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Communicating distrust: three cases

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Communicating distrust: Three cases

by

Tom Lindsley

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Rhetoric and Professional Communication

Program of Study Committee:
Charles Kostelnick, Co-Major Professor
Geoffrey Sauer, Co-Major Professor
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  Stephen Gilbert

Iowa State University

Ames, Iowa

2015

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DEDICATION

To my family, who both believed in my potential and saw the successful end of this journey long before I did.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>ACKNOWLEDGEMENTS</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>vi</td>
</tr>
<tr>
<td>CHAPTER 1  INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>References</td>
<td>10</td>
</tr>
<tr>
<td>CHAPTER 2  LEGITIMIZING THE WOUND: MAPPING THE</td>
<td>12</td>
</tr>
<tr>
<td>MILITARY’S DIAGNOSTIC DISCOURSE OF TRAUMATIC BRAIN</td>
<td></td>
</tr>
<tr>
<td>INJURY</td>
<td></td>
</tr>
<tr>
<td>Abstract</td>
<td>12</td>
</tr>
<tr>
<td>Introduction</td>
<td>13</td>
</tr>
<tr>
<td>Chain of Diagnosis</td>
<td>16</td>
</tr>
<tr>
<td>From Blast to MTBI</td>
<td>19</td>
</tr>
<tr>
<td>Wound as Boundary Object</td>
<td>22</td>
</tr>
<tr>
<td>Injuries: Visible, Honorable, &amp; Heroic</td>
<td>25</td>
</tr>
<tr>
<td>Staying in the Game Following a “Concussion”</td>
<td>29</td>
</tr>
<tr>
<td>The Boundary Object and the Broken Chain</td>
<td>33</td>
</tr>
<tr>
<td>Conclusion: Repairing the Chain</td>
<td>35</td>
</tr>
<tr>
<td>References</td>
<td>37</td>
</tr>
<tr>
<td>CHAPTER 3  PREFAB INTERFACE DEVELOPMENT AND THE</td>
<td>41</td>
</tr>
<tr>
<td>PROBLEM OF EASE</td>
<td></td>
</tr>
<tr>
<td>Abstract</td>
<td>41</td>
</tr>
<tr>
<td>Introduction</td>
<td>42</td>
</tr>
<tr>
<td>Frameworks</td>
<td>44</td>
</tr>
<tr>
<td>The Topoi and the Commonplaces</td>
<td>46</td>
</tr>
<tr>
<td>Usability, Agency, &amp; Techne</td>
<td>48</td>
</tr>
<tr>
<td>Use and the Developer Community</td>
<td>49</td>
</tr>
<tr>
<td>Analysis of a Framework: Twitter Bootstrap</td>
<td>51</td>
</tr>
<tr>
<td>Conclusion</td>
<td>53</td>
</tr>
<tr>
<td>References</td>
<td>55</td>
</tr>
<tr>
<td>CHAPTER 4  TEACHING A TRUSTWORTHY UX IDENTITY IN</td>
<td>57</td>
</tr>
<tr>
<td>TECHNICAL COMMUNICATION PROGRAMS</td>
<td></td>
</tr>
<tr>
<td>Abstract</td>
<td>57</td>
</tr>
<tr>
<td>Introduction</td>
<td>58</td>
</tr>
<tr>
<td>Literature Review</td>
<td>58</td>
</tr>
<tr>
<td>Methods</td>
<td>60</td>
</tr>
<tr>
<td>Results &amp; Discussion</td>
<td>67</td>
</tr>
<tr>
<td>Implications for Technical Communication Programs</td>
<td>70</td>
</tr>
<tr>
<td>Conclusion</td>
<td>92</td>
</tr>
<tr>
<td>APPENDIX: ARTICLES CONSULTED FOR SURVEY OF HIRING</td>
<td>102</td>
</tr>
<tr>
<td>PRACTICES</td>
<td></td>
</tr>
<tr>
<td>References</td>
<td>104</td>
</tr>
</tbody>
</table>
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And finally, to my parents, Scott & Wynelle, who taught me the value of an education, as well as the importance of pursuing work that helps to improve the lives of others. Thank you for your constant love and support.
Abstract

