study history?” flyer	drunk driving flyers; Constitution, Declaration of Independence; teachers' commitments bulletin board; “why study history?” flyer
MS7	blood drive flyer; drunk driving poster; “one on the bathroom door that said ‘make a call, help us all;’” BETA club poster; FBLA club poster	drunk driving poster; “flyer with stick people that said choose to stand out;” “one with a stick person that said ‘make a call help us all;’” FBLA club poster; year book flyer
MS8	Girl sitting in junkyard; blood drive flyer	Junkyard poster
MS9	poster with race car; poster with race car driver; orange-and-black bulletin board	poster with race car; orange-and-black bulletin board
FS10	“racing” poster; hunchback on door	race car poster; “monster-looking guys”

N=10

Although Tables 4 and 5 are comprehensive, it is difficult to quickly discern which memories were most commonly reported. Figures 1-4, however, present the data from Tables 4 and 5 in a tag-cloud format that enlarges the most frequently-occurring words in a given amount of text. This format affords a comprehensive yet visually-organized representation of the responses.

Creating Visuals of the Recollections

I used the online tag-cloud generator “wordle” to create each tag cloud; since wordle recognizes each word in a phrase as a distinct, separate word, I hyphenated the phrases the subjects used to report their memories so they would be shown as single words. This prevented holistic memories like “teachers’ commitments” from displaying (inaccurately) as separate, independent words.

However, the tag-cloud generator did not distinguish either words or phrases’ importance. Therefore, the words “poster” or “flyer” would be the largest words displayed if one were to label recollections as posters, flyers, etc. To prevent less important, yet frequently occurring, words from dominating these and subsequent tag-clouds, I edited the data to eliminate “poster,” “sign,” “flyer,” “bulletin,” “board,” “club,” and “one.” (as in “the racing one”). The phrase “bulletin board” came up in many responses, including “BETA bulletin board,” “Senior’s bulletin board,” “teachers’ commitments bulletin board,” “Henson’s bulletin board,” and “orange-and-black bulletin board .” The word, “poster,” was almost ubiquitous, occurring in responses like “drunk driving poster,” “drug abuse poster,” “BETA club poster,” and “FBLA club poster.” The word “club” also needed to go since it confounded the tag cloud results; some referred to FBLA and others added “club,” leading to two different representations of the same thing and the same basic memory.

Obviously, the labels “bulletin board,” “poster,” etc., are less important than the information or details distinguishing the documents in the subjects’ memories. It may be true that such labels helped subjects encode the documents; a bulletin board is a different image and schemata than a poster. However, for the purposes of creating visual representations of the information and details subjects recalled, it is necessary to edit out any labels that do not identify any specific information or details. After all, the purpose of both this study and the tag-clouds is to examine what the subjects recall, not the variations in their phrasing or whether they label information as a poster, flyer, sign, bulletin board, or “the one with [insert detail here].”

I also excised inessential prepositions and articles, meaning any occurrence of the words “with,” “of,” etc., that was not part of a document’s title or a subject’s encoding of that document’s information. “Of” remained in “Bill of Rights” and “on” stayed in “names on door,” for example, but “with” was cut from “one with stick figures.” “Of” is part of the document’s title and thus how it was encoded; “on” is part of encoding the location of information, thus facilitating its recall. “With” and similar uses of “of,” “on,” and other prepositions did not seem essential to the subjects’ encoding, and thus I chose to avoid complicating the tag-cloud’s depiction with inessential words.

Visualizing the Information Teachers Remembered

The first tag-cloud (Figure 1) displays the edited text of the teachers’ reported memories during the first interview (see Table 4). The enlarged words, “FBLA,” “BETA,” “Drunk Driving,” “Teachers’ Commitments,” “Bill of Rights,” “Declaration of Independence,” and “Constitution” were among the most frequently-used in the subjects’ responses. To put it another way, more subjects recalled this information than the rest.

Figure 1. Teachers' Reported Memories, First Interview



The next tag-cloud shows the edited text of the teachers' reported memories during the second interview (see Table 4). The teachers' memories were quite consistent, as "FBLA," "BETA," "Blood Drive," "Drunk Driving," "Declaration of Independence," "Bill of Rights," and "Constitution" were among the most-often reported information one week after the initial interview.

Figure 2. Teachers' Reported Memories, Second Interview



The tag-clouds provide revealing visual representations, but it is helpful to also see the percentages of the various responses. Therefore, I will further amplify the data in Figures 1 and 2 before moving on to the tag-clouds showing the students' responses. Table 6 lists the top six responses from the teachers and the percentage of teachers who reported each response, for the first and second interviews.

I included six responses because the sixth most-common response equaled three of the top five responses in frequency. I limited the data to six responses in order to avoid repeatedly listing "10%" for responses that occurred only once in the data-set (i.e., once among the ten subjects). Limiting the data to the top responses also eliminated the guesswork of determining which flyers were posted for which subjects' participation in the study. Some subjects participated in the study in early to mid-September and the rest in mid to late-October. Some subjects, then, did not see some posters or flyers that were posted earlier or later. Fortunately, the top six responses (i.e., posters or flyers) were posted for the entire period of data collection.

Also, I chose to give the percentage of teachers reporting each response since this study seeks to understand what makes documents attention-catching and memorable for readers. The percentage of total responses would shift the focus from audience to the sea of data; to put it another way, I am more interested in how many readers observe, encode, and recall a certain piece of information, not that information's standing relative to other pieces of information in the readers' memories.

Table 6 lists the top six responses in the far-left column, followed by the percentage of teachers who gave each response at the first and then the second interview. A teacher could have provided one or more of the top six responses.

Table 6. Percentages of Teachers who Gave One or More of the Top Six Responses, First and Second Interviews

	1 st	2 nd
FBLA	40%	50%
Teachers' Commitments	40%	30%
Drunk Driving	30%	30%
Bill of Rights	30%	30%
Declaration of Independence	30%	30%
Constitution	30%	30%

N=10

Visualizing the Information Students Remembered

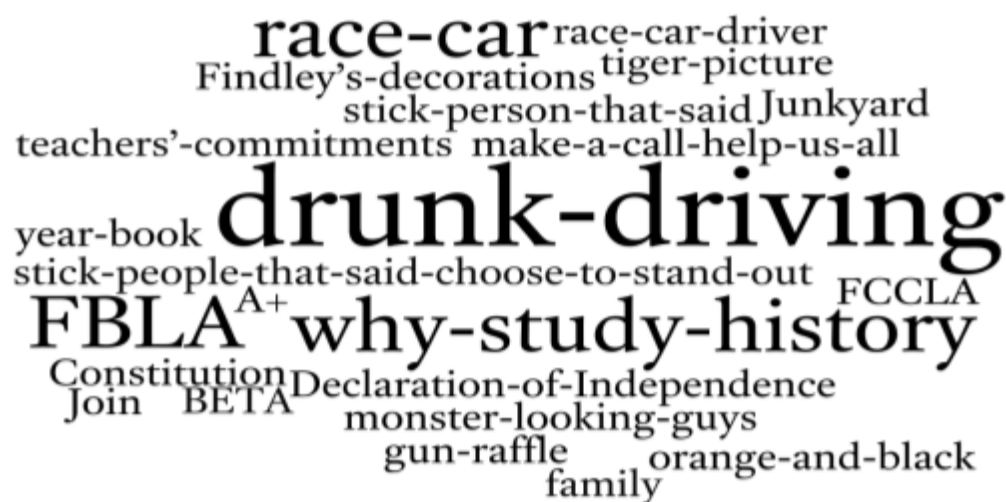
The third tag-cloud depicts my edited version of the students' recollections at the first interview (see Table 5). It shows a greater balance among the students' memories than among the teachers. "Drunk driving," and "BETA" are quite prominent, as are "FBLA," "Declaration of Independence," "Blood Drive," "Teachers' Commitments," and "Why Study History?"

Figure 3. Students' Reported Memories, First Interview



The last tag-cloud displays my edited version of the students' memories at the second interview, one week after the initial interview (see Table 5). At this point, the students' memories become more narrow and focused. "Drunk driving" is still frequently recalled, along with "Race Car," "FBLA," and "Why Study History?" Notably, the "race car" is an image that complements the message of the "drunk driving" poster. It seems that this poster was especially memorable for the students since two of the three most-often remembered pieces of information came from it.

Figure 4. Students' Reported Memories, Second Interview



Again, it is helpful to also see the percentages of the various responses. Table 7 lists the students' top six responses in the first and second interviews as well as the percentage of students who reported each response. As with the teachers, I limited this data to the top six responses and gave the percentage of students reporting each response rather than the percentage of total responses. However, I selected different top responses since the students' responses differed.

Table 7 lists the top six responses in the far-left column, followed by the percentage of students who gave each response at the first and then the second interview. A student could have provided one or more of the top six responses.

Table 7. Percentages of Students Giving One or More of the Top Six Responses, First and Second Interviews

	1 st	2 nd
FBLA	20%	20%
Teachers'	20%	10%
Commitments		
Drunk Driving	30%	30%
BETA	30%	10%
Race Car (Driver)	30%	30%
"Why Study History?"	20%	20%

N=10

Reasons Why Teachers Remembered Information

Table 8 lists the number of times each code was used to describe the reasons teachers gave during both interviews for remembering information. The reasons were coded according to the methods described in Chapter 3; I reviewed Lidwell et al.'s *Universal Principles of Design* to identify appropriate codes, tested these codes in a pilot study, and then used them to interpret the subjects' interview responses so that I could observe trends in the subjects' reported memories and reasons for remembering information or details. . Once I obtained my results, however, I found it necessary to adjust how I coded the data. I eliminated codes that either were not used during data analysis or were used only once or twice in the entire data-set. I used three different codes for "contrast" in order to best represent nuances in the subjects' responses involving contrasting elements. I will provide several examples of how I determined the appropriate codes

for the subjects' responses, especially the variations on "contrast" and the decisions to eliminate certain codes originally proposed (see Appendix D).

Comparing Table 8 with the codes listed in Appendix D, one quickly notices that I did not use several of the codes that I extrapolated from Lidwell et al.'s *Universal Principles of Design* and which I tested/verified in my pilot study. I chose to review *Universal Principles of Design* because it lists over two hundred different design principles, concepts, or terms which can be used to describe design elements and processes. I decided not to use any terms which describe processes since my student focuses on readers' reactions to finished products rather than the processes writers or designers used to create them. Then I chose the terms that seemed most relevant to describing the memorable qualities of documents, such as contrast, the SUCCES framework, and the Von Rhestorff Effect. After conducting a pilot study, I verified that the selected terms would be sufficient for my research, and I added only "relevance" to address interview responses that other codes did not accurately describe.

Despite all of this preparation, I found several codes to be irrelevant to the collected data, either because they did not describe any of the subjects' responses or they were appropriate for only one or two responses in the entire data-set. These codes do not appear anywhere in my results. But some codes appear in only certain tables and sections of the analysis. Some codes were relevant to the subjects' responses about what information they remembered but not which specific details they recalled, and vice-versa. Similarly, some codes were used for the responses about what information and specific details they remembered but not the self-reported reasons why they remembered it, and vice-versa. For example, I did not use "iconic representation" when coding what information subjects remembered, but I did use it while coding the specific details they reported. I used the SUCCES and STEPPS frameworks when analyzing the reasons subjects

reported for potentially using (or not using) the information they remembered, but these concepts were not applicable to the subjects' other responses.

Having explained why some codes were eliminated or used selectively, I will now provide several examples of how I applied the remaining codes to the subjects' responses about the information they recalled. When subjects referred to the size of a poster, flyer, or decoration as a reason for remembering it, I coded the response as "contrast-size" since the document stood out due to its size relative to other elements. For example, FT1 explicitly said, the "BETA bulletin was big," and most subjects who remembered "Findley's decorations" (see Tables 4 and 5) cited their large size. I used "contrast-font" for responses focusing on the typography, formatting, or size of text. Subject FT9 mentioned the "clean, green" font of an FBLA club sign; clearly, this font achieved a different kind of contrast than size. "Contrast-color" was used for responses indicating the influence of bright or distinctive colors. Several subjects explicitly state "color" or "colorful" as a reason for remembering a document. For instance, FT1 said the FBLA signs were neon colors, FT5 remembered "colorful" posters, and FT6 cited "bright colors" in her second interview. Based on these responses, color makes documents distinctive and gives them a different kind of contrast than either size or font. Lumping all of these responses under the code "contrast" would have done a disservice to size, font, and especially color.

Besides "contrast-color," the codes "relevance," "schema," and "elaboration" were often cited. Relevance refers to the personal relevance of a document's information and the extent to which a subject then thinks about said information, thereby encoding it (see Chapter 3 and Appendix D). Whenever subjects described some information as either "relevant" or "not relevant," I used the code relevance. Subject FT5, for example, said she remembered flyers and posters if they were about "things [she] can identify with." For another example, in his second

interview, subject MT7 said he recalled the posters on drunk driving because his “family has had trouble with this in the past,” suggesting that this information bore personal relevance for him.

Schema are conceptual frameworks like “car.” I used schema to code responses in which the subjects seemed to be encoding information within a conceptual framework, whether interpreting information’s relevance in terms of their personal context or adjusting a schemata for the topic of a poster. Subject FT2 remembered the Bill of Rights, Declaration of Independence, and Constitution posters because she purchased them and was reimbursed. She recalled the teachers’ commitments bulletin board because she wrote one of the commitment statements. In each case, one can see FT2 first noticing and then encoding the posters within preexisting conceptual framework, or schema.

To some extent, this subject may be an outlier since she interacted with the Bill of Rights, etc., to a much higher degree than simply walking past them in the hall. But coding her responses as schema does not exaggerate the importance of this code since many other responses also indicated the importance of schema. For example, three different teachers (Subjects FT6, MT8, and FT10) said they remembered information that might be useful to their high school or college-aged children; their schema as parents influenced what they noticed and remembered. Subject FT2’s responses are simply an especially strong example of schema at work because her schema developed through prior interaction with the documents.

Elaboration is a mnemonic technique in which people create connections among old and new information. I used elaboration as a code for responses indicating that the subjects engaged in some effort to encode information into long-term memory. Subject FT2’s encoding of the Bill of Rights, etc., can be interpreted as elaboration, occurring simultaneously with schema, since she made a connection between the documents and prior knowledge or memory. Similarly, FT4

said she recalled certain posters because she knew she would be asked for her recollections after walking down the hall, an explicit reference to effortful encoding, and FT10 describes studying the high school's bell schedule to determine if it was the same as the middle school's, a clear attempt at connecting new and old information.

In addition to contrast, the design principles of “repetition,” “alignment,” and “proximity” were used as codes. Repetition usually refers to consistency in appearance among similar design elements, or elements with similar intended meanings. In this study, most of the subjects did not report on the consistency among, say, the bolded primary headings of a document. More often, they mentioned repeatedly seeing or noticing certain posters that had been displayed for some time, were posted multiple times, or both. I used repetition to code responses citing any or all of these factors. Subject MS8, for example, explained that a certain university's materials always have the same color scheme, making them easy to identify and remember. This is nearly a textbook description of repetition. Subject FT9 did not recall previously seeing any of the documents in the CHS hallway, but she noted seeing some of the posters she remembered multiple times during her participation in the study (e.g., the drunk driving poster with the race car driver is posted multiple times). Subject FT10 recalled the teachers' commitments bulletin board in part because it had been displayed for an extended period. These and similar responses were also described as repetition.

The next two design principles, alignment and proximity, almost always occurred together in the data. Alignment is the way design elements are lined up relative to each other. In documents, proximity refers to the spacing between and around elements, including white space and relative location. In hallways, as the interview responses suggest, alignment and proximity are best used to describe a poster's location. For a few examples, subject FT1 said she

remembered posters located “where [her] eyes go,” FT2 identified one flyer as “eye-level,” and FT9 described a poster as “high up” on the wall. In each response, one sees alignment and proximity simultaneously at work; the documents were both located and aligned in prominent, eye-level positions. Additionally, FT9 is the only subject who mentioned a document’s layout, and I coded this response as both proximity and alignment. I separated proximity and alignment in only one instance; subject FT2 recalled a poster located directly outside her classroom door, a response warranting “proximity” but not necessarily “alignment.”