Over the past 25 years, the field of technical communication has been witness to an influx of information technologies that have drastically changed the work and roles of academic and non-academic practitioners and researchers, pushing questions about authorship and legitimacy of information construction into focus. Factors affecting technical communicators’ work roles include transitions from an industrial economy to a support economy (Zuboff & Maxim, 2004), changes in management philosophies (Dicks, 2010), and changes in methodologies for content delivery (Carliner, 2010). As a result, the inherent reuse, reconstruction, and recontextualizing of texts in these new environments has raised questions within technical communication scholarship about how writers and designers construct trustworthy ethos, manage audience expectations, and mitigate doubts about the legitimacy of communication (Slattery, 2007; Swarts, 2007, 2010). This dissertation presents three separate papers considering the ways in which distrust manifests in communication through diagnostic procedures, new media tool usage, and professional identity construction. The articles in this collection dive into three distinct discursive worlds, all with their own conventions, affordances, and dangers. The similarities between brain injury diagnostics, web developer toolsets, and user experience hiring practices, are certainly few. However, each case shares an attention to how the invisibility of some types of knowledge create a context within which tools, products, or people can lose an audience’s trust or identification.
CHAPTER 1 - INTRODUCTION

“Rhetoric is concerned with the state of Babel after the fall.”
- Kenneth Burke, A Rhetoric of Motives, p. 23

Burke’s famous line from his seminal piece, A Rhetoric of Motives (1960), is appropriate as ever for communicators in the second decade of the 21st century who encounter distributed writing environments, intercultural project teams, and an influx of social tools to coordinate and mediate tasks between disparate groups. With fewer face-to-face proofs of engagement and extended communicative contact with interlocutors, communicators are heavily reliant on trust to strengthen the bonds of understanding with their audiences and, in the case of interfaces, their users. The ability to garner trust from an audience, whether that audience is a group of shareholders or a patient on an exam table, ensures a higher likelihood that the intention and force behind a specific communication will be maintained. In fact, Morton Deutsch’s (1958) often-quoted definition of trust suggests that the ability of trust is somewhat dependent on an internal calculus of weighing a situation’s benefit versus its possible harm. He writes,

An individual may be said to have trust in the occurrence of an event if he expects its occurrence and his expectation leads to behavior which he perceives to have greater negative motivational consequences if the expectation is not confirmed than positive motivational consequences if it is confirmed (p. 266)

In other words, it is partly the shareholder’s fear of a fall in stock prices, or the patient’s fear of a bad diagnosis outcome that promotes a trusting attitude toward the communicator responsible for assessing a situation and delivering the news. How that probability for a trusting situation
develops, however, is at the heart of the rhetorical situation and central to questions of persuasion and belief.

Of the three common elements within the rhetorical situation—logos, pathos, ethos—it is the last of those which is most closely aligned with the trustworthiness of the individual or organization shaping communication. In the *Rhetoric*, Aristotle explained that ethos “may almost be called the most effective means of persuasion” (1356a13). For cases in which the logical proofs and emotional appeals cannot prove certainty, ethos (or character) may be most important in carrying the argument. He suggested there were three specific characteristics that made a person’s character most persuasive: good sense (or *phronesis*), virtuous character (*arête*), and goodwill (*eunoia*). Perceiving all three, an audience or interlocutor better trusts the character and will often believe an argument to be more persuasive.

Going further to understand the social forces that shape persuasion and believability, Kenneth Burke (1950) suggested that it is the identification with aspects of a communicator’s character as well as her perceived social and moral allegiances, which causes an audience to accept a communicator as trustworthy. He explained this in terms of a hypothetical:

A is not identical with his colleague, B. But insofar as their interests are joined, A is *identified* with B, even when their interests are not joined, if he assumes that they are or is persuaded to believe so…In being identified with B, A is ‘substantially one’ with a person other than himself. (p. 20-21)

As an example, a conservative American politician is consubstantial with her supporters if her message aligns with notions of limited government and deregulation of private enterprise. However, consubstantiality, or ability for communicator and audience to identify with one another is never complete, as language or symbol-usage can never totally articulate an absolute
connection of interests or motives. It follows then that trust is also always incomplete and must always be constructed.

Over the past 25 years, the field of technical communication has been witness to an influx of information technologies that have drastically changed the work and roles of academic and non-academic practitioners and researchers, pushing questions about authorship and legitimacy of information construction into focus. Factors affecting technical communicators’ work roles include transitions from an industrial economy to a support economy (Zuboff & Maxim, 2004), changes in management philosophies (Dicks, 2010), and changes in methodologies for content delivery (Carliner, 2010). As part of this changing landscape, the disciplinary and professional emphases on what has come to be known as “knowledge work” relocates the technical communicator out of the service realm and into a value-added production role of marshaling workflows, aggregating content from varying levels of granularity, researching users in context, and managing the dispersal of media in a myriad of forms. As a result, the inherent reuse, reconstruction, and recontextualizing of texts in these new environments has raised questions within technical communication scholarship about how writers and designers construct trustworthy ethos, manage audience expectations, and mitigate doubts about the legitimacy of communication (Slattery, 2007; Swarts, 2007, 2010).

For Johnson-Eilola (1996), the ideal work for the postmodern communicator “mediates the functional necessities of usability and efficiency while not losing sight of the larger rhetorical and social contexts in which users work and live” (p. 246). In fact, the need to understand holistic user experiences surrounding document development and interface design has adapted technical communication’s interest in documentation and document usability to new work roles in information technology (Geisler et al. 2001; Spinuzzi, 2003). Not only are scholars and
professionals interested in things such as interface and user experience design, but also systems
design. Such a focus seeks to consistently iterate over product designs to meet user expectations
and ultimately provide a product that persuasively communicates trustworthiness and practical
affordances.

Yet with a strong foundation of user experience research methods and document design
best practices infused into the daily work of technical communicators and information designers,
many material (budgets, project team size), temporal (schedules, unexpected emergencies), and
social (invisible power relations) contexts encapsulating “use” continue to create problematic
gaps between messages articulated and what is actually understood on the audience end. This
pathway from text (or media) to audience is what Bruno Latour (1999) has coined a chain of
translation, the work that communicators do to “modify, displace, and translate” the thing being
assembled from an array of objects to an articulated text or design. For Latour, translation is the
movement of human and non-human artifacts joining in assemblages, or networks, to stabilize a
new understanding or destabilize the existing understanding of concepts or knowledge(s).
Because, as Spinuzzi (2008) suggests, the formation of a network is necessarily a rhetorical act,
the stability of its ideas or arguments are reliant on the effectiveness which key “spokespeople”
within a network can jump the spaces in between material articulation of a thing’s existence to
communicating that thing’s existence. However, when the material articulation of a thing, such
as an invisible injury, technical knowledge, or professional expertise is essentially hidden inside
the “black box” of a communicator’s brain, the onus is on the manipulation of language,
technologies, and artifacts to prove, as Aristotle notes, that the communicator exudes good sense,
virtuous character, and goodwill. The problematic nature of such proofs of trustworthiness and
the forces that threaten to transform an audience’s trust into distrust are the foci of this dissertation.

The articles in this collection dive into three distinct discursive worlds, all with their own conventions, affordances, and dangers. The similarities between brain injury diagnostics, web developer toolsets, and user experience hiring practices, are certainly few. However, each case shares an attention to how the invisibility of some types of knowledge create a context within which tools, products, or people can lose an audience’s trust or identification.