Lastly, I will address the codes, “image,” “archetype,” and “Von Rhestorff Effect.” Responses crediting an interesting image, photo, or picture as the reason for recalling information were coded with image. For some examples, subject FT2 mentioned the “skeleton” image, and FT6 recalled documents with pictures. In their follow-up interviews, FT9 explicitly identified “pictures” as a reason for remembering certain documents, and FT4 said, “the [documents] with images and color were easier to visualize and recall.” It is obvious that these and similar responses should be coded as images. One response that needed more interpretation was subject MS7’s statement that the documents he recalled “stuck in [his] head” since “They had the most stuff on them. The rest are just words on a piece of paper.” In other words, he remembered images.

In contrast, if the subject attributed the image, photo, or picture’s memorableness to its portrayal of an archetype, then I used the code archetype instead of image. An archetype represents a concept or metaphor with broad, generalized significance to an audience, such as “good vs. evil” or “money.” Subject FS5 said she remembered things that were recognizable. I coded this response as archetype since archetypes are highly recognizable. Subject MS8 described a university’s flyer as “easy to pick out at a glance.” I used design principles to code

his explanation of the consistent color scheme (i.e., repetition and color), but archetype also seemed appropriate for coding his assertion of the flyer's recognizable-ness. In her second interview, FS6 recalled the pictures on the drunk driving poster (Appendix E). Since this picture was of a race car driver, I coded her response as archetype.

In fact, the most common archetype mentioned in this study was the race car driver on a drunk driving poster, though it was more often mentioned as a specific detail rather than a piece of information. Subject FS2, for instance, said in the first interview that she did not know why she remembered the race car driver. I believe the image of a race car driver "stuck" with this subject because it is an easily-encoded archetype. The ease and automaticity with which she encoded this archetype left her unaware of exactly how she encoded it. Of course, I am interpreting deep-seated cognitive processes from a simple statement, yet it seems to be the only plausible explanation for "I don't know why I remember the race car driver [or similar archetype]."

Finally, the Von Rhestorff Effect refers to the mnemonic effect of very novel or unusual characteristics (Lidwell, Holden, & Butler, 2010). Lidwell et al. define this effect as "the increased likelihood of remembering unique or distinctive events or objects versus those that are common," and they say it is "primarily the result of the increased attention given to the distinctive items in ... a list of words, a number of objects, a sequence of events, or the names and faces of people" (p. 254). In this study, subject FS3 did not recall much in the way of flyers or posters, but she did report noticing a cigarette box on the ground in front of school. In her follow-up interview, FS3 reiterated noticing a strap hanging from a locker and a piece of trash on the ground. Though I am very much interpreting why these things struck FS3, it seems plausible that the Von Rhestorff Effect explains why these abnormal, out-of-place details stayed in the

subject's long-term memory. Given the school setting, the cigarette box was both distinctive and alarming. The strap and trash were also distinctive objects in the hallway, the former breaking up the uniform appearance of the lockers and the former disrupting the floor's tile pattern. It is not surprising that these novel stimuli surprised subject FS3, caught her attention, and stuck in her memory.

Subject FS9 offers more conventional examples of the Von Rhestorff Effect's application to the subjects' interview responses. She remembered a "trash heap photo" because it was "interesting," and she also recalled seeing "post-it notes" next to a teacher's door due to her surprise that students had not taken all of them down (drama club members had written and posted their votes for which play to perform that semester). The tell-tale adjective, "interesting," led me to use the Von Rhestorff Effect code, as did the novelty or surprise of the post-it notes remaining affixed.

Table 8 shows that "contrast-color," "relevance," and "schema" were the most-used codes for the teachers' responses at the first interview, the second interview, and overall. Interestingly, color was a more effective form of contrast than font type or size, and relevance and schema seemed to be very intertwined with each other.

Table 8. Number of Each Code's Use for Teachers' Recall of Information, First and Second Interviews

	1 st	2 nd	Total
Contrast-Size	1	2	3
Contrast-Font	1	0	1
Contrast-Color	8	5	13
Repetition	2	2	4
Alignment	2	1	3
Proximity	3	1	4
Image	3	3	6
Archetype	3	2	5

Table 8 Continued

		1 st	2 nd	Total
Relevance	7		6	13
Von Rhestorff	3		2	5
Effect				
Schema	7		6	13
Elaboration	5		2	7

N=10

Reasons Why Students Remembered Information

Table 9 lists the number of times each code was used to describe the reasons students gave during both interviews for remembering information. The reasons were coded according to the methods described in Chapter 3 (and earlier in this chapter), with the following exceptions. As explained earlier, I did not include any codes that were not used during analysis or that were used only once or twice in the entire dataset, and I distinguished among the different types of contrast. As I did for the teachers, I will give some examples of how I extrapolated the codes from the subjects' responses. I applied the same standards and reasoning, but of course, the responses were different, necessitating some explanation of my interpretations.

In a representative example, subject MS2 identified size as a primary reason for noticing and remembering the documents he reported; hence, "contrast-size" seemed like the best code for such responses. I used "contrast-font" for responses specifying the contrasting effect of type; various subjects identified "big letters," bold text, and all-caps as reasons they recalled information. "Contrast-color" describes responses about documents standing out due to their bright colors, such as MS3 stating that "the bright colors [of the posters he recalled] stuck out." Once again, these different types of contrast seemed to deserve their own codes, especially since there was more diversity among the students' responses than the teachers'.

In coding the students' responses with "relevance," "schema," and "elaboration," I used the same understanding of these terms that I explained for my coding of the teachers' data. For one example, FS10 said she recalled the drinking-and-driving poster with a race car driver in part because she "watches racing sometimes," showing that the poster's information bore some relevance to her personal interests. Another subject, MS8, recalled the blood drive flyer because "it's an important event," i.e., he ascribed some relevance to it. These and similar responses were coded as "relevance," and many other responses explicitly mentioned relevance.

Subject FS5 recalled a poster encouraging family meals because of family's importance to her, a response I coded as "schema" since she made a connection between the poster's information and her personal values and context. Obviously, one could argue for relevance, too. There was a strong interrelationship among "relevance" and "schema" in the students' responses. For instance, in her first interview, FS1 said she recalled certain flyers or posters for the following reason: "Because I was in those clubs in high school and was involved in those activities." This is a representative example of how relevance and schema were often intertwined and thus double-coded. On one hand, the prior experience in these clubs made the posters personally relevant. On the other, the posters' information was incorporated into an existing schemata.

Subject MS8's statement, "[the blood drive is] an important event," is a good example of both elaboration and double-coding. He elaborated on the information by connecting the event to his values, or at least his perception of importance. He also ascribed personal relevance to the event. Subject FS1 connected the club flyers she recalled to her prior experience putting up posters as a club president. Subjects MS8 and MS9 said they remembered the information they reported because they discussed it with me. Each of these responses are clearly elaboration since

they are forming connections among information in effortful ways. I also used elaboration to code a couple of unique responses. When asked in the second interview why they recalled the posters or flyers they reported remembering, subject FS5 said, “They just stuck with me,” while subject MS8 answered, “I am not really sure why I remember the information.” Elaboration seemed like an appropriate, reasonable code for such non-answers since the subjects must have elaborated on the information or details in some manner to remember them one week later. (Earlier, I interpreted subject FT2’s statement, “I don’t know why I remember the race car driver” as an indication of archetype rather than elaboration. Here, I view the response as elaboration because the subjects did not specify any image, depiction, or other detail indicating their encoding of an archetype or any other design element or principle.)

The student responses coded as “repetition,” “alignment,” or “proximity” were similar to the teachers’ responses in most respects. Most of these college students had attended CHS, and a few of them recalled some posters from their time as high school students. Others reported noticing multiple postings of the same poster or flyer. Repetition clearly described these types of responses. In one case, however, using repetition as a code required more interpretation. Subject MS3 remembered Ms. Findley’s decorations in part because “there was a bunch of it.” In my view, this statement references the amount of information on the wall, most of which was repeated at least once (e.g., there were multiple pictures of skeletons and “Igor” types – see Appendix N).

Only one student reported anything that could be coded as either alignment or proximity, and both principles were intertwined in the response. Subject FS5 recalled a document, in part, because “it’s directly in front of you when you walk in the door.” Its location in front of the door indicates proximity, whereas its alignment with the door and the viewer’s eye-level suggests

alignment. However, this response and its codes are not listed among the reasons-for-remembering-information in Table 9 because subject FS5 gave this response to the interview question about specific details. Therefore, Table 9 shows that no students gave any reasons for why they recalled information that could be coded as alignment or proximity.

The last three codes, “image,” “archetype,” and “Von Rhestorff Effect,” were applied to the students’ responses in much the same way they were used for the teacher responses. Using these standards, none of the students indicated anything that could be coded with image, and only two student subjects reported reasons-for-remembering-information that could be coded as archetypes. First, subject MS9 recalled a race car and a race car driver. That is, he encoded the archetype of a race car driver rather than any other content or message in the poster. Second, subject FS10 remembered the “ogre-things” of Findley’s decorations; her phrasing reveals how she encoded these images as archetypes. One might quibble that an “ogre” is not the same as an “Igor” type lab assistant and so archetype is not a good code. I believe this particular image is flexible enough to invoke multiple archetypes, and a subject’s schema may influence which particular archetype he or she applies as an encoding strategy.

Lastly, the Von Rhestorff Effect was used for student responses involving the striking nature of certain images. Subject MS9 focused on a drug abuse poster featuring a small girl sitting on a couch in the middle of a junkyard, with a large “trash heap” in the background (see FT9’s responses in Table 4). He did not specify the image’s novelty or unusualness when asked what information he recalled, but when asked about specific details, he reported that the imagery was “a very bold thing to have in a high school.” For another example, subject FS10 referenced the “different” appearance of the “Ogre-things” in both of her interviews. By describing these

images as “Ogre-things,” the subject’s response merits the archetype code, but the “different” adjective necessitates also using the Von Rhestorff Effect to code the response.

Table 9 shows that “contrast-color,” “relevance,” and “schema” were the most-used codes among the students at each interview as well as overall.

Table 9. Number of Each Code’s Use for Students’ Recall of Information, First and Second Interviews

	1 st	2 nd	Total
Contrast-Size	3	1	4
Contrast-Font	4	1	5
Contrast-Color	5	3	8
Repetition	3	2	5
Alignment	0	0	0
Proximity	0	0	0
Image	0	0	0
Archetype	1	3	4
Relevance	9	3	12
Von Rhestorff Effect	1	1	2
Schema	4	2	6
Elaboration	2	1	3

N=10

REMEMBERING SPECIFIC DETAILS

I also asked subjects what specific details they recalled from among the information/flyers they encoded. As explained earlier, I distinguish between information and specific detail based on the scope of the response. For example, subject MS8 recalled the information, “teachers’ commitments bulletin board,” and the specific detail, “I’m committed to do the best I can.” The first interview response has a broad, general scope while the second response restates a specific commitment statement from the bulletin board. This section presents

the rest of the responses from both the teachers and the students. It provides data on the subjects' responses as well as examples of how I applied each code.

Table 10 displays the number of specific details recalled by each subject in each interview as well as the aggregate numbers. Generally, the subjects who recalled the most information also recalled the most specific details, and the number of details recalled was fairly consistent from the first to second interview. The same limitations discussed earlier apply to the subjects' memories of specific details, leading to the same responses. I do not believe repeated exposure to and/or greater cognizance of the CHS hallway's posters and flyers had a significant impact on the subjects' performance in the second interview. The "best" performers were again those who most likely had no further opportunity to observe the documents, due to their work situations. And the subjects' recollections were quite consistent from one interview to the next (see Tables 8, 9, 11, and 12).

Table 10. Number of Specific Details Remembered, First and Second Interviews

	1 st	2 nd		1 st	2 nd
FT1	2	2	FS 1*	4	3
FT2	5	3	MS 2	2	2
FT3*	0	0	MS 3*	2	2
FT4*	14	8	MS 4*	2	0
FT5*	3	2	FS 5	2	2
FT6	4	4	MS 6	5	5
MT7	4	2	MS 7	4	3
MT8	3	4	MS 8	2	3
FT9*	8	9	MS 9	2	2
FT10	7	5	FS 10	4	6
Total	50	39	Total	29	28

N=10

As Table 10 shows, previous exposure to the documents was not a strong influence. The teachers tended to report more specific details than the students.

Specific Details Teachers Remembered

Table 11 presents my paraphrased and condensed version of the teachers' reported memories of specific details during both the first and second interviews. As in Tables 4 and 5, I edited the data for concision and clarity. Exact quotes from the subjects are placed inside quotation marks, and other responses are paraphrased since their exact wording was not significant to the subjects' encoding. In general, my paraphrasing of the responses concerning specific details was similar to my paraphrasing of the data in Tables 4 and 5. To represent this interpretation and analysis, I will review several representative examples of how I paraphrased the data, highlighting any differences from my earlier methods.

To begin with, I gave some of the specific details headings to facilitate analysis or comparison. For example, FT1's statement in her interview, "Someone sitting cross-legged on "don't do drugs" poster," became "drug abuse poster: person sitting cross-legged" in Table 8. The heading more efficiently and clearly specifies which document from which the specific detail came, and the rest of the paraphrase accurately states the specific detail reported in the interview. Subject FT2, for another example, recalled multiple specific details from a drunk driving poster: the race car driver, the race car, the blue-and-red color scheme of both the driver's uniform and his car, and the message against driving while intoxicated. I paraphrased, "drunk driving poster: driver and car, blue and red, talks about not driving drunk" (see Table 11). The heading specifies the document to which these details refer, and the paraphrase accurately but concisely presents the specific details the subject reported.

As explained earlier, I interpreted certain “information” recalled as simultaneously being “specific details,” and I paraphrased accordingly. For instance, subject FT5 remembered a “picture of a tiger, a Halloween display, and something about BETA club,” but then did not claim to remember any specific details. However, the image of a tiger and the title “BETA” are specific details. Thus, I not only paraphrased these responses as “tiger picture” and “BETA club;” I also included them among other specific details recalled.

Like previous interview responses, I directly quoted subjects’ responses whenever they revealed unique encoding or were especially detailed recollections. Subjects MT7, MT8, and FT9 each recalled exact quotes from some of the flyers or posters they remembered, and for MT7 in particular, these quotes/details seemed to help him encode the posters into his long-term memory (see Table 11). Finally, if a subject did not report any memories of specific details, then I wrote “Not Applicable” (see FT3 in Table 11) since there was not any data to report.

Table 11 has my edited version of the teachers’ responses from both interviews. It shows the relative consistency of their responses. The appendices have pictures of the documents from which the subjects remembered these details.

Table 11. Teachers’ Reported Memories of Specific Details, First and Second Interviews

	1 st	2 nd
FT1	drug abuse poster: person sitting cross-legged; names of Christy’s classes	FBLA club poster: dues were due; names of Christy’s classes
FT2	drunk driving poster: driver and car, blue and red, talks about not driving drunk; spaghetti dinner flyer: “fake-looking plate of spaghetti;” skeleton: “too kiddish” for high school	drunk driving poster: picture of race car driver telling you not to drive drunk; spaghetti dinner flyer: picture of Spaghetti
FT3*	Not Applicable	Not Applicable

Table 11 Continued

	1 st	2 nd
FT4*	drunk driving poster: race car driver; drug abuse poster: trash pile behind girl; MAC, TRCC, SEMO information; drama club trip; speech tournament; inspirational quotes; teachers' names posted on doors; Findley's reading and learning decorations; counselor's bulletin board: class schedules ; concession stand sign-up; Mrs. Johnson's class file folders	flyers advertising meetings; speech team meeting counselor's bulletin board: Mineral Area College visit; trash pile behind girl, words against drug abuse; race car driver with navy blue clothing and cap, words against alcohol use
FT5*	tiger picture; Halloween display ; BETA club	tiger picture; Halloween display
FT6	drunk driving poster: racecar driver' yellow FBLA or FCCLA flyer; "spike-out cancer" poster; concession stand sign-up	Spike Out Cancer flyer: bright orange, event information; FBLA flyer: district competition sign-up
MT7	drunk driving poster: race car driver, "Don't drink and drive" poster; "No drugs in our school" poster; "Don't throw your best friends away" poster	drunk driving poster: race car driver, phrase about right choice
MT8	ACT test flyer: Oct. 25 th ; SEMO flyer: red-and-black colors; "Experiment with Learning;" "I'm committed to do the best I can."	blood drive flyer: Oct. 25; SEMO flyer: red-and-black colors ; reading display with Frankenstein and mad scientist characters
FT9*	drug abuse poster: trash heap photo, website, statements about helping friends with drugs; post-it notes: voting which play to do; inspirational quote: "tying a knot at the end of your rope;" FBLA flyer: advertising meeting; blood drive flyer: picture of people lined up; "why study multiculturalism?"	drug abuse poster: girl on couch in dump; blood drive flyer; drunk driving poster: celebrity car driver promoting social issue; Henson's flyer for drama club members choosing play; Inspirational quote: "When you're at the end of your rope, tie a knot and hang on;" FBLA club poster: long, bright yellow; FBLA club poster: regular size, bright green; FBLA meeting and joining information; Constitution, Declaration of Independence, Bill of Rights; "why teach multiculturalism?"; teachers' commitments bulletin board

Table 11 Continued

	1 st	2 nd
FT10	FBLA poster; Blood Drive flyer: Oct. 24 th ; Orange flyer with new bell schedule; teachers' commitments bulletin board; concession stand sign-up; Drunk driving poster	Blood drive flyer: tomorrow, 1:00-6:00; ACT test flyer: Saturday, October 25 th ; 7th hour is 1:30-2:20 at high school and middle school

N=10

Specific Details Students Remembered

Table 12 lists the students' reported memories of specific details during both the first and second interviews. Like the teachers' data, I added headings (e.g., "history flyer: red-and-white with crosses") and paraphrased the responses for the sake of concision, clarity, and comparison. For example, subject MS3 stated, "Ms. Findley's [decorations] said something about reading, writing, or learning; "I am committed" [from the teachers' commitments bulletin board]. I paraphrased this response: "Ms. Findley's decorations: phrases about reading, writing, or learning; the phrase "I am committed." I clarified what the subject meant by "Ms. Findley's" and also added "phrases" or "phrase" both for clarity and to facilitate comparison with other remembered phrases and statements. In MS3's follow-up interview, he answered the question about specific details, "I remember Mrs. Findley's door saying something about reading and learning. I remember that the tiger was real plain, like flat colors, and not glossy." I condensed these sentences into short phrases that would work better for data analysis and presentation. I added "phrases about" to maintain consistency among the data, facilitating comparison. I also made "the tiger" into the heading, "tiger picture," to clarify what the subject meant by "the tiger" and to distinguish between this general information and the specific details about it ("plain, like flat colors, and not glossy"). My work with MS3's responses is a representative example of how

I processed the rest of the subjects' recollections of specific details. Table 12 displays my edited version of the students' recollections from both interviews.

Table 12. Students' Reported Memories of Specific Details, First and Second Interviews

	1 st	2 nd
FS1*	Beta club; FCCLA club; A+ flyer; Someone owed club dues	Beta club; FCCLA club; A+
MS2	FBLA club poster: \$20 dues	FBLA club poster: \$20 dues
MS3*	Ms. Findley's decorations: phrases about reading, writing, or learning; the phrase "I am committed"	Mrs. Findley's door: phrases about reading and learning; tiger picture: plain, flat colors, not glossy.
MS4*	large Halloween decorations promoting reading, looked a little outdated or old	Not Applicable
FS5	drunk driving poster: race-car driver	drunk driving poster: race car driver; 50/50 gun raffle
MS6	history flyer: red-and-white with crosses; teachers' commitments bulletin board with purple-and-orange borders quotes; drinking and driving posters: black-and-white text, smoky backgrounds, "darker meaning;" Constitution: fine print	history flyer: red-and-white; teachers' commitments bulletin board with different colored paper with quotes or goals ; drunk driving poster: white lettering, dark and gloomy background
MS7	blood drive flyer: cut-out figures; drunk driving poster: larger text saying don't drink and drive; "choose to stand out;" "make a call, help us all;"	drunk driving poster: don't drink and drive; "choose to stand out," stick people; "make a call, help us all," stick person; FBLA club poster; year book flyer
MS8	Blood drive flyer: event at high school	drug abuse poster: dump, couch, girl
MS9	drunk driving poster: race-car; orange-and-black colors	orange-and-black colors; race car, race car driver
FS10	drunk driving poster: guy wearing blue racing suit with red stripes; blue car with Lowes logo; black background; statement about drinking	"race car" poster: guy with brown hair; wearing blue jumper with red lining; white car; "monster guys" wearing green shirts with brown boots some silver somewhere

N=10

Visualizing the Specific Details Teachers Remembered

Figures 5-8 are tag-clouds of the teachers' and students' reported memories of specific details, amplifying the data in Tables 11 and 12 by providing a visualization of the most-frequently recalled details. I created these tag-clouds in the same manner as before, except that I deleted the heading information in the tables, such as “drunk driving poster: race car” or “drug abuse poster: girl on couch in dump.” I added these headings to facilitate table-by-table comparisons of the information and specific details subjects remembered, but for the purposes of the tag-clouds, I deleted these headings (which were not reported as specific details).

Figure 5 displays the specific details reported by the teachers during the first interview (see Table 11). The title “FBLA” stood out for the subjects, as did the image of a “race car driver” and the title “concession stand sign-up.” The “names of Christy’s classes,” referring to her class folders posted to her door, each labeled with a class period (e.g., “2nd Hour”), was also frequently mentioned (Appendix M).

Figure 5. Specific Details Reported by Teachers in the First Interview



During the second interview, one week after the first, the title “FBLA” stuck with the teachers much more than any other specific detail. “Race car driver” and “Blood Drive” were also prominent among the teachers’ responses (Figure 6). It is notable that the specific details “FBLA” and “Race Car Driver” were consistently reported (see Table 11).

Figure 6. Specific Details Reported by Teachers in the Second Interview



As it was for information, it is helpful to also see the percentages of the various responses to my interview question about specific details. Table 13 lists the teachers’ top six responses in the first and second interviews as well as the percentage of teachers who reported each response. After the top six responses, all of the responses were given by only one subject out of ten, and it would not be useful to list 10% several times simply to report more responses. Also, I gave the percentage of teachers reporting each response rather than the percentage of total responses because, as stated earlier, I am interested in the documents’ affects on readers or viewers. Moreover, the percentages of total responses would be too miniscule to be useful.

Table 13 lists the top six responses in the far-left column, followed by the percentage of teachers who gave each response at the first and then the second interview. A teacher could have provided one or more of the top six responses.

Table 13. Percentages of Teachers who Gave One or More of the Top Six Responses, First and Second Interviews

	1 st	2 nd
Race Car (Driver)	40%	40%
FBLA	30%	40%
Concession Stand Sign-Up	30%	0%
Drinking and Driving	20%	10%
Names of Christy's Classes	20%	10%
Inspirational Quote	20%	0%

N=10

Visualizing the Specific Details Students Remembered

The next tag-cloud shows what the students most-often recalled during their first interview (see Table 12). The students remembered the slogan about “drinking and driving” and the image of the “race car driver” complementing that slogan. The specific details of this poster were very memorable for the students, its intended audience.

Figure 7. Specific Details Reported by Students in the First Interview



The final tag-cloud displays what specific details the students remembered at the second interview, one week after the first one (see Table 12). “Race car” and “race car driver” recur as frequently-remembered details. Though present in the responses of the first interview, “FBLA” was reported more often at the second interview. The tag-cloud is somewhat misleading, however, since “FBLA” was reported only once at the first interview and twice at the second. That is, the second-most remembered detail, according to the tag-cloud’s visualization, was not reported significantly more often than other memories despite its text’s enlarged size relative to other details represented in the tag-cloud. Therefore, this particular tag-cloud should be considered with a grain of salt, so to speak.

Figure 8. Specific Details Reported by Students in the Second Interview



Once again, it is helpful to also see the percentages of the various responses to my interview question about specific details. Table 14 lists the students’ top four responses in the first and second interviews as well as the percentage of students who reported each response. Like I did with the teachers, I gave the percentage of students reporting each response rather than

the percentage of total responses. Unlike the teachers, I limited this data to the top four responses since all subsequent responses were provided only once. Additionally, I selected different top responses since the students' responses differed from those of the teachers.

Table 14 lists the top four responses in the far-left column, followed by the percentage of students who gave each response at the first and then the second interview. A student could have provided one or more of the top four responses. This table helps contextualize the tag-cloud above, showing that the specific detail "FBLA" was not as memorable as the race car and driver in the drunk driving poster.

Table 14. Percentages of Students who Gave One or More of the Top Four Responses, First and Second Interviews

	1 st	2 nd
Race Car (Driver)	30%	40%
Driving and Driving	20%	0%
FBLA	10%	20%
Blood Drive	20%	0%

N=10

Coding the Types of Specific Details Remembered

As explained in Chapter 3, I recognized the need to code the types of specific details that subjects reported remembering when I began analyzing this subset of the data. Using the codes in Appendix D as a starting point, I examined the data to determine which codes would be applicable. When coding the types of specific details, I found myself using "image" and "text" repeatedly. I also noticed there were several possible sub-categories for each, and these sub-categories, if coded, would more accurately represent the interview data. To more usefully

represent the subjects' responses, then, I broke down the responses according to the type of image or text the subjects reported remembering.

For images, the sub-categories were: archetype, iconic representation, person, scene, object, and aesthetic. "Archetype" refers to images of characters, metaphors, etc. When a subject's response indicated that an image invoked a "type," such as "race car driver" or "Frankenstein" or "Ogre," then I used the code archetype to describe the specific detail reported. "Iconic representation" identified cartoonish depictions of real-life people, places, objects, or actions. I used this code for responses identifying images as a cartoon or other depiction representing the person, place, object, or action intended to be represented. I used "person" when subjects reported recalling a person specifically or exclusively and "scene" when they indicated remembering the overall scene of a poster/flyer, including but not limited to people. "Object" seemed most appropriate for specific or exclusive recollections that were not archetypes, iconic representations, or people, and "aesthetic" referred to responses about the overall appearance or impression of a document. Ultimately, I used "person," "object," and "aesthetic" only once or twice, each, in the entire data-set, and therefore I chose to eliminate them from the data analysis and presentation.

For text, I used these sub-categories: name, title, date, slogan, and action. "Name" and "title" were used for recollections of the names of specific people and organizations, respectively. If a subject stated a name or title while recalling details, then I coded that data with name or title. "Date" was for responses including specific dates for meetings, events, etc. Several flyers advertised events at specific times, so I wanted to include a code for these important details. "Slogan" refers to reported memories of the most emphasized statements of the flyers or posters, such as "Don't Drive Drunk." I used slogan when subjects remembered a catchphrase

from a poster or flyer, especially if they used the slogan to identify the document in their memories/responses. The code “action” refers to memories of any statements requesting or promoting a desired actions, like paying club dues. I used this code whenever subjects recalled an action-step that the flyer or poster attempted to persuade the audience to take. Each of these codes, or subcategories, for text was used with some frequency, except the code “name.” Very few subjects reported any specific names of people, places, or things.

Finally, I observed that many subjects remembered both text and imagery, and there was always some kind of relationship between them. I analyzed the data in terms of Karen Schriver’s categories of text-image relationships (see Appendix D and Chapter 3). After some consideration, I determined that only two of her categories applied to the subjects’ responses: “redundant” and “juxtapositional” text-image relationships. A redundant text-image relationship refers to uses in which the image reinforces the text but is not necessary for understanding the intended message of the document. In a juxtapositional text-image relationship, the image creates a stark or surprising contrast, or juxtaposition, with the message of the text. Lastly, I included the code “color” since many of the subjects’ responses explicitly referred to color, stating either that color caught their attention and aided their memories or that a certain document used a specific color or color family.

Types of Specific Details Teachers Remembered

Table 15 displays the number of each type of specific detail recalled by the teachers in both interviews (see the edited data-set in Table 11). These details were coded according to the methods described in Chapter 3 and earlier in this chapter. I will review several examples of how I interpreted and coded the subjects’ responses, starting with four most frequently-used codes (see Table 15).

The most-used code was “text-title” for the titles of posters or flyers, such as “FBLA” or “Why Study History?” In cases like these, it was straightforward to code the responses as “text-title.” Other cases were less explicit but still recalling a title. For example, subject FT1 remembered “folders with the names of Christy’s classes on them.” This is clearly an instance of recalling titles. In her follow-up interview, FT1 recalled that “FBLA dues were due,” another example of recalling a title since the poster in question included the title “FBLA” to identify itself. “Text-slogan,” such as “don’t drink and drive,” was the second most-used code. Subject FT2 remembered that one poster “talked about not driving drunk,” a response I coded as “text-slogan” since the subject remembered the intended message of the poster and this message tapped into a long-running PSA slogan, “don’t drive drunk.” “Text-action” refers to any text requesting an action, like a flyer asking students to cast a ballot for which play to perform that semester. In FT1’s recollection that “FBLA dues were due,” she encoded the action requested by the poster’s text. “Image-archetype” means any image that invokes a general character, metaphor, or trait, like a race car driver. Subject FT6, for instance, remembered that “one drunk driving poster has a race car driver on it.” Clearly, she encoded and recalled the archetype of a race car driver, leading to my use of this code.

The remaining codes used for the type of specific detail recalled were “image-iconic representation,” “image-scene,” “text-date,” “redundant” and “juxtapositional” text-image relationships, and “color.” Subject FT2 remembered the cartoonish picture of a plate of spaghetti on a flyer advertising a spaghetti dinner fundraiser. This was a perfect example of “image-iconic representation” since the image was a cartoon of spaghetti and not an actual picture. Subject FT4 remembered a “drug abuse poster with a pile of trash behind the girl” (see Appendix L). I coded this response as “image-scene” since it described multiple elements that achieve an overall image

or scene when combined. I used the “text-date” code for any responses specifying a date, such as subjects reporting “Oct. 25th” for the upcoming ACT test.

I used “redundant text-image relationship” when subjects recalled both text and imagery in the same response, as though the combination or relationship helped them remember the document (Lidwell, Holden, & Butler, 2010). For instance, subject FT6 said, “One drinking-and-driving poster has a racecar driver on it.” The poster could have conveyed its message through text alone, so the image reinforces the text and has a redundant relationship to it (see Schriver). In contrast, “juxtapositional text-image relationship” describes responses in which the unusual or surprising contrast of image and text help make the details more memorable. Subject FT4, for instance, recalled specific phrases or slogans from Findley’s decorations (“experiment with learning” and “read”) which were juxtaposed with images not usually associated with learning or reading (the “Igor” type lab assistant and skeletons coming to life – see Appendix N). Finally, “color” refers to any responses mentioning the color of a flyer or poster, such as subjects FT6 and FT9 each referring to the FBLA sign’s yellow color. In some cases, I double-coded responses that suggested multiple appropriate codes. For one example, subject FT1 recalled an image on the “don’t do drugs” poster; her identifying this poster by the phrase “don’t do drugs” led me to code this response as both “text-slogan” and “redundant-text image relationship.” Though this particular poster did not state, “don’t do drugs,” the subject encoded this document’s overall message as a slogan. The relationship among the image and text was redundant in the sense that the text alone conveyed the message or slogan, but the image reinforced it (Appendix S). Also consider subject FT2 recalling “the picture on the Spaghetti dinner [flyer].” This deserved the code “image-iconic representation,” as described earlier, but it also merited the code “text-title” since the subject encoded the word “spaghetti” from the flyer’s title and content

and also the code “redundant text-image relationship” because the image reinforced the text’s image (Appendix P). The combination of image, text, and title made the information most relevant to the event quite memorable.

As Table 15 shows, “text-title,” “text-slogan,” “text-action,” and “image-archetype” were by far the most commonly-used, suggesting that easily-encoded details may be more memorable.

Table 15. Number of Each Type of Detail Teachers Remembered, First and Second Interview

	1 st	2 nd	Total
Image-Archetype	6	8	14
Image-Iconic Representation	3	3	6
Image-Scene	5	3	8
Text-Title	16	13	29
Text-Date	3	3	6
Text-Slogan	17	9	26
Text-Action	8	7	15
Redundant Text-Image Relationship	5	5	10
Juxtapositional Text-Image Relationship	2	3	5
Color	3	4	7

N=10

Types of Specific Details Students Remembered

Table 16 displays the number of each type of specific detail recalled by the students in the both interviews (see the edited data-set in Table 12). These details were coded according to the methods described in Chapter 3 and earlier in this chapter. I coded the students’ responses very similarly to how I coded the teachers’ recollections. I will review several representative examples, beginning with the most-used codes (see Table 16).