**Article Framing and Synopses:**

*Chapter 2 - Legitimating the Wound: Mapping the Military’s Diagnostic Discourse of Traumatic Brain Injury.* In his landmark piece, “The Writer’s Audience is Always a Fiction,” Walter J. Ong (1975) suggests that because writing, unlike rhetoric’s oral tradition, disconnects the communicator from the audience, the communicator must project a role which the audience will likely identify with, or create a fictionalized audience role that, if done persuasively, the audience will assume. When Latour’s chain is interrupted by contextual factors affecting Ong’s fictionalized audience, the intended use of documents and interfaces may develop in the audience a sense of doubt and distrust, and may not communicate task-critical, or in battlefield diagnosis, life-critical information. In the case of my first article, I argue that the way battlefield diagnostic tools frame brain injury does not persuasively define a role of “wounded” or frame the brain injury in such a way that a service member will consistently accept the diagnosis. Central to this argument is the suggestion that how the medical community understands “wound” is in direct paradigmatic conflict with how the military has historically understood the meaning of “wound.”
Within the previous decade, ineffective diagnosis of mild traumatic brain injury (mTBI) within the U.S. military welcomed scrutiny and criticism from both the public and government officials. This rhetorical investigation follows the chain of the U.S. military’s diagnostic practices from suspecting mTBI in combat settings to identifying mTBI as a legitimate injury. The analysis first utilizes the concept "chain of reference," articulated by Bruno Latour (1999), to help map the transfer of object (brain injury) to language (mTBI diagnosis) across a series of events: blast, brain-injury, field diagnosis, and recorded diagnosis. The primary texts under analysis in this mapping are the diagnostic forms and documents used both on the battlefield and in medical observation areas on Forward Operating Bases (FOBs).

Next, drawing on scholarship from science studies and professional communication, the article considers the concept of the boundary object (Star & Grieshemer, 1989; Wilson & Herndl, 2007) to analyze how the conceptual framing of wound/injury in battlefield settings inhibits the articulation of an mTBI diagnosis and fails to function as a coordinating “common identity” across the communities of medicine, military authorities, and soldiers/Marines. Specifically, the concept of wound/injury also has highly-contextualized meanings within the various communicative cohorts: where wound in a hospital might signal a need for medical technologies, prognoses, and gauze, a wound in the context of combat might connote toughness and honor (Scarry, 1987).

Finally, pulling from recent work on diagnoses of invisible ailments (Segal, 2008) and the multiple ontologies of a disease (Mol, 2002), the article concludes with a discussion of possible points of diagnostic chain interruption, arguing that medical rhetoric must acknowledge scenarios in which patients, on and off the battlefield, may have legitimate reasons for doubting and rejecting life and identity altering diagnoses. The conclusion to the paper suggests sites for
further investigation into invisible ailments that promise to help medical personnel consider diagnostic language as a factor in the problem of legitimizing the severity of such injuries and pathologies.

Chapter 3 - Prefab Interface Development and the Problem of Ease. While programmers and web developers don’t necessarily encounter life or death survival challenges on a daily basis, reuse of code is a certainly a necessary professional survival skill for any software/web developer. As open source communities have made modular code libraries and development frameworks freely available, the entry level for creating functional websites has been significantly lowered. However, overreliance on prefabricated code is creating both a risk of cliché interface designs as well as out-of-context code snippets that, depending on reliability of the source, may impede the progress of the development team.

Tying code reuse to problems of credibility and trustworthiness, Jason Swarts (2010) has drawn on Actor-Network Theory (ANT) to explain how texts become entrenched in previously deployed contexts and, depending on the stability of those entrenchments, may carry signifiers incompatible within the new context of use. Swarts suggests “we should trace the value of reused text to the network of relations that precede the actors whose voices it invokes” in order to understand how previously localized communication (ex. developer commenting on a code snippet) might threaten the stability and credibility of the work in the environment of reuse (2010, p. 149). Additionally, overreliance on replicated code snippets and interface styles through the effortless deployment of development frameworks may enable novice developers to create cliché clones of already existing interfaces, which as George Orwell (2013) has cautioned in his discussion of cliché, may actually detract from the substance of the communication.
Chapter three draws on ancient rhetorical teachings and current investigations of usability to understand how the ease-of-use of certain new media tools displaces rhetorical decisions to technology, therefore risking the creation of diluted designs and broken code – both of which affect the perception of a developer’s technical knowledge and goodwill toward clients or teams. The article focuses specifically on the problem of “extreme usability” (Dilger 2007) in web development practice and considers how ancient and modern rhetorics theorize the concepts of propriety and use in ways that can guide the deployment of development tools. Primarily, the article draws parallels between the topoi (topics) and loci communes (the commonplaces) and web development framework use, stressing the need for more situated deployment of such tools.