As I did for the teachers, I used “text-title” whenever students recalled the title of a text, including when they used the title as a way of identifying the flyer or poster. I double-coded many of these responses since the subjects often remembered certain documents as “information” by encoding the “specific detail” of the title. For example, subject FS1 recalled posters for “BETA club, FCCLA club, History ‘stuff,’ [and an] A+ flyer. When asked for specific details, she said, “Someone owed dues for a club.” However, it seemed more accurate to code three instances of “text-title” (in addition to “text-action” for the dues recollection) since FS1 could not have reported the club and A+ documents without encoding and recalling the text that identified them, i.e., the specific detail of their titles.

I used “text-slogan” for any responses involving a key phrase, concept, or slogan from a poster or flyer. Subject MS3, for instance, reported, “Ms. Findley’s [decorations] said something about reading, writing, or learning; ‘I am committed’” The first memory is the gist of Findley’s “Experiment with Learning” and “Reading is fun” slogans on her Frankenstein-themed decorations, and the second is the key phrase from the teachers’ commitments bulletin board. The fourth most-used code, “image-archetype,” described responses like subject FS5’s statement, “There was a race-car driver on the don’t drink and drive poster” or subject MS9’s recollection of “Something about a race car, [with] a race-car driver on it.”

Lesser-used codes included “image-iconic representation,” “image-scene,” “text-date,” “text-action,” and “redundant” and “juxtapositional” text-image relationships. Subject MS3 recalled a picture of a tiger drawn and painted by hand, a perfect example of “image-iconic representation” since it was not a picture of a real-life tiger. In his follow-up interview, subject MS8 said, “I remember the dump and a couch and a girl being on the couch.” I coded this and similar responses as “image-scene.” As with the teachers, I used “text-date” for any responses

specifying a date and “text-action” for details that requested an action. Interestingly, no students recalled specific dates in their initial interviews, but two responses in the follow-up interviews were coded as “text-date.” The three responses I coded as “text-action” in the first round of student interviews each involved a poster’s request for club dues.

I have saved the code “color” for last due to the difference in this code’s use to describe the teachers’ and students’ responses to my interview question about specific details. Among the teachers, only seven responses were coded as color, four in the first interview and three in the second. For the students, a total of eleven responses were coded as color, five in the first interview and six in the second. I coded student responses as “color” whenever they explicitly referred to a color, such as subject MS6 recalling “purple and orange borders” and a poster’s “black-and-white” color scheme or subject FS10 remembering the race car driver wearing “a blue racing suit with red strips.” For another example, subject MS9 remembered the “orange-and-black” borders of a bulletin board in both his interviews.

As with the teachers, “text-title,” “text-slogan,” and “image-archetype” stand out as the most common types of details the subjects recalled. For the students, however, “color” was also frequently-reported, and “text-action” was less significant.

Table 16. Number of Each Type of Detail Students Remembered, First and Second Interview

	1 st	2 nd	Total
Image-Archetype	4	3	7
Image-Iconic Representation	2	3	5
Image-Scene	2	1	3
Text-Title	8	8	16
Text-Date	0	2	2
Text-Slogan	8	3	11
Text-Action	3	0	3

Table 16 Continued

	1 st	2 nd	Total
Redundant Text-Image Relationship	1	2	3
Juxtapositional Text-Image Relationship	1	0	1
Color	5	6	11

N=10

Reasons for Remembering Specific Details

Tables 17 and 18 list for both interviews the number of times each code was used to describe the reasons teachers and students (respectively) gave for remembering specific details. All of the subjects' reported reasons for recalling certain specific details were interpreted and coded the same way as their reported reasons for remembering "information" (see Chapter 3 as well as earlier in this chapter).

For the teachers, "schema" and "relevance" were easily the most common codes. As explained before, "schema" refers to two types of responses: first, recollections due to personal interests, responsibilities, or contexts; and second, memories resulting from preexisting ideas being challenged, changed, or extended. These responses demonstrate that the subjects either used or altered their conceptual frameworks to more effectively encode new information into their long-term memories; hence, "schema" is an appropriate code. "Relevance" refers to any responses suggesting that information's memorableness resulted from its potential applications to one's professional or personal life. Schema and relevance, therefore, are very intertwined.

Table 17 lists the number of times each code was used to describe the teachers' reasons for recalling specific details.

Table 17. Number of Each Code's Use for Teachers' Recall of Specific Details, First and Second Interviews

	1 st	2 nd	Total
Contrast-Size	0	0	0
Contrast-Font	1	0	1
Contrast-Color	2	3	5
Repetition	1	0	1
Alignment	0	1	1
Proximity	0	1	1
Image	2	4	6
Archetype	0	0	0
Relevance	4	6	10
Von Rhestorff Effect	0	0	0
Schema	6	7	13
Elaboration	3	4	7

N=10

Table 18 lists the number of times each code was used to describe the reasons students gave during both interviews for remembering specific details. These reasons were coded according to the methods described in Chapter 3 and earlier in this chapter. Once again, “schema” and “relevance” emerged as the most-used codes. “Elaboration,” meaning any effort on the viewer’s part to remember information, was also an important code for the students.

Table 18. Number of Each Code's Use for Students' Recall of Specific Details, First and Second Interviews

	1 st	2 nd	Total
Contrast-Size	3	1	4
Contrast-Font	2	0	2
Contrast-Color	5	1	6
Repetition	3	1	4
Alignment	1	0	1
Proximity	1	0	1
Image	0	0	0
Archetype	1	0	0

Table 18 Continued

	1 st	2 nd	Total
Relevance	6	3	9
Von Rhestorff	0	1	1
Effect			
Schema	7	3	10
Elaboration	4	3	7

N=10

INCLINATION TO APPLY INFORMATION

At the end of each interview, I asked subjects about the likelihood of applying the information they had encoded. In the interest of clarity and concision, I further narrowed the codes to only those relevant to the subjects' responses (see Tables 19 and 20). Design principles like "contrast," for example, were not used to describe the likelihood of applying or using the information. Instead, subjects spoke in very personal terms when answering my question, evoking the codes "schema" and "relevance."

Jonah Berger's STEPPS framework came into play at this stage since multiple subjects made statements evocative of "social currency" and "practical value." Social currency is the value that some information has in a given social context; for instance, a funny story makes the teller seem funny and likeable. Information with social currency, therefore, is likely to be remembered so that it can be shared later. Practical value refers to the helpfulness, usefulness, or other practical application of some information. Similar to social currency, information with practical value can be memorable because one may encode it to share it.

Teachers' Likelihood of Applying Information

Table 19 details the results for the teachers, showing that "relevance" and "schema" were the most-frequent codes once again. When they indicated they might apply some information, it

was relevant to them as either teachers or parents of the children to whom the information was directed. I will illustrate how I coded the subjects' responses with some representative examples.

For one example, subject FT1 answered that she might need to know about FBLA dues in case a student were to ask her about it, and she might find it helpful to remember Christy's class list so she would better know her students' schedules. I coded this response as "relevance," "schema," and "practical value" since FT1 interpreted the information's usefulness in terms of her professional context and potential helpfulness to her students. Subject FT9 offers another example of this: "the photograph of the trash heap and its website might be relevant to use in my classroom, but the rest is directed at other people or students." I coded her response with relevance and schema because she was interpreting some information as (ir)relevant based on her schema, or identity, as a teacher.

For more examples, subjects FT6 and MT8 each invoked their roles as parents of high school students. Subject FT6 said she might use the documents' information to remind her child of upcoming school events. Subject MT8 mentioned that his daughter was planning to take the ACT test, making that flyer relevant to him, and his son was considering enrolling at the college whose flyer he remembered. I coded these responses as relevance and schema due to the interrelationship among the subjects' lens as parents and the relevance they ascribed to the posters or flyers. Subject FT10 also referred to her parental role when explaining why she remembered certain details, but when asked about applying what she recalled, FT10 said, "I should probably donate blood." I coded this as elaboration, practical value, and social currency since FT10 connected the blood drive flyer to her sense of responsibility, desire to help others, and perception in others' eyes (social currency). Besides these responses, several subjects echoed FT4's sentiment, "Most of [the information] was geared toward students, so I'm not sure how I

would apply it.” I coded this and similar responses as relevance because the subjects noted the irrelevance of the information.

Table 19. Number of Each Code’s Use for Teachers’ Likelihood to Apply Information, First and Second Interviews

	1 st	2 nd	Total
Relevance	7	8	15
Schema	4	6	10
Practical Value	2	4	6
Social Currency	1	4	5
Elaboration	2	1	3

N=10

Based on the results above, it appears that schema and relevance are intertwined. Schema seem to be the criteria by which people judge and ascribe relevance to information. In a sense, then, schema act as a filter for people’s attention and memories.

Students’ Likelihood of Applying Information

Table 20 displays the number of times each code was used for the students’ responses to my question about applying information. “Relevance” was by far the most significance influence, followed distantly by “schema.” The codes practical value and social currency did not apply to any of the students’ responses, and elaboration applied only once.

Similar to the teachers, most of the students found the information and details less-than-relevant to their lives, considering that they were in college courses and the hallway’s documents were directed at high school students (e.g., ACT test date, FBLA club, etc.). As a group, the students seemed even more distant from the documents than the teachers. For instance, subject

FS1 answered, “I don’t go to school here.” In other examples, subject MS4 (a graduate student in religious studies) said the information did not “pertain to me,” subject MS6 also cited a general lack of interest in the flyers and posters, and subject FS10 did not perceive any of the documents’ information as relevant to her “daily life.” Once again, schema and relevance seem to be interrelated; the subjects’ schema, or identity, as college students made the information directed primarily to high school students irrelevant in their perspectives. This was true even for the alcohol and drug abuse posters, messages that, arguably, have universal relevance and appeal. Since they dismissed the possible relevance of the documents without much thought or consideration, I coded their responses with relevance.

Some interesting exceptions were subjects MS2, MS3, and MS7, who each demonstrated more thought than simply deeming the information irrelevant. Subject MS2 said, “If I wanted to join [FBLA] again, I’d use the information.” Having sought importance or usefulness in the information, MS2’s response is still best described by relevance. In his answer, MS3 mentioned the relevance of reading and learning to his experience as a student, a response I coded as relevance and schema. In his follow-up interview, MS3 said something similar to some of the teachers: “I will use this because I have to remember things that are on paperwork at work.” This response seems to conflate the practice of trying to recall documents’ information and details with the information and details he reported. Yet it also reveals the power of schema for shaping interpretations of relevance and encoding into long-term memory. Finally, MS7 described his love for learning and applying knowledge: “Knowledge is useless unless you put it to use.” I coded this as relevance and schema since MS7 interpreted the information as relevant based on his schema for knowledge as something that must be applied.

As a group, the students appear to be less inclined than the teachers to make connections among different pieces of information, including potential practical uses or social value. Whereas the teachers could relate the information to their roles as teachers or parents of high school students, the college students in this study did not have a clear relationship to most of the documents. Only one response could be described as “elaboration,” as an effort to form connections among information. Subject MS3 said that the teachers’ commitments bulletin board made him think of “being committed to school to succeed.” First, he described himself as thinking about the information. Second, he connected the teachers’ commitments to a necessary commitment of his own, elaborating on the information he encoded into memory. No responses could be described as practical value, social currency, or any other code. Besides MS3 elaborating on the commitment statements, the students focused on ascribing relevance or irrelevance based on their personal schema as college students. Their schema seemed to act as a filter for both their attention and their memories.

Table 20. Number of Each Code’s Use for Students’ Likelihood to Apply Information, First and Second Interviews

	1 st	2 nd	Total
Relevance	9	9	18
Schema	3	3	6
Practical Value	0	0	0
Social Currency	0	0	0
Elaboration	1	0	1

N=10

DEMOGRAPHIC IMPACTS

As I reviewed and processed the interview data, I did not observe any significant trends based on age, sex, discipline, or major. This may have resulted from the small sample size, especially for the specific age groups, disciplines, and majors represented in the study. Although the populations of teachers and students fell more-or-less within distinct age groups, there were not any significant differences in the populations' reported memories or their reasons for recalling information and details. Certain disciplines or majors were represented by multiple subjects, but again, there were no consistent trends in these subgroups' responses. There were equal numbers of males and females in this study, but sex did not exert a clear influence on the subjects' responses. It is possible that larger samples may have yielded some broad, generalizable trends among specific subgroups. Also, if the documents used in this study had been more directed at a certain demographic (e.g., AARP flyers), then more demographic influences may have emerged in the subjects' responses.

With that said, the study's results suggest that demographic factors can exert an influence on a person's attention, memory, and likelihood of applying information. Although consistent trends among demographic groups did not emerge, several responses reflected the subjects' personal schema, identity, and subjectivity. The teachers were more likely to relate the information to their schema and identities as teachers or parents, and they tended to remember more information than the students. The students seemed to have more difficulty relating to the information since they were more removed from most of the documents' intended audience (i.e., high school students). For example, multiple teachers who are also parents of high-school students reported noticing and encoding information about their children's school clubs, ACT deadlines, college visits or admissions deadlines, and other things relevant to their children's

lives. Students with children also referenced their children when they explained their interest in certain flyers and posters. Otherwise, neither teachers nor college students found the information aimed at high school students to be very relevant or applicable to their lives.

Many of the responses demonstrate the influence of a person's schema on his or her memory, but there are a few notable examples that deserve to be highlighted. When instructed to let her attention naturally wander at it normally would, subject FT3 did not pay attention to the posters, flyers, or other documents on the walls. Instead, she reported memories of trash on the floor, a lanyard strap hanging from a locker, and a cigarette box on the ground outside of school. She teaches Family and Consumer Science to 7th and 9th – 12th grade students and has a family of three children. It is telling that someone who teaches and practices home-making skills would notice disorganization and dirtiness! Similarly, subject MT8 is a 10th – 12th grade science teacher with a son considering transferring to Southeast Missouri State University (SEMO) and a daughter planning to take the ACT exam; he remembered the science-themed details of the "Experiment with Learning" decorations, a flyer advertising SEMO, and a flyer stating an upcoming ACT test date. Among the students, a religious studies graduate student with a bachelors in history, subject MS3, recalled a white paper cross hanging from a teacher's door and the poster asking, "Why Study History?" Lastly, subject FS5 remembered a flyer advertising a raffle drawing for a firearm because of her interest in hunting.

These examples are so striking because *other subjects did not notice, encode, or recall the same documents*. Theoretically, the most memorable documents should have been noticed and remembered by most, if not all, of the subjects. This occurred to some extent, as a few posters were consistently reported. Just as often, however, things were either noticed or ignored due to the subjects' differing schema. The lanyard strap hanging from a locker door was present

during multiple subjects' participation, yet only the Family and Consumer Science teacher noticed it — and to the exclusion of the posters and flyers trying to gain her attention! The information about SEMO and the ACT test was posted when I interviewed most of the teachers and all of the students, but only a few parents noticed this information enough to encode and recall it. The paper cross was hanging from the teacher's door for all to see, and only a religious studies student noticed it. Finally, all of the students walked past the gun raffle flyer prior to their interviews, but only one of the ten students remembered it.

In short, the existing schema and identity of an audience seem to determine what that audience notices, encodes, and remembers, thus making documents' memorableness dependent on knowing and engaging the audience's schema. The audience's demographics appear to exert an influence on its schema and/or identity, although this study's small sample size did not yield consistent trends based on specific demographic factors.

DISCOURSE ANALYSIS

There are too many documents involved in this study to conduct a detailed discourse analysis of all of them, and such a comprehensive analysis would not necessarily reveal any insights beyond those in the following analysis. The most-often remembered information and details were the FBLA posters and the racing-themed drunk driving posters. The FBLA posters relied on text and color while the drunk driving posters combined text, color, and images. I will analyze each document's elements to better understand why they were the most consistently remembered and to compare the subjects' responses with the documents' actual discourse.

There were two different homemade FBLA club posters located at opposite ends of the hallway. Most of the teachers and students remembered these posters in both their first and second interviews, showing that these were among the most memorable documents in the

hallway. Each placement was more-or-less random, apparently chosen for spacing purposes. One was a bright green rectangle; the other was a bright orange square. Both were advertising the upcoming FBLA club meeting and the required membership dues of \$20. The title “FBLA” was written in all-caps and in enlarged text (relative to the rest of the text).

Since it relies on text and color, my analysis of this poster will focus on the relationship among its content, font, and color. The neon colors of the poster and letters created a stark, attention-catching contrast in the otherwise drab hallway. Many of the subjects mentioned “color” and/or “contrast” as reasons-for-recalling information. “Title-slogan” was the most frequently-remembered type of specific detail among the subjects, and the prominence of the large, blue “FBLA” on these posters helps explain why. The familiarity of this title also helps. FBLA is a long-standing, well-known club with which both teachers and students are familiar. The flyers’ color and design were attention-catching, and the information delivered through the color and design already existed in the audience’s schema. It was not difficult to fit the information within a new or existing schema; thus it was very easy to encode and remember.

Figure 9. FBLA Poster



There were also two racing-themed drunk driving posters at different locations in the hallway. One was located on the gymnasium doors, near the beginning of the hallway. The other was located about halfway down the hallway, close to a drinking fountain. The poster shows Michael Andretti wearing a racing suit and holding a helmet while sitting on a Formula One race car. Next to Andretti, the poster states, “Michael Andretti, IndyCar Series Team Owner.” The poster reads in much larger text, “Make a choice you can live with. Don’t drive drunk.” Finally, underneath the slogan, one sees the logos for The Century Council and The Michael Andretti Foundation. Below, Figure 10 shows the poster affixed to the gym door.

Because this poster uses text, color, and images, I will analyze how these elements work together to convey information both coherently and memorably. This poster was often remembered as a unit of information, and its content generated the most frequently-recalled specific details. It generated memorableness thanks to several strategies: repetition, contrast, slogan, redundant text-image relationship, and archetypes. It has been posted for quite some time, so the poster benefits from subjects’ repetitive exposure day-after-day as well as its multiple postings. The poster uses contrast through the blue-and-red racing suit, the red-and-blue race car, and the white block-text of its slogan. The text “Don’t drive drunk” taps into the schema of drunk driving messages, as shown by the subjects’ tendency to paraphrase the statement into the more common slogan, “Don’t drink and drive.” The decades-long repetition and emphasis of this slogan makes the poster more memorable due to the way audiences can file it within their existing schema for drinking and driving PSAs. In other words, the message is familiar to the viewer or reader. Finally, the text/slogan is supported by the redundant, reinforcing imagery of a famous race car driver and a sleek race car.

Figure 10. Drunk Driving Poster



Interestingly, none of the subjects identified the driver as Michael Andretti despite his relative fame as an athlete and *his name being stated on the poster* next to his picture. Instead, the subjects encoded his image as a generic “race car driver,” or else they encoded the poster as the “racing one” or “the one with the race car (driver).” The archetypes of a race car driver and/or racing were more memorable, possibly because it was easier to encode the imagery as a generic schema rather than as a specific person.

So why did Michael Andretti grace this poster when someone less famous (and expensive) could have done the job just as well? As mentioned above, this drunk driving poster was sponsored by The Century Council and The Michael Andretti Foundation. The Century Council is the former name of The Foundation for Advancing Alcohol Responsibility, a partnership of top distillers that supports campaigns against drunk driving and underage drinking (see Responsibility.org and [Facebook.com/GoFAAR](https://www.facebook.com/GoFAAR)). The Michael Andretti Foundation helps raise and distribute funds for other non-profits (see andrettiautosport.com), and it partnered with

The Century Council to provide funds for educational programs and materials about making responsible decisions regarding alcohol consumption (Chardavoyne, 2006a; 2006b). Considering the organizational ties among these organizations, it makes sense that Andretti would lend his image to the campaign materials. It is also possible, of course, that subjects did not remember Andretti specifically because he has long been retired from racing and Formula One has never been widely popular in the United States. With that said, the possibility that generic schema may be either equally or more memorable than famous celebrities is intriguing for rhetors.

CONCLUSION

To summarize the study's results, certain design and writing strategies can gain attention and facilitate encoding stimuli into long-term memory, but these strategies alone may not make a document memorable for a particular audience. The documents in this study exerted a clear influence on the subjects' memories, as shown by the quantity, quality, and consistency of their recollections from the first to the second interview. However, the extent and nature of the documents' influence depended on the subjects themselves. Some documents were remembered quite consistently among the subjects and over time; they used color to create attention-catching contrast, familiar titles and slogans to facilitate encoding of information into existing schema, and reinforcing image-text relationships to convey information visually as well as textually. But even though all of the subjects walked down the same hallway and viewed many of the same documents, they recalled information selectively based on their individual schema and identity. Subjects recalled what engaged or interested them personally. When it came to applying the information, personal schema and relevance were even more important.

In Chapter 5, the Conclusion, I will put the results into conversation with my research questions and the theories and research presented in the Literature Review. I will summarize the

essential results of my student and describe how they answer my research questions. I will emphasize any corroboration, extension, or refutation of existing theories and practices, but primarily, I will argue that my results suggest the need for significant changes to existing rhetorical theory and discussions of ethics. I will explain how the results can inform our understanding of effective writing and document design, from highlighting the power of certain forms of invention, arrangement, style, and delivery to considering how an ethic of memory changes our assessment of ethics in communication. Perhaps most importantly, I will discuss the impact of preexisting schema on an audience's attention and memory as well as the implications for crafting memorable, ethical communication. Finally, I will also describe the limitations of my project and recommend topics and directions for future research.

CHAPTER 5

CONCLUSION

At the beginning of this dissertation, I stated my hope to rejuvenate the canon of memory for both Composition and Rhetoric and Technical Communication. With confidence, I submit that this dissertation represents a significant step toward achieving this hope. The potential of an understudied, underappreciated canon has been revealed. English Studies' traditional view of memory as a container or a reproduction has been questioned and complicated, and the reconstructive, inventive nature of memory has been introduced, described, and affirmed. An ethic of memory has been established that complements existing views of ethical communication, alters our understanding of effectiveness in writing and document design, and informs our approaches to invention, arrangement, style, and delivery. As disciplines concerned with effective, ethical communication, both Composition and Technical Communication can benefit from this study's findings.

This study yielded several interesting results. From the first to the second interview, the subjects' recollections were very similar in both number and content. Clearly, documents can exert a lasting influence on an audience's memory. The subjects' responses often displayed characteristics of reconstruction, such as subtle rephrasing, elaboration, or concision. Thus the reconstructive view of memory now has empirical support from English Studies as well as several other fields. Some documents were more commonly and frequently recalled than others, indicating that certain rhetorical and design strategies facilitate encoding information into long-term memory more effectively than others. The most memorable documents, the FBLA and Drunk Driving posters, used contrasting design elements and colors, familiar titles and slogans,

and reinforcing text-image relationships to catch the subjects' attention and facilitate their encoding of the information presented. Color, contrast, and imagery give stimuli a natural distinctiveness that catches attention. Familiar content is easy to encode into memory and thus easy to retrieve at a later time. These elements tend to be most memorable when used in conjunction with each other, but they are especially indelible when they engage a reader's existing schema and identity, prompting that reader to ascribe relevance to the information being conveyed and thus endeavor to encode it.

Yet contrast, color, and imagery were not the crucial factors in achieving memorableness. Rather, the reader's preexisting schema and sense of identity appear to play even more powerful roles. Many subjects failed to notice or recall documents that other subjects remembered vividly due to their personal interest in them. When asked why they recalled something, most of the subjects described the information or details as relevant to either their professional or personal context. When asked about applying the information they remembered, the subjects invoked relevance, schema, and identity even more strongly. And if my discourse analysis is accurate, then the most memorable posters were successful, at least in part, because they tapped into the subjects' existing schema: the title of a well-established school club, FBLA; the well-known slogan "Don't Drink and Drive;" and the generic archetype of a race car driver. Repeatedly, this study demonstrates that schema and identities shape readers' evaluations of a document's relevance, which in turn determine both whether *and* how they encode its information into long-term memory for later reference and use.

These results answer each of my research questions and affirm my theoretical arguments for memory's importance in rhetoric, writing, and document design:

- 1) What design elements cause a reader to attend to information in such a way that he or she will remember that information?

2) How do these design elements enhance a document's memorableness?

Contrast, color, and imagery appear to be the most effective design elements in terms of gaining and keeping enough attention to facilitate remembering information. Bright colors and imagery that reinforces text are particularly effective. The familiarity of content also facilitates its encoding, especially if it is a well-known title or slogan. But these elements alone do not guarantee a document's memorableness. Rather, a document will be most memorable if it engages readers' existing schema and identities, leading them to ascribe relevance to its information and details which then makes them worth remembering. Answering my research questions supports my central contention that writers can influence an audience's memory through rhetorical and design choices, thus necessitating an ethic of memory that alters both our standards and approaches for effective, ethical communication.

APPLICATIONS AND CONTRIBUTIONS

The study's results suggest many applications and contributions to English Studies. An ethic of memory contributes to our understanding, assessment, and practice of ethical communication, and a rejuvenated canon of memory changes rhetorical theory, practice, and document design. Compositionists, Technical Communicators, and other rhetoricians will contemplate, debate, and approach rhetoric, writing, and design very differently when they consider their authorial choices through the lens of memory.

As detailed in the literature review, the field of Technical Communication has discussed ethics in terms of accuracy, brevity, clarity, exigence, (de)humanizing, and achieving a given document's rhetorical purpose. Far ranging as this discussion has been, I believe it is ultimately insufficient without an ethic of memory. Communication can be accurate, brief, clear, purposeful, and humane without necessarily being memorable, effective, or ethical. If the

purpose of communication is to enable some action or belief, then it must be remembered by the audience. If a document is not memorable, how can it enable some action or belief on the reader's part? And if it does not enable some action or belief, can we claim that it achieved its rhetorical or communicative purpose? A reader could refer back to the document, of course, but it is easily agreed that the reader's purpose in using the document would be better-served if he or she did not need to reference it (repeatedly). Entertainment might achieve its purpose without being remembered later, but entertainment's purpose is not usually to enable an action or a belief. When entertainment is didactic, then it must be as memorable as Technical Communication or else its lessons will go unheeded. Non-didactic literature, cinema, television, etc., does not have to be memorable to entertain, but if it is very entertaining, then it is usually at least somewhat memorable. Also, it would be more entertaining, arguably, if one could remember and enjoy it in its absence. It is difficult, therefore, to circumscribe communication so that an ethic of memory loses either its importance or its potential to enhance the communication's effectiveness in achieving its purpose.

An ethic of memory offers a lens through we can (re)evaluate the ethics and effectiveness of communication as well as our processes for crafting it. Thus it informs rhetorical theory and practice. If memory underlies the rest of the rhetorical canon, then it influences our understanding of invention, arrangement, style, and delivery *and* how we practice each of them. We no longer view invention only in terms of brainstorming strategies; we also recognize the necessity of knowing the audience's existing schema and then inventing content that engages it. We do not arrange writing with only clarity or genre in mind; we also consider how to leverage the primacy and recency effects, when to open and close knowledge-gaps, and where to strategically repeat key ideas. We stop aiming only for clear, concise, precise writing style; we

also add humanity and imagery and emotion that are not easily ignored or forgotten. We do not only design accurate, brief, clear, aesthetically-appealing documents; we also use stark contrasts, bright colors, and reinforcing imagery to allocate attention to the information we want readers to remember most vividly.

This study also contributes to our understanding of Kenneth Burke's theory of identification. Its findings lend empirical support to Burke's theory and, essentially, situate the processes of identification and consubstantiality in the context of document design (in addition to writing and rhetoric). Burke (1969b) describes these concepts most clearly in *A Rhetoric of Motives*:

A is not identical with his colleague, B. But insofar as their interests are joined, A is *identified* with B. ... In being identified with B, A is 'substantially one' with a person other than himself. Yet at the same time he remains unique, an individual locus of motives. Thus he is both joined and separate, at once a distinct substance and consubstantial with another.

(pp. 20-21; original emphasis)

In his earlier work, *A Grammar of Motives*, Burke (1969a) invokes the idea of collective memory when he explains how one can be "both joined and separate." He explains that a group's consubstantiality most often comes from a shared founder, covenant, constitution, or historical event. The group's individual members form their identities in terms of the collective, simultaneously uniting themselves with it and distinguishing themselves from it. Since the need and possibility for identification always implies such divisions among the group (Burke, 1969b), persuasion requires establishing consubstantiality: "You persuade a man only insofar as you can talk his language ... identifying your ways with his" (p. 55).

These ideas now have empirical support. In Burkean terms, my study found that a document's content and design should "identify" with its intended readers as a means of establishing consubstantiality among its ideas and the readers. Consubstantiality, or a shared interest or value, influences the audience's judgment of information's relevance, thus making that information seem worth remembering. Burke's theories support my implied contention that writers and designers can, and should, simultaneously engage the collective audience and the subjective individuals within it. Moreover, my study situates identification and consubstantiality within the context of document design, making them applicable to both verbal and visual rhetoric (including both design principles and imagery). To my knowledge, this is a new perspective on Burke's influential theories.

An ethic of memory complicates existing theories of document design, an important topic in Technical Communication and, increasingly, Composition Studies. Current theories of document design emphasize achieving accuracy, clarity, efficiency, and aesthetic appeal through appropriate font choices, effective use of design principles, and vivid colors and images. In this study, contrast, color, and redundant text-image relationships exerted the strongest influence on the subjects' attention and memories, whereas other design principles and visual rhetoric had little to no impact. Design theorists, therefore, may need to further highlight contrast and perhaps reframe other design principles as ways to achieve it. For instance, principles like alignment and proximity can be used to add contrast to titles, headings, or other information. Additional contrast generates more distinctiveness, which attracts more attention and eases encoding. Of the various relationships among text and image, it seems that redundant or reinforcing relationships also deserve greater emphasis. The semantic (inter)relationship among the text and image arrests attention and repeats the message in multiple media, facilitating the message's encoding.

Focusing on achieving an ethic of memory changes both theories of and approaches to designing documents.

While the subjects in this study reported noticing contrasting elements and interesting images, they were more likely to notice, encode, and remember the information and details that engaged their personal interests, contexts, or identities. Design theories focus on arranging information in clear, easy-to-follow layouts with aesthetic appeal and allocating or directing the audience's attention through the layout. If the design is easily discerned, the thinking goes, then readers will be able to easily understand and learn the information contained within it. Obviously, this is not always the case. Font, color, and pictures certainly can be attention-catching and memorable in their own rights, but this study demonstrates that the most memorable documents engage the audience in a personally relevant way. The design attracts attention, but by itself, design does not necessarily make a document or its information memorable. To communicate memorably to a given audience, a writer or document designer must tap into an audience's existing schema and identity so that they will ascribe relevance to the document and its information, which in turn motivates encoding.

Any reader who values communication can benefit from this dissertations' findings and discussion. Readers in Composition and Rhetoric gain a better understanding of memory's historical importance in rhetorical theory and its treatment in modern Composition studies as well as in psychology. Memory's relationship to public memory studies and to Kenneth Burke's theories of identification and consubstantiality affords many opportunities for further theorizing of memory's place in rhetoric, writing, and design, and Compositionists can also practice and teach the rest of the rhetorical canon in relation to a modern psychological understanding of memory.

An audience of Technical Communicators also benefits from understanding memory's place in the history of rhetoric and its modern discussions in Composition Studies, psychology, and other fields. But more importantly, Technical Communicators gain the heuristic of an ethic of memory. Since certain characteristics make designs more memorable, it will behoove Technical Communicators to use these characteristics to make essential information more memorable for their audiences. They can place more emphasis on contrast when designing documents, for example. Because engaging schema has even more influence than design, Technical Communicators can benefit from this new approach to analyzing and engaging audiences. Their work will be further enhanced as a result of this dissertation's findings.