Chapter 4 - Teaching a Trustworthy Identity in Technical Communication Programs. The fourth chapter in this collection moves laterally from the web development world and into programmatic questions of how technical communication programs best train their graduates to communicate trustworthy identities as UX professionals. Having long straddled the divide between academia and industry, Carol Barnum (2011) observes that technical communication as a discipline is suffering problems of distrust within the user experience (UX) community. She argues that while technical communication’s landscape has changed, few in the UX community have recognized that those in the technical communication community have valuable experience to bring to product teams. Additionally, cultural and disciplinary divides have kept user experience hiring teams from seeing technical communication as good background for a UX career. In fact, distrust between academia and industry has long been a tension well documented in the literature. Drawing on calls from Redish & Barnum (2011), Getto, Potts, Salvo, & Gossett...
(2013), and Andersen (2013), chapter four will explore ways we might listen to the needs of industry in order to shape the work developing in our programs.

This paper considers the evolution of the technical communicator to understand how changing professional roles have positioned the field to succeed in the world of UX. I address recent literature concerned with the impasses that have blocked communication and shared understanding between the technical communication and user experience professionals. In order to distill the types of skills and professional identities that help young professionals get hired in the UX field, I surveyed a sample of online publications and interviews from prominent industry magazines, journals, and blogs written by or about UX hiring managers regarding their thoughts on hiring practices. Following the survey and discussion of the commonly desired traits and skills that emerged from the articles, this paper will suggest actions we can take in our programs to help prepare our students’ portfolios and their design practices to speak to the needs of professional design teams.

Chapter 5 – Conclusion. The conclusion will tie the three articles back to the central theme of trustworthiness and follow with any connections between the three. Additionally, the conclusion will look toward future scholarship and suggest possible studies which might reshape diagnostic tools to better anticipate and engage resistance in the diagnostic process, develop frameworks for choosing and implementing freely-available new media design tools, and create curricular models for training students to be competent UX designers on product teams.
References


CHAPTER 2 - LEGITIMIZING THE WOUND: MAPPING THE MILITARY’S DIAGNOSTIC DISCOURSE OF TRAUMATIC BRAIN INJURY

by Tom Lindsley

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Abstract

Over the last decade, ineffective diagnosis of mild traumatic brain injury (mTBI) in the U.S. military has welcomed increased scrutiny and criticism from both the public and government officials. This rhetorical investigation will follow the chain of the U.S. military’s diagnostic practices from suspecting mTBI in combat settings to identifying it as a legitimate injury. The analysis first utilizes the concept “chain of reference,” articulated by Latour (1999), to help map the transfer of object (brain injury) to language (mTBI diagnosis) across a series of events: blast, brain-injury, field diagnosis, and recorded diagnosis. Next, drawing on scholarship from science studies and professional communication, this article will consider the concept of the boundary object (Star & Grieshemer, 1989; Wilson & Herndl, 2007) to analyze how the conceptual framing of wound/injury in battlefield settings inhibits the articulation of an mTBI diagnosis and fails to function as a coordinating “common identity” across the communities of medicine, military authorities, and combat soldiers. Finally, drawing on work regarding diagnoses of invisible ailments (Segal, 2008) and the multiple ontologies of a disease (Mol, 2002), I will conclude with a discussion of possible points of diagnostic chain interruption and suggest sites for further investigation into mTBI that promise to help medical personnel consider diagnostic language as a factor in the problem of legitimizing the severity of mTBI.
Introduction