Self-Schema, Priming, and Collective Memory

The importance of knowing and tapping into the audience's schema and identity may be this study's most consistent, significant finding and its greatest contribution to English Studies. To communicate memorably, a writer must know, target, and influence the intended audience's collective self-schema. The writer must engage that schema in a way that establishes relevance and prompts creating retrieval cues.

Why are schema and identity so crucial to memory? When a person's schema and identity are intertwined, they form a kind of "self-schema" that shapes the perspective by which an individual processes information, filters the relevant and the irrelevant, and focuses and allocates attention (Markus, 1977). I submit that self-schema act as a "prime" for memory. A prime is a stimulus that leads to a unconscious activation of behavior; for example, the presence of dieting magazines in a waiting room makes subjects more likely to choose an apple over cake when given the two options (Shantz & Latham, 2011). Primes are most effective when people attribute them to their own thoughts rather than external stimuli (Loersch & Payne, 2012);

subjects who choose an apple over cake attribute their decision to themselves, not their awareness of the dieting magazines. So when people see a flyer, poster, or other document, they may be drawn to its color, contrast, and imagery, and then they process its information through their self-schema, decide whether it is relevant or irrelevant to themselves, and either encode or forget it. All the while, they attribute the decision to remember the information to their conscious assessment of its relevance or interest. They may be aware that their assessment involves their identities as teachers, students, parents, etc., but they do not realize that their self-schema primed them to attend to and encode the information.

Exactly how does one learn and engage an audience's schema? As this study shows, engaging schema requires tapping into the audience's collective memory. To know its collective memory, one can refer to the audience's common experience, socio-cultural background, demographics, and discourse community. Various groups tend to have similar historical, cultural, or institutional experiences. As Burke (1969b) points out, consubstantiality is most often based on a shared foundational experience. In America, for example, we learn about our country's founding fathers, become familiar with American sports, and participate in compulsory education, whether public, private, or at home. One can safely assume the presence of George Washington, the Super Bowl, and school work in America's collective memory. Of course, Americans from certain regions or social classes may have unique experiences that other Americans do not, and this is why it is important to narrow one's intended audience as much as possible. Narrowly defining the audience facilitates identifying the commonplaces that can be used for identification and establishing consubstantiality. But even the broadest audience will have some shared knowledge or experience that can form the basis of consubstantiality.

While demographics did not exert a strong influence on my subjects' memories, I believe they can provide key clues to an audience's collective memory and self-schema. For example, Baby Boomers' collective memory includes The Beatles performing on The Ed Sullivan Show, Kennedy's assassination, Armstrong walking on the moon, and many other watershed events that later generations only read or heard about. It may become more difficult to rely on demographics in the future if our society grows more fractured and siloed socially, politically, and culturally, but there should always be some dependable commonalities among a specific audience. Any given audience always belongs to a common discourse community, whether it is as general as "America" or as specific as "corporate tax attorneys." The discourse community's common paradigm, concepts, and language can be viewed as a collective memory or schema that facilitates mutual understanding and communication. Whether focusing on common experience, background, demographic, or discourse, it should now be clear that communication and memorableness both depend on some shared knowledge and schema among the audience and the writer.

In the next section, I explore in more detail the concept I am calling "collective self-schema." But first, it is important to distinguish between this concept and Burke's theory of consubstantiality. At first glance, these terms seem to be synonymous. Consubstantiality is the feeling of unity or oneness resulting from identification with another's interests, goals, beliefs, or attitudes. One person can be "consubstantial" with another while still remaining a separate individual. A collective-self schemata is the shared identity of the members of a group, a mutual identification or consubstantiality. Obviously, a person belongs to and identifies with the group while remaining an individual. What distinguishes these ideas? Their psychological nature and functions. As Burke describes it, consubstantiality is a (semi-)conscious sense of solidarity that

establishes *ethos* and enables persuasion.¹ Collective self-schema act as unconscious filters for both attention and memory, both screening irrelevant stimuli from consuming one's scarce attention and mnemonic resources and highlighting relevant stimuli for encoding into long-term memory.

Strategies for Engaging an Audience's Collective Schema

Once a writer understands the audience and its collective memory, several strategies can engage the audience's collective self-schema so that they ascribe relevance to the information-to-be-remembered. These strategies include:

- 1) conveying practical value;
- 2) using the familiar;
- 3) using contrast, color, and imagery;
- 4) using unexpected elements;
- 5) arousing emotion and building social currency;
- 6) and "breaking and remaking" schema.

This is likely only a partial list of strategies; future research on memorableness may reveal many more, but these strategies seemed most appropriate to discuss in light of my study's results.

Most obviously, if something appears to have practical value to people, then they will usually strive to remember it so they can use it later. The particular value will vary according to the audience's needs, of course, but generally, if it is of practical use, then it is worth remembering and thus more likely to-be-remembered. Memorable communication, therefore, should attempt to convey the practical value that the information possesses for the audience. In

¹ I say "(semi-)conscious" because in Burke's explanations a rhetor needs to communicate information that leads to identification and thus consubstantiality, indicating that some conscious attention is required. But it is more than plausible that an audience would not consciously evaluate whether to identify and/or feel consubstantial. In contrast, people do not consciously activate or interrogate self-schema (Markus, 1977).

many cases, the value may be obvious to the audience. As one subject said, the date of the upcoming ACT exam was useful because his daughter was considering taking the exam (Appendix R). In other cases, the writer or document designer may need to make the information valuable or useful. What if the flyer stating the ACT exam date had implored teachers to encourage students to register for the exam? What if it had included the statistic that only 31% of 18-24 year-old students who had attended rural high schools were enrolled in college in 2012, compared to well over 40% of students from cities, suburbs and towns (Department of Education, National Center for Education Statistics, 2012)? What if it had argued that taking the ACT was an important step toward the students' educational futures? Arguably, the information would have possessed much more practical value for teachers whose children (if any) were not planning to take the ACT soon, and they would have been more likely to recall and apply the information in the future.

My subjects often recalled familiar information, especially titles and slogans. They also transformed less-familiar information into more familiar or generic forms. It appears that familiarity influenced their recollections simply because it was already present in their schema and thus easier to re-encode and/or retrieve. For example, the FBLA poster was one of the most-commonly reported documents for both teachers and students. The poster's bright colors caught the subjects' attention, of course, but the familiarity of the text/title "FBLA" also made it easy to recall. The drunk driving poster was often reported or described along the lines of "Don't Drink and Drive" even though its text actually reads "Don't Drive Drunk." This subtle transformation illustrates the power of familiar information as well as how people sometimes change less-familiar information into something more familiar to their existing schema. To this point, the subjects also recalled a generic "race car driver" rather than encoding the name "Michael

Andretti” along with the driver’s image. The archetype of a “race car driver” was simultaneously simpler and more familiar than “Michael Andretti, Indy Car Owner.”

Thus, writers and document designers should use the familiar to engage the audience’s existing collective schema. Many things may be familiar to a given audience based on its socio-cultural and institutional memory, but well-known titles, slogans, and archetypes stand out in this study. Teachers and students alike included “FBLA” in their self-schema, which primed their encoding of the poster even though they did not find its information particularly relevant to them. The decades-old slogan, “Don’t drink and drive,” was already present in these Americans’ schema and thus was more memorable than the more concise phrase they actually saw and read, “Don’t drive drunk.” The archetype of a “race car driver” was more familiar to these rural southern Americans raised with NASCAR instead of the Formula One and IndyCar racing that originated in Europe and never quite caught on in North America. Therefore, communicators should identify the titles, slogans, and archetypes already present in the audience’s collective schema, and then they should use this “collective familiar” to make their documents easy-to-encode and thus more memorable.

In addition to titles, slogans, and archetypes, Heath and Heath’s concept of “simplicity” may be a key to unlocking the power of familiarity. Heath and Heath emphasize drilling down to the core of an idea and then conveying it as simply as possible. The idea is not necessarily simple, but its expression packs a great deal of meaning into a small space. They uphold proverbs as exemplary simplicity, and proverbs, they assert, work only because they tap into people’s existing schema. For instance, the Golden Rule, “Do unto others as you would have them do unto you,” summarizes reams of moral, ethical, legal, and political reasoning into a short, simple, concrete, easily-understood, easily-remembered phrase. Yet it is probably more

familiar to Western culture than to Eastern culture, and vice-versa for Confucius' teachings. Communicators must know their audience in order to identify and use familiar proverbs.

To achieve proverb-like memorableness in the absence of a handy proverb, writers must determine the core of their message and package it as simply and concretely as possible, tapping into whatever collective schema might exist. During Bill Clinton's first presidential campaign, for example, his campaign manager kept the campaign's focus on the economy by reminding everyone, "It's the economy, stupid." This phrase still occurs in articles and essays, and it is sometimes parodied to suit the writer's topic. It was memorable then, and remains memorable today, because it taps into the current concerns of the audience and adds a universal insult that acts as a reminder to focus on the problem. Being problem-solving by nature, humans are inclined to remember the problem once they are prompted to do so. Perhaps the ACT flyer would have been more memorable for the teachers if it had stated, "It's their future, stupid," and then implored them to encourage students to open a path to college by registering for the upcoming exam. Such a message would have highlighted a practical problem as well as engaged the teachers' collective self-schema by invoking their common concern for their students' futures. "Simple" messages need not always highlight problems, of course, but this example shows how they can be created when a proverb is not available.

Even the most practical or familiar message must receive some attention before it can be perceived, let alone encoded. The more visible a message, the more likely it will command attention. The more attention it commands, the more likely it will be encoded effectively. Theories of design have long emphasized the power of well-executed design principles to catch, guide, and direct attention to certain places in a document. As this study shows, contrast, color, and imagery in particular can catch a reader's attention and keep it focused on certain

information. Writers should use these design principles, then, to draw the audience's attention to the "collective familiar." Contrast and color often go hand-in-hand, as bright or vivid colors create a strong contrast. The FBLA poster, for instance, used bright neon colors in an otherwise drab hallway. The text, "FBLA," was also enlarged relative to the poster's other text, adding contrast and emphasis to the club title. Contrast and color create a natural distinctiveness, especially if used together, that not only arrests attention but also indicates importance and prompts encoding. If it emphasizes something familiar to the audience, then it will be even more memorable.

If imagery reinforces the text's message, then it is not only inherently interesting and attention-catching at a glance (compared to text); it also conveys the text's message in a metaphorical manner, builds repetition into the message, and provides another avenue by which writers can tap into the audience's collective familiar. The race car driver did not need to be on the poster for the message, "Make a choice you can live with. Don't drive drunk" to make sense to passers-by. But the image of a race car driver added visual interest, engaged attention, subtly reinforced the theme and content of driving, and most importantly, tapped into a collective schema for race car drivers. Continuing with the example of the ACT flyer, it might have been more memorable if it had featured an iconic depiction of stacks of money comparing the projected lifetime earnings of college and high school graduates. With or without my previous suggestions, this additional imagery would have visualized the importance of taking the ACT and tapped into multiple collective schema: the teachers' concern for their students' futures and the relatively well-known fact that college graduates earn more, on average, than those with only a high school diploma.

Of course, one must sometimes introduce or emphasize the unfamiliar. If familiarity is such a strong influence on memory, then it may be disproportionately difficult to make the unfamiliar memorable. One strategy might be to identify some hidden familiarity, such as an applicable image or proverb. Another option could be parodying something familiar, as in “It’s their future, stupid.” But it could also be possible to embrace the unfamiliar. According to Heath and Heath (2007), unexpected elements can “break” schema by alerting people to errors or inconsistencies in their existing schema. People form schema because they facilitate cognition and memory. If a schemata is incorrect, people naturally want to correct it. Unexpected elements, then, arouse curiosity and prompt people to encode the new information into revised schema. To put it another way, unexpected elements create “knowledge gaps” that people want to fill. Citing sociologist George Loewenstein, Heath and Heath explain:

[W]e need to open gaps before we close them. Our tendency is to tell people the facts. First, though, they must realize that they need these facts. The trick to convincing people that they need our message, according to Loewenstein, is to first highlight some specific knowledge that they’re missing. . . . To make our communications more effective, we need to shift our thinking from ‘What information do I need to convey?’ to ‘What questions do I want my audience to ask?’” (pp. 85, 88)

The unfamiliar, therefore, can be an effective aid to memorableness if we present it as a knowledge gap in one’s existing schema that needs to be filled or corrected.

Unexpected elements are especially effective if they generate practical value, social currency, an arousing emotion, or some combination of all three. As discussed earlier, information will be viewed as more worth-remembering if it possesses some practical value, and

unexpected elements are no different. As Berger (2013) explains, social currency and arousing emotions both tend to motivate sharing. An idea has social currency if it garners a person social approval by making him or her seem remarkable in some way. Gaining social approval is a fundamental human motivation. One can see evidence of this in the teachers' tendency to interpret documents as relevant and worth remembering if the information could be helpful to their students. If information arouses people, it usually leads them to act on it in some way. Berger discovered that people were less likely to share information that caused contentment or sadness since these kinds of emotions do not stimulate people to action. But excitement, awe, anxiety, or anger make people want to take action, including sharing what made them so excited, awe-struck, anxious, or angry.

To share something, one must remember it. Therefore, the unfamiliar could be made memorable by emphasizing the unexpected, or dissonant, element in an existing schema and how this element should modify the schema. If the dissonance has, or can be presented as having, some practical value, social currency, and/or an arousing emotional component, then the unfamiliar could be quite memorable since the reader will likely incorporate it into a revised schema for later reference, use, or sharing. The audience's schema has thus been broken and remade, and the new information has been thoroughly encoded into long-term memory. And if the audience is repeatedly exposed to the new information, then it can become part of the collective familiar.

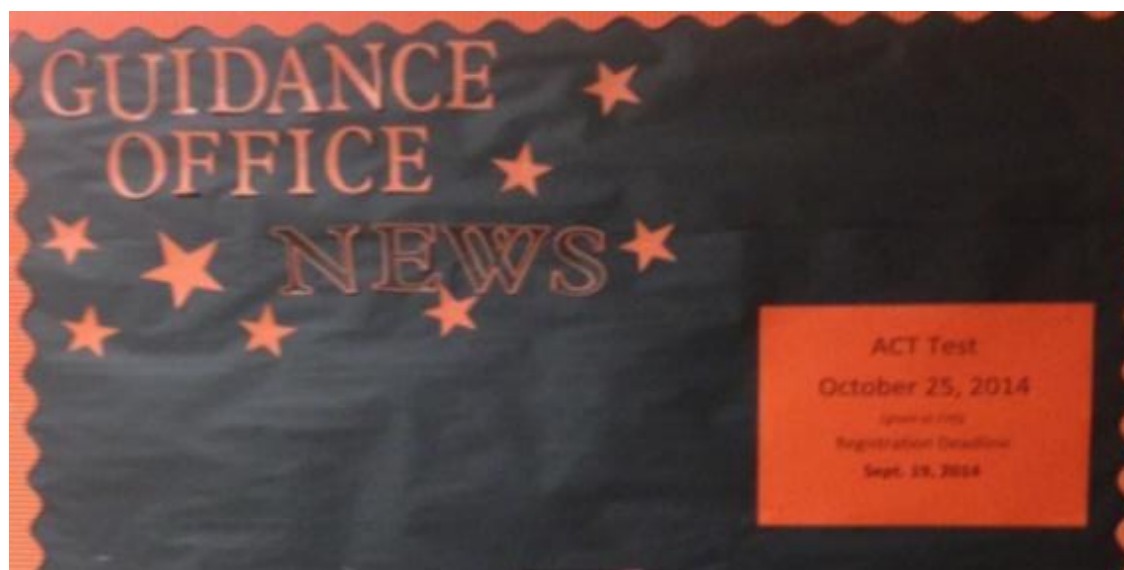
If the ACT flyer were revised according to my earlier suggestions, it would most likely introduce unexpected or surprising information about the rate at which rural high school students attend college and how (not) taking the ACT test affects their futures. For teachers, the information would have inherent practical value since it could help their students; helping their

students would generate the social currency of being helpful; and the gravity of students' futures hanging in the balance would engender the motivating emotion of anxiety. The more often teachers passed this flyer, the more its information would become familiar to them. All of this would make the document more memorable as well as more actionable.

An Ethic of Memory at Work

In this section, I will briefly analyze the original ACT flyer used in this study, showing that it is an effective, ethical document according to current standards. Although it could certainly be improved, it still achieves its rhetorical or communicative purpose with accuracy, brevity, clarity, and efficiency. Then I will present a revised ACT flyer that uses the strategies above, demonstrating that an ethic of memory changes both our assessment of effective, ethical communication and our approaches to creating documents. The revised flyer also achieves its rhetorical or communicative purpose, but it does so much more memorably than the original.

Figure 11. ACT Flyer.



In Figure 11, one sees the flyer advertising the upcoming ACT test on the guidance counselor's bulletin board. The flyer matches the bulletin board with an orange background and black text. The words "ACT Test" and the date of the exam are centered and enlarged. The words "Registration Deadline" are also centered, but they are smaller. The deadline for registration appears centered and bolded, yet it is also smaller than the first two lines. The lines are evenly spaced, the font easily-readable.

There is nothing particularly flashy about this flyer, but there is nothing wrong with it either. It uses the principles of contrast, alignment, and proximity. The black text stands out clearly against the orange paper, which stands out against the black bulletin board. The enlarged text stands out relative to the rest of the words. The center-alignment presents the pertinent information up-front and creates a clear entry-point and flow for the document. The text fills up the page without overwhelming the margins, and the even line-spacing gives the flyer a clean look. Each of these elements could be better, of course, but this flyer was not haphazardly designed. It delivers the necessary information accurately, briefly, and clearly. It basically achieves its rhetorical purpose.

I did not design this flyer, but it seems to be the result of fairly standard approaches to the processes of invention, arrangement, style, and delivery. The writer limited his or her invention to the bare-bones details in an effort to be simple, clear, and efficient. The writer arranged the information to be read quickly and at a glance, minimizing the attention it requires — and thus the attention, or encoding, that it receives. He or she wrote the information in a "just the facts" or "bullet point" style, again trying to minimize the attention required, but also neglecting to engage the reader. And he or she designed the flyer to deliver information rapidly and efficiently, not to create any particular flow or to be memorable for the reader.

Figure 12. Revised ACT Flyer.

**It's the future,
stupid.**

**ACT Test:
Oct. 25**

**Register by:
Sept. 19**

Why is the ACT important?

In 2012, the average income of college graduates was 57% more than those with only a high school diploma. But only 31% of 18-24 year-olds enrolled in college came from rural schools.

Source: Dept. of Education, National Center for Education Statistics

Ask them to take the ACT.

In this revision, I have retained the orange background and black, sans serif font in order to minimize the number of variables at play, thus focusing on the strategies for engaging schema that I have identified in this dissertation. I added the slogan, “It’s the future, stupid,” to tap into the teachers’ collective memory for “It’s the economy stupid.” I used “the” rather than “their” as I suggested earlier, so that this slogan might also appeal to students. Students may not recognize this phrase as a parody of a historical slogan, but it should still be attention-catching and memorable for them. Insults usually arouse anger, and we tend to remember what makes us angry. I placed the ACT test date and registration deadlines together for logic’s sake, and I added a stock image that reinforces the text about college graduates’ income. The question, “Why is the ACT important?” is meant to open a knowledge-gap, which is then closed by the following

statement. The statement provides factual information intended to establish the exam's importance and why students should register to take it. I provide the source of the information to add credibility to the flyer. Finally, I wrote "Ask them to take the ACT" at the bottom as a call-to-action for teachers and students alike. Since "them" is vague, I hope teachers will interpret it as referring to their students and students will interpret it as referring to their friends.

I will now analyze the revised flyer with an ethic of memory, focusing on the memorable strategies described above. First, the flyer conveys practical value. It gives the reader factual information about the event in question, and it argues why acting on the information, taking the ACT, is important. Second, it uses the familiar. For teachers, "It's the future, stupid" taps into a familiar phrase. For students who have never heard it, the phrase still uses their colloquial language, or "code," achieving at least some familiarity. The flyer also taps into the well-known fact that college graduates earn more than those with only a high school diploma, and its concluding line, "Ask them to take the ACT" packages the complex call-to-action into a simple, concrete, proverbial phrase, making new information feel more familiar. Third, the flyer uses contrast, color, and imagery. The bolded and enlarged text stands out. The orange background also attracts attention. The black text on the orange background is clear and easily-readable. And the image of money metaphorically reinforces the text's message and engages a familiar schema or archetype.

Fourth, the flyer provides surprising, unexpected information about the relatively small number of college students who come from rural schools. Fifth, the insulting heading, "It's the future, stupid," arouses the stimulating emotion of anger (even if only momentarily), especially for people who do not recognize the parody. Stimulating emotions tend to spark sharing (Berger, 2013), and to share something, one must remember it. Additionally, the unexpected information

should arouse some concern, if not outright anxiety, about the future of a large segment of students who do not attend college and who will earn less income as a result. By extension, the audience should be concerned about students taking the ACT since doing so is a prerequisite for admission to four-year institutions. (Note that the flyer creates a type of enthymeme, relying on the audience to supply this extension; engaging their minds in this way may further enhance their encoding.) Encouraging others to take the test and pursue college could be viewed, both by oneself and others, as a sign of compassion and a helpful act, thus tapping into a natural desire to gain social currency. Lastly, this new information “breaks” the audience’s schema for the ACT, which is not necessarily connected to future earning potential in most people’s minds, and leads (hopefully) to remaking that schema with the new information incorporated into it.

The revised flyer is a result of approaching the processes of invention, arrangement, style, and delivery with an ethic of memory in mind. I analyzed the audience’s collective memory or schema, and then I invented information that would both tap into and complicate that schema. I arranged the information to create a very visible title or slogan as well as to take advantage of Americans’ “z-pattern” of reading and the resulting “power zones.” My written arrangement uses a problem-statement (relatively few rural high school students attend college) before offering a solution (“Ask them to take the ACT”) that reinforces the flyer’s message. I wrote in a more engaging, concrete style that features an insult and a rhetorical question. And I designed the flyer to catch attention, to allocate it to the title or slogan (“It’s the future, stupid”), and to create a certain flow through the rest of the document’s information.

An ethic of memory leads us to change our assessments of effectiveness and ethics in communication as well as our rhetorical practice. The original flyer is basically effective and ethical in achieving its rhetorical purpose, according to current standards of ethics. I can easily

imagine why its writer made his or her rhetorical and design choices. But there can be little doubt that the revised flyer achieves its rhetorical purpose more effectively and ethically. Memorable rhetoric did not only make the document more memorable; it also made the document more likely to be shared and to prompt action.

LIMITATIONS

As detailed in Chapter 4, the Results, my study has several possible limitations. It is possible that subjects performed better in their second interviews because they saw the flyers and posters in between each interview, this time with greater awareness of them. It is also possible, especially for the student subjects, that they made a special effort to notice and remember these flyers as preparation for the “test” of the second interview. Even without any additional exposure to the documents, the simple act of reporting memories could have affected the subjects’ performance. The college students in this study may have been disengaged by the documents directed at high school teachers and students. And lastly, there was a time-lag in my data collection, resulting in some documents being present for some subjects’ participation but not others.

Yet these are minimal limitations in light of the results. If exposure to the documents in between the interviews had been a significant limitation, then repeated exposure to the documents before the first interview would have been a more powerful influence on the subjects’ memories. However, the subjects who did *not* report prior exposure to the documents actually performed better in both interviews than the subjects who recalled seeing them before. These subjects also performed better in their second interviews even though they did not spend time in the hall where I conducted this study (one worked at the opposite end of the hall; two worked at the middle school). Moreover, all of the subjects’ memories were very consistent from the first to

the second interview. I would expect better performance on the second interview if the limitation of additional exposure to the documents were a significant problem with the study.

The dissonance between the college students and the documents' intended high school audience is an avoidable limitation. I could have performed the study with different documents or subjects and/or in a different setting. Nonetheless, I doubt this limitation affected the results to any significant degree. If the college students had been too thoroughly disengaged by the documents, then it is unlikely that the same posters and flyers would have been among the most-often remembered documents for both the teachers and the students. The time-lag in my data collection also complicates the study to some extent, but the most-often recalled documents were posted for the duration of the study. If the time-lag had been a problematic limitation, then there would have been a greater variance in the subjects' reported recollections.

The act of reporting memories may have affected the results, especially if any of the subjects felt the need to prepare for the second interview like it was a test. These are virtually unavoidable limitations. To obtain subjects' memories, one must ask for them. To test memory over any length of time, one must ask for memories multiple times. It is true that I could have devised a more tightly-controlled experiment that somehow avoided directly asking subjects for their recollections and which masked the second data-collection so that subjects would not be tempted to prepare for it. However, such an experiment would almost certainly create a less-authentic context and yield more closed-ended data. Considering the surprises in my results, I prefer an open-ended study with as authentic a context as possible.

Besides the limitations of my research methods, I am aware of some potential theoretical limitations or objections to my findings and interpretations. One might wonder whether rhetoric really needs to be memorable, or if it could simply make a strong impact at the time of its

consumption, especially if its purpose is entertaining or engaging emotions rather than instructing, educating, or persuading. Some might also question whether my study advances existing theories of audience or merely confirms them.

I admit that some rhetoric might have the sole purpose of arousing a strong emotion in the audience. In such cases, the rhetoric does not need to be memorable. The pathos may create some memorableness, of course, but if the goal is only to spark emotion, then the rhetor does not necessarily need to use the other strategies of memorable rhetoric. But I must ask, what is the point of communicating without trying to be remembered? I do not think a communicator can hope for everything he or she says to be remembered for all time, but why would communication neglect trying to be indelible for at least some period of time? Even rhetoric with the sole purpose of inspiring emotion cannot help but impact long-term memory if it achieves its purpose with any great success. If memorableness is so difficult to avoid, then it might as well be embraced and attempted.

At first glance, it may seem that this study merely reiterates Composition and Rhetoric's long-established understanding of audience as a knowable entity who is simultaneously "addressed" and "invoked" through conscious use of the audience's discourse (Ede & Lunsford, 1984; Porter, 1986). After a thorough search in *College Composition and Communication*, *College English*, *JAC: A Journal of Composition Theory*, *Journal of Basic Writing*, *Research in the Teaching of English*, *Rhetorica*, and *Written Communication*, I found only two essays which substantially updated Ede and Lunsford's seminal "Audience Addressed/Audience Invoked." A few other essays from the 1980s also theorized audience, but they did not have a similar influence on the field. I also located some pedagogical articles as well as research on how

audience factors into writers' composing processes, but these did not focus on further theorizing audience.

Revisiting "Audience Addressed/Audience Invoked," Lunsford and Ede (1996) reflect on how "successful" discourse might be "more charged with tensions, competing motives, and trade offs" than they had imagined before, particularly for students writing in the context of institutional power structures (p. 177). Building on previous theories, Mary Jo Reiff (1996) advocates a "social model of audience that accounts for the multiple and shifting roles of readers as they participate in social groups," thus better capturing "the complex and dynamic interaction of readers, writers, and texts" (pp. 414, 417). Reiff draws heavily on Technical Communication's recognition that writers usually have multiple audiences. The necessity of considering the various needs, goals, motives, and social contexts of primary, secondary, and tertiary audiences — or "clients" or "end-users" — is axiomatic in Technical Communication (Johnson-Sheehan, 2012; Kimball & Hawkins, 2008), and it certainly involves more complex audience-analysis, invention, and composing processes than earlier theories.

I submit that my study contributes new knowledge to our understanding of audience. It theorizes the existence of a collective schema for a given audience, suggests how these schema might "prime" memory, and explains how to learn and engage these schema to create more effective communication. It demonstrates how documents can arrest and allocate attention, fit within the audience's self-schema, and ultimately remake that schema. To put it in proverbial, more distinctive terms, memorable rhetoric is a pathos-driven form of shaping schema. These findings are different from audience-awareness, "addressing" or "invoking" an audience (Ede & Lunsford, 1984), participating in a discourse community (Porter, 1986), or recognizing the dynamic social contexts and subjectivities of (multiple) audiences (Reiff, 1996). They begin to

explore the psychological underpinnings of readers' subjective perceptions of relevance, shifting attentiveness, and reconstructive memories.

SUGGESTIONS FOR FUTURE RESEARCH

This study suggests many tantalizing avenues for future research. First, and most obviously, future researchers could repeat the current study while attempting to correct for its limitations and/or test different genres of documents or types of audiences. A researcher might use different documents that more closely fit the subjects, or different subjects that more closely fit the documents. Different genres of writing, such as essays or reports, could be used instead of flyers and posters. Various audiences could replace teachers and students. Researchers could avoid a time-lag in collecting data from the interviewees and/or design a more tightly-controlled experiment that avoided overtly asking the subjects for their recollections, minimizing the mnemonic effects of reporting their memories and/or preparing for a follow-up interview. Lastly, while I tried to use an authentic context in my study, future researchers could attempt to repeat my methods in even more authentic contexts, settings, or situations.

Second, future research could repeat this study with only the original ACT flyer (Appendix R) and the revised, more memorable ACT flyer (Appendix U). There is nothing special about these documents or their topic, apart from their connection to the subjects' schema. Other original and revised documents could be used in addition or instead, as long as they also attempt to connect with the audience's schema. Whatever documents are used, it would be very interesting to test the strategies identified and described in this dissertation. My findings would be confirmed, or possibly extended, if the subjects were more likely to remember the revised document than the original; if the subjects recalled more information or details from the revised document; or if the subjects were more likely to act on the revised document by either using the

information or sharing it with others. My findings could be discredited if there were not a significant difference in the original and revised documents' memorableness. It could be that the strategies were used ineffectively in the revised document or that the strategies themselves are flawed. And new findings and strategies could emerge, as well.

Third, my nascent theory that self-schema act as primes for memory could be empirically researched and tested. Hazel Markus (1977) conducted impressive psychological research proving the existence and describing the characteristics and functions of self-schema. Similar psychological research would be best-suited to test my ideas about self-schema and priming. Researchers could devise experiments or surveys meant to observe evidence of self-schema influencing what subjects attend to and/or remember. Empirical support for my theory would help explain why engaging an audience's schema has such a strong impact on its memory. Given the voluminous psychological research on priming, future researchers might also be able to draw connections between the strategies of priming and the strategies of memorable rhetoric.

Moving away from my methods and theories, future research could focus on theories of distributed or embodied cognition. Distributed cognition could be a lens through which to study genres and to what extent they function as "memory places;" the degree to which readers "off-load" their cognition and memories onto documents or computer interfaces (Whittemore, 2008); and the other mnemonic practices that documents and software enable (van Ittersum, 2007; 2009). If genres give clues about a document's purpose as well as cues for assuming a certain stance as a reader, then genres seem to contain a great deal of public or collective memory. They are literally places populated with memories, or memory places. In some sense, then, genres also enable both writers and readers to "embody" or "distribute" thinking and memory. Further theorizing of this topic could powerfully extend our understanding and use of genres. Distributed

cognition also suggests that people off-load information onto documents and computer programs so that they do not have to remember that information but can instead search for and locate it. People can develop sophisticated memory practices built around off-loading and organizing their memories. The relationships among cognitive off-loading, documents, software, and mnemonic practices beg for further exploration and explanation. Studying these complex relationships and practices would undoubtedly increase our understanding of rhetorical situations, composing and research processes, and document and interface design.

Related to distributed or embodied cognition, memory's relationship with material space could be another fruitful area of future research. A given material space has affordances that other material spaces may or may not have, positioning people to do or not do certain tasks. The way a space positions us and our actions may affect our formation of memories while in that space. The space of a hallway, for example, does not necessarily prompt or facilitate memorizing. Being a natural space for traveling rather than viewing, many people may lose themselves in thought instead of paying attention to the flyers and posters surrounding them. In contrast, a waiting room positions people to be idle and, for lack of other options, to potentially observe and encode their surroundings. Certain material spaces or contexts could also act as "triggers" for recall (Berger, 2013). Research on memory should account for the material space and context in which remembering occurs (or not) since it obviously influences encoding and recall, but the influence of material space or context (of use) could also be the focus of future research.