In June 2010, independent news organizations, NPR and ProPublica, began publishing a damning series of investigative reports calling attention to the U.S. military's inability to effectively diagnose traumatic brain injury (TBI) in soldiers both during combat and in post-deployment scenarios (Alvarez, 2008; Edge, 2010; Miller & Zwerdling, 2010a). TBI, commonly referred to as the "signature injury" of the Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) conflicts, is estimated to have afflicted upwards of 320,000 soldiers and contractors between 2001 and 2008 (Tanielien & Jaycox, 2008, p. xxi). Three recent developments in the technological, political, and social culture of modern warfare may account for this soaring estimate. First, the most common enemy weapon to inflict death and casualties on American forces within the OIF and OEF conflicts, the improvised explosive device (IED), produces a blast shockwave strong enough to penetrate armored vehicles and stun soldiers’ brains (Zoroya, 2007). Following such blasts, many soldiers exhibit symptoms similar to those seen in concussive sports injuries. Second, advances in body armor and medical technologies keep these soldiers’ injured bodies intact and alive; however, instead of physically losing limbs or internal organs, more soldiers are sustaining “invisible wounds,” such as mild TBI (mTBI), which are difficult to diagnose accurately and efficiently (Achter, 2010; Tanielien & Jaycox, 2008). Third, an unprecedented rate of deployment compounds the inexact diagnosis of TBI. Never before in the history of an all-volunteer military have U.S. soldiers been deployed as long, as often, and with such few breaks between deployment as have forces in Iraq and Afghanistan. Because the diagnostic mechanisms for invisible wounds such as TBI are primarily discursive and exist within a material-semiotic network of forms, questionnaires, brain-scanning technologies, as well as other human and non-human tools, many possibilities exist for
rhetorical studies to examine how TBI is “talked about” within military culture and how diagnostic tools try to legitimize its existence.

Within the past twenty years, there has been increased interest among rhetoric and professional communication scholars in biomedicine—specifically questions of agency and disease legitimization (Graham, 2009), diagnostic practice (McCarthy, 1991; Mol, 2002), patient-practitioner discourse (Spears, 1998; Longo, Weinart, & Fountain 2007; Segal, 2008), and medical forms and genre theory (Barton, 2004; Schryer & Spoel, 2005). In terms of military rhetoric, specifically related to the OIF and OEF conflicts, scholarship in rhetorical studies (primarily in Speech Communication) has focused mainly on mass media construction of war (Achter, 2010), video games and war (Stahl, 2006), and the Bush administration’s sale of the war on terrorism (Jamieson, 2007; Winkler, 2007; John, Domke, Coe, & Graham, 2007; Zarefsky, 2007). However, within the nearly decade-long U.S. military engagement in both Iraq and Afghanistan, little has been published in rhetoric and professional communication on organizational communication among defense agencies (most likely due to lack of access both to personnel and classified documents), battlefield diagnostic practices, or the diagnostic practices of military and civilian medical facilities. Studies on modern battlefield diagnosis are particularly essential to the study of rhetoric and the rhetoric of science not simply because they represent a timely subject and an adverse context for the diagnostic process, but because many of the wounds and injuries resulting from modern warfare are unseen. An invisible injury differs from a visible injury as it necessitates that language and symbolic representations essentially argue for its legitimacy. While such work is valuable to rhetoric’s understanding of language’s role in determining existence, such work is also critical for helping medical communities successfully diagnose and treat invisible injuries.
In this article, I will focus specifically on battlefield diagnostic practices that determine whether or not soldiers have sustained a TBI. Before proceeding, I should note that misdiagnosis is not a problem across the entire spectrum of the injury. Modern medicine has recorded symptomatic benchmarks to easily diagnose moderate and severe TBI. Symptoms of such injuries include extended memory loss and lack of consciousness. A mild TBI, however, is a much more elusive diagnosis. Many soldiers may not realize they have sustained the injury and will return to battle, risking a second and more debilitating blow (Helmick et al., 2006). Throughout military operations in Iraq and Afghanistan, the Department of Defense has developed diagnostic tools to catch the mild cases of TBI on the battlefield and to prevent soldiers from becoming reinjured. Unfortunately, some of these new diagnostic tools are inaccurate, unavailable on a mass scale (Miller & Swerdling, 2010a), or easy for soldiers to cheat, allowing them to return quickly to battle (Zoroya, 2007; Lutz, Kane, & Lay, 2010; Miller & Zwerdling 2010a). Cheating has been one of the primary problems with the diagnostic tools. This article will consider how competing discourses about TBI might create a context that encourages cheating and, thus, misdiagnosis.