Finally, future research could explore the haptic element of memorableness by comparing print and electronic documents. Several studies have already observed the superior mnemonic effects of print documents versus soft copies and e-readers (Jabr, 2013). It is less mentally and

physically demanding to turn printed pages than to scroll electronic text and stare at bright LCD screens; this frees cognitive attention and ability for encoding what is read. Readers can also “map” print documents based on information’s physical location on a page and the approximate number of pages preceding or following the information — hence why people can recall that a phrase occurred in the left-hand page, about halfway through the book. Computers, tablets, and e-readers do not afford this kind of mapping. It would be interesting, then, to research if different rhetorical or design strategies might affect the mnemonic qualities of print. Can design enhance mapping a physical document by drawing attention to certain parts of a page over others? Would a higher quality of paper improve a print document’s memorableness? These are just a few intriguing questions for future researchers of the canon of memory.

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APPENDIX A
NOTIFICATION FORM

Title of Project: Creating Memories

Investigator: Eric Sentell

Department: English

Phone number: 573-651-2618

The purpose of this project is to investigate readers' self-reported reasons for remembering information from a given document.

I understand that, as part of this project, I will view documents and then report what I recall from them and why I recall this particular information. I will provide this information once at the beginning of my participation and again one week later.

I understand that there are no risks associated with this procedure or with my participation in this project.

I understand that my participation is voluntary; I may refuse to participate and/or discontinue my participation at any time without penalty or prejudice. I understand that my participation or lack thereof will in no way affect my standing at Southeast Missouri State University or Clearwater High School.

I understand that all information collected in this project will be held confidential; I understand that my survey responses will be anonymous and no identifying information about my participation or responses will be collected during the study.

I understand that by agreeing to participate in this project and signing this form, I have not waived any of my legal rights.

I understand that any questions or concerns I have will be addressed by the above named investigator. If I have further questions, I may contact the Responsible Project Investigator, Dr. Julia Romberger, or Eric Sentell at (573) 651-2618 or jsentell@semo.edu.

APPENDIX B**INTERVIEW QUESTIONS (FIRST ROUND)**

- 1) Name?
- 2) Grade/Year (if applicable)?
- 3) (Intended) Major (if applicable)?
- 4) (Intended) Minor (if applicable)?
- 5) In general, describe the typical context in which you notice flyers or posters. Where are you? What are you doing?
- 6) After walking down the hall just now, which flyers or posters do you remember?
- 7) Why do you remember these flyers or posters?
- 8) Do you remember any specific information from the flyers or posters?
- 9) What, if any, specifics do you remember from the flyers or posters?
- 10) Why do you remember this information?
- 11) How likely would you be to use or apply this information in the future, and why?
- 12) Do you recall previously seeing the flyers?

APPENDIX C

INTERVIEW QUESTIONS (SECOND ROUND)

- 1) Which flyers or posters from last week do you remember?
- 2) Why do you remember these flyers or posters?
- 3) Do you remember any specific information from these flyers or posters?
- 4) What, if any, specific information do you remember from the flyers or posters?
- 5) Why do you remember this information?
- 6) How likely would you be to use or apply this information in the future, and why?

APPENDIX D

CODING CHEAT SHEET

Similarity	when something looks similar to other features in the document
Contrast	when something looks different from other features in the document; or when appearance stands out (e.g., color, size, etc.)
Repetition	when certain design principles are repeated, such as the bolded words to the left; or when a given document, text, image, or other stimulus recurs
Alignment	when features are lined up a certain way, such as the bolded words to the left
Proximity/ Chunking	when features are grouped together or spaced apart
Iconic Representation	when an icon represents a concept, idea, object, person, or thing
Images	when an image or picture catches attention due to its vividness
Text-Image Relationship	redundant (reinforcing); complementary (restating); supplementary (adding info); juxtapositional (unexpected relationships); stage-setting (contextualizing)
Archetypes	memorable qualities of archetypical characters, stories, images, metaphors, etc.
Elaborative Rehearsal 1) Complexity 2) Distinctive 3) Relevance	qualities that lead to deeper processing and thus more encoding into memory – 1) complexity, 2) distinctiveness, and 3) relevance to the user.
Propositional Density	when the complexity of a statement or text necessitates deeper processing to comprehend it, e.g., innuendo or a proverb, i.e., “it makes you think”
SUCCES	Simplicity; Unexpectedness; Concrete; Credibility; Emotion; Stories
STEPPS	Social Currency; Triggers; Emotion; Public Visibility; Practical Value; Stories
Von Restorff Effect	when something is memorable because of its uniqueness or unusual qualities
Schema	a conceptual framework that structures understanding and memory
Primacy	memorable nature of first item in a list
Recency	memorable nature of last item in a list
Elaboration	making connections between some information and other information (development)

APPENDIX E

DRUNK DRIVING POSTER



APPENDIX F

CHS TIGER



APPENDIX G
CONSTITUTION, ETC.



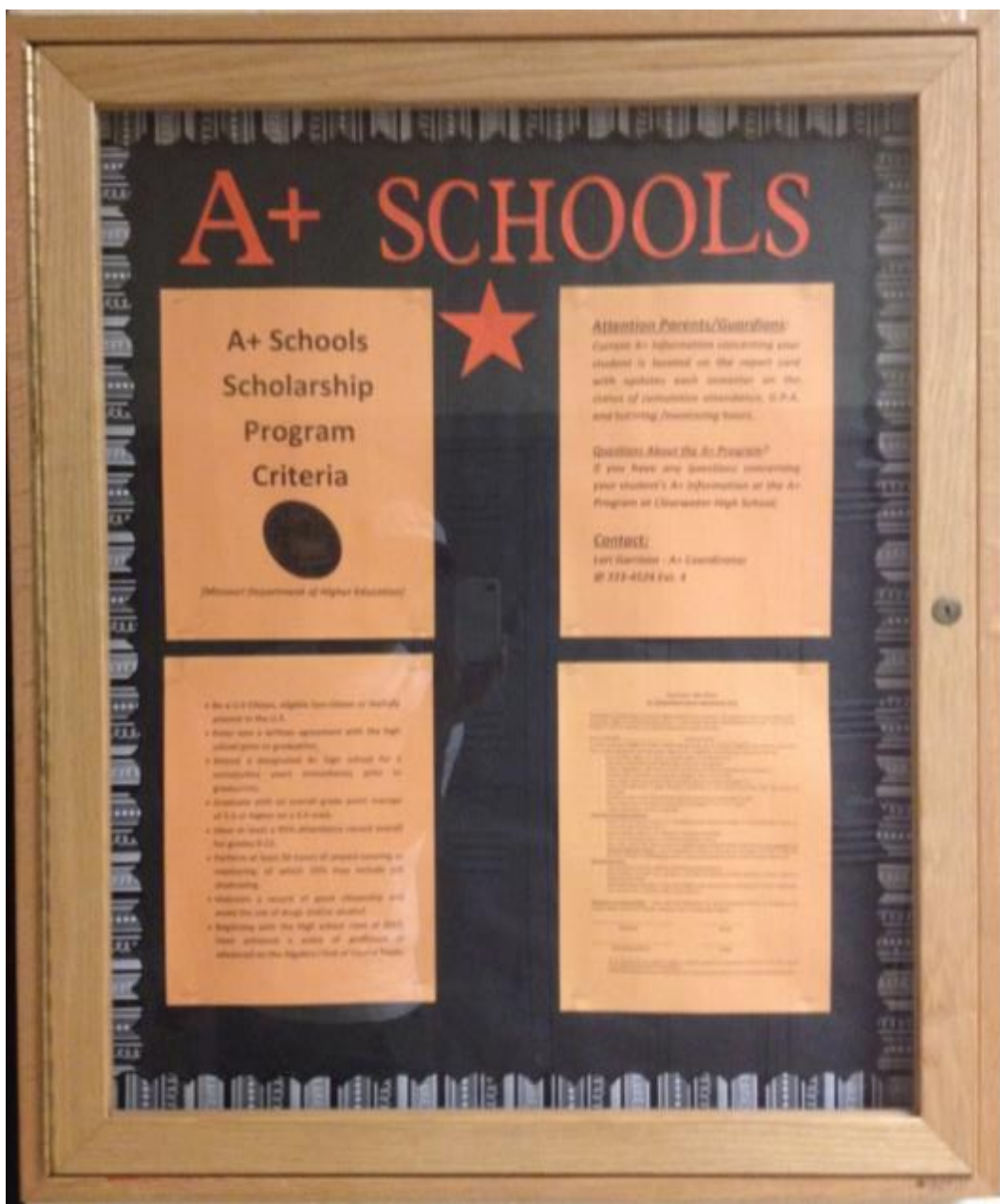
APPENDIX H

FACULTY COMMITMENTS



APPENDIX I

A+ INFORMATION



APPENDIX J
FBLA POSTER



APPENDIX K
BETA CLUB BOARD



APPENDIX L

TRASH HEAP DRUG ABUSE POSTER

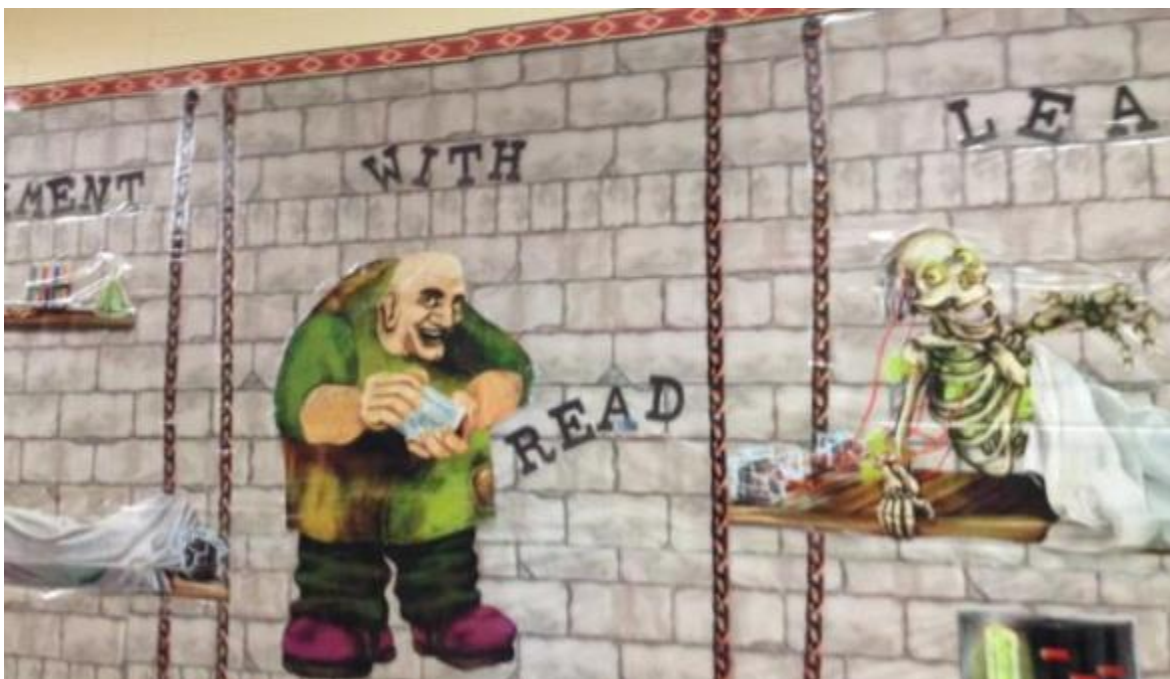


APPENDIX M
CHRISTY'S FOLDERS



APPENDIX N

MRS. FINDLEY'S DECORATIONS



APPENDIX O

SPEECH AND DRAMA BOARD



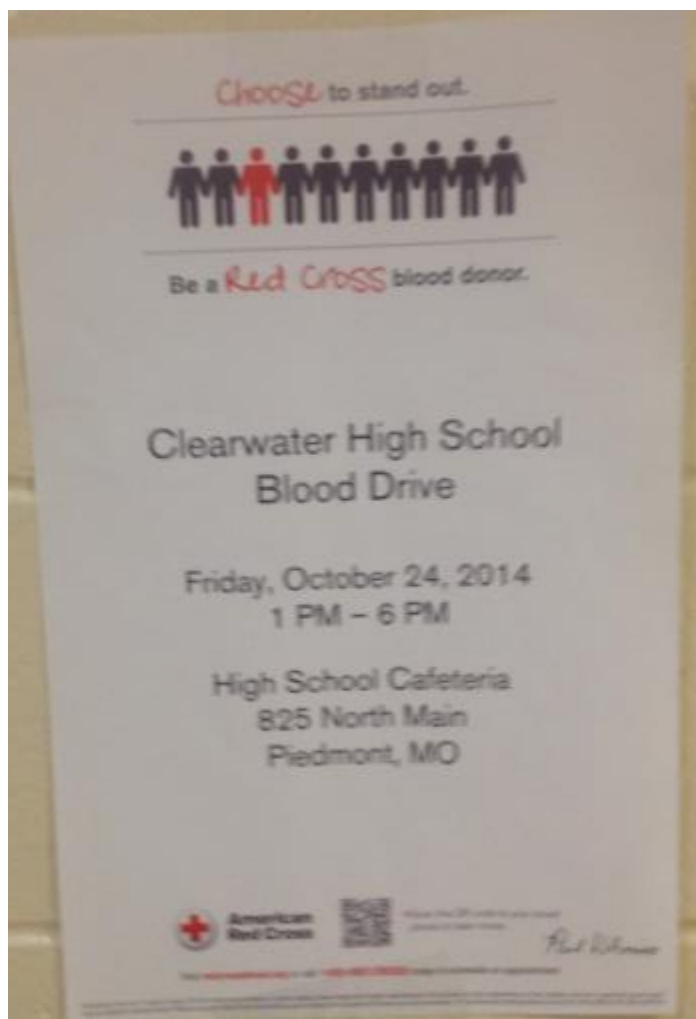
APPENDIX P

SPAGHETTI DINNER FLYER



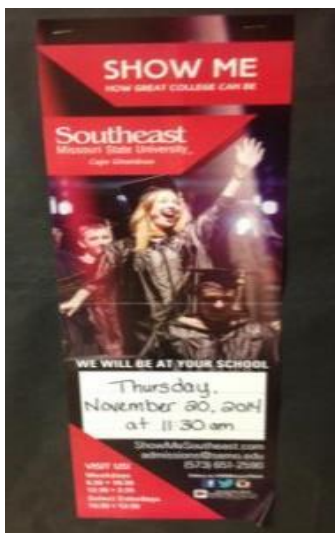
APPENDIX Q

BLOOD DRIVE FLYER



APPENDIX R

GUIDANCE OFFICE NEWS



APPENDIX S

DRUG ABUSE POSTER



APPENDIX T
GUN RAFFLE FLYER



APPENDIX U
REVISED ACT FLYER

**It's the future,
stupid.**

**ACT Test:
Oct. 25**

**Register by:
Sept. 19**



Why is the ACT important?

In 2012, the average income of college graduates was 57% more than those with only a high school diploma. But only 31% of 18-24 year-olds enrolled in college came from rural schools.

Source: Dept. of Education, National Center for Education Statistics

Ask them to take the ACT.

VITA

James Eric Sentell
 English Department
 5000 Batten Arts & Letters
 Norfolk, VA 23529

EDUCATION

Ph.D. English: Rhetoric, Writing, & Discourse Studies
 Old Dominion University, 2015
 Dissertation: *Creating Memories: Writing and Designing More Memorable Documents*

M.A. English: Composition & Rhetoric
 Missouri State University, 2009
 Thesis: *Instructor Response to Student Writing*

B.A. English: Creative Writing
 Missouri State University, 2007
 Capstone Project: *Michael Rising (A Novel)*

TEACHING

English Instructor, Writing
 Southeast Missouri State University, Fall 2012 – Present

SELECTED CONFERENCE PRESENTATIONS

“Memory and Innovation in Context: Resuscitating the Canon of Memoria”
Conference on College Composition and Communication, March 18, 2015

“A Circle of Praxis: Multigenerational Mentorship in Writing Program Administration”
Council of Writing Program Administrators Conference, July 19, 2013

SELECTED SCHOLARLY PUBLICATIONS

“The Best Practices of Memorable Data Visualization”
Media Commons, Spring 2014

“Changing the Channel: A Rhetorical Analysis of Fox News”
Relevant Rhetoric, Spring 2013

“Situational Tutoring”
Writing Lab Newsletter, January/February 2013

“Caught Between a Teacher and a Tutor”
Writing Lab Newsletter, November/December 2011