This rhetorical investigation will follow the chain of the U.S. military’s diagnostic practices from suspecting mTBI in combat settings to identifying it as a legitimate injury. The analysis first utilizes the concept "chain of reference," articulated by Latour (1999), to help map the transfer of object (brain injury) to language (mTBI diagnosis) across a series of events: blast, brain-injury, field diagnosis, and recorded diagnosis. Next, drawing on scholarship from science studies and professional communication, this article will consider the concept of the boundary object (Star & Grieshemer, 1989; Wilson & Herndl, 2007) to analyze how the conceptual framing of wound/injury in battlefield settings inhibits the articulation of an mTBI diagnosis and fails to function as
a coordinating “common identity” across the communities of medicine, military authorities, and combat soldiers. Finally, drawing on work regarding diagnoses of invisible ailments (Segal, 2008) and the multiple ontologies of a disease (Mol, 2002), I will conclude with a discussion of possible points of diagnostic chain interruption and suggest sites for further investigation into mTBI that promise to help medical personnel consider diagnostic language as a factor in the problem of legitimizing the severity of mTBI. Specifically, I will engage Segal’s positioning of the patient as an active interlocutor—a patient-rhetor directly involved in the negotiation of a diagnosis—and suggest that rhetoric of medicine studies develop a more nuanced understanding of patient argumentation that acknowledges and responds to diagnostic scenarios when a patient’s context and subject-position provide motives to avoid positive diagnosis of a life-altering medical condition.

**The Chain of Diagnosis**

In its simplest form, diagnosis is often seen as an objective translation from ailment to language, a direct mapping of the world into a symbol system that is completely representational of the world it describes. However, a closer look at how science moves from thing to words shows scientific description to be a much more complex and mediated process.

Latour (1999) explains, “In actual practice, one never travels directly from objects to words, from the referent to the sign, but always through a risky intermediary pathway” (p. 40). This intermediary pathway is what Latour has coined a “chain of translation,” the work that communicators do to “modify, displace, and translate” the thing being studied from object to numbers to diagram to published article (or in the case of TBI diagnosis: head trauma, preliminary field diagnosis, recorded diagnosis) (p.
311). From object to language, the chain of reference contains the possibility for infinite transformations, stages Latour refers to as “common operators”: “[At] every stage, we have recognized a common operator, which belongs to matter at one end, to form at the other, and which is separated from the stage that follows it by a gap that no resemblance could fill” (p. 69). This gap is where the communicator increasingly loses the object’s original locality, particularity, and materiality while at the same time gaining compatibility, standardization, and circulation within recorded scientific discourse (e.g., the symptoms of a head trauma no longer are Tina’s headaches, but are now a number on a scale that has universal application in the world of diagnostics). The crucial aspect of this chain of reference is that any interruption in the chain will hamper the movement across the chasm between thing and language. Latour explains, “If the chain is interrupted at any point, it ceases to transport truth—ceases, that is, to produce, to construct, to trace, and to conduct it” (p. 69). Truth, then, is dependent on the resilience and velocity of the referents to jump the gaps of the chain. Yet, while Latour’s model provides a compelling description of how science moves from object to fact, it is important to recognize institutional and authoritative forces that energize the movement across the chain of reference. To bring institutional truths and the authority of disciplinary certainties into the discussion of Latour’s chain is to describe the movement from object to fact not as a linear process, but as a multi-dimensional network acting collectively to articulate or “ontologize” a diagnosis.

Recognizing the ontological capabilities of rhetoric in diagnosis is essential for accessing those moments when ailments move from pain in a body to a medical reality. In his article, “Agency and the Rhetoric of Medicine: Biomedical Brain Scans and the Ontology of Fibromyalgia,” Graham (2009) traces the history of how another “invisible” ailment, fibromyalgia, found ontological grounding as a result of specially situated
events across a network of accredited medical communities, brain-scanning technology, and the FDA’s approval of a pharmaceutical drug to treat the illness. He illustrates how the overlapping of primarily two events—the American College of Rheumatology’s redefinition of fibromyalgia as a disease of the central nervous system, and the introduction of the positron emission tomography scanner as a diagnostic technology—effectively secured fibromyalgia’s status as a legitimate disease. Parsing the network of signs and technologies, Graham argues that while the redefinition of the disease by an institutional authority provided symbolic grounds for its recognition, it was the inclusion of the accepted Positron Emission Tomography (PET) brain scans that effectively created data to argue for fibromyalgia’s existence. In explaining how the PET scan became an agent in the process of legitimizing the disease, Graham suggests that PET’s success as an agent was partially due to its functions being “black boxed,” a Latourian term used to explain how the complexities of technologies become increasingly obscured as they gain authority within an institution. In other words, because the PET scan had already been authorized as a legitimate detector of disease within the central nervous system, the data generated by the PET could be authorized as physical evidence of fibromyalgia.

Graham’s consideration of diagnosis as an ontological enterprise is particularly important for the chain of TBI diagnosis as it provides evidence for how institutional authority allows physicians to move from pain/symptom to diagnosis by creating an ailment out of a network of authorization, technology, and institutional acceptance. Throughout the analysis of TBI diagnostics, I will return to the ontology of the injury and consider two authorizing institutions, medical and military, to suggest possibilities for why their intersection and paradigmatic incongruity may be contributing to interruptions in the diagnostic chain.
From blast to mTBI

As stated in the introduction of this article, the most common cause of TBI during combat scenarios is the body-rattling blast of an IED. Made from simple electronics connected to an explosive charge, an IED is often detonated near or underneath patrolling Humvees or convoy vehicles. When a blast occurs, a shockwave, traveling faster than the speed of sound, surges through the armored vehicle and the soldier’s skull, slamming the brain against the inside of the cranial wall. While conventional wisdom in medicine claimed that the contusions resulting from brain to skull contact were the primary cause of TBI (Helmick et al., 2006), recent research (Cernak & Noble-Haeusslein, 2010) shows that the blast wave’s pressure will often compress the torso, sending damaging energy pulses through blood vessels and into the brain (as cited in Granberg & Schimdt, 2010). Depending on proximity, soldiers can experience a wide range of symptoms from headache to loss of consciousness.

Because traumatic brain injury is invisible to the human eye and also sometimes unrecognizable to soldiers who remain conscious during a blast wave, even beginning to diagnose something as “TBI” is problematic. How does one trace the chain of reference from an object that is not known to exist to a diagnosis? In translating the suspected TBI into a recorded diagnosis of TBI, the injury must be moved across a number of "world-to-language" gaps. With each gap the injury loses specificity but gains standardization, making it fluent with more diagnostic mechanisms. However, if there is an interruption in the gap between translations, the entire chain of diagnosis will fail to transport the diagnosis. The following list charts this process noting the translations from physical blast to possible diagnostic analytics and describes the more common human and non-human tools used to legitimize TBI. This section is intended
to serve as an illustration of the common diagnostic steps without necessarily delving into analysis. Following a discussion of how military and medical paradigms frame “wound” and its relation to TBI, I will return to this diagnostic chain and identify moments in the process where the framing of wound may well contribute to a diagnosis breakdown.

1. Blast and Suspected TBI

Military regulations rest on the probability of injury to begin the process of diagnosing possible TBI. Current procedures follow the guidelines set out by the Defense and Veterans Brain Injury Center (DVBIC) Working Group: “Suspect a concussion in anyone exposed to or involved in a blast, fall, vehicle crash, direct head impact who becomes dazed, confused or loses consciousness even momentarily” (Helmick et al., 2006). Only since June 2010 has the military released additional guidelines ordering any soldier within a 50m radius of the blast to report to mandatory evaluation (Lynn, 2010). During the initial stage of suspecting mTBI, the judgment call for situating a soldier within the diagnostic category is slightly unstable and objectively weak.

2. MACE

Once a soldier is suspected of TBI, he or she is administered the Military Acute Concussion Evaluation (MACE) (see appended file MACE), a thirteen-question evaluation designed for quick diagnosis and mobility (the MACE is printed on a pocket-sized booklet made to be carried into combat scenarios). The evaluation is ranked on a 30-point system acquiring from the affected soldier a situational description, a physical description, and a short-term memory test. Following the test, the attending medical personnel records the point total and makes an initial diagnosis
of “No concussion,” “Concussion with loss of consciousness,” or “Concussion without loss of consciousness.” Unfortunately, there have been multiple reports of soldiers cheating on the test or being helped through it by a medic in order to return quickly to combat. In a recent report from NPR/ProPublica, Sgt. Victor Medina claimed that even after being knocked unconscious by a roadside blast, he was assisted by a fellow soldier in passing the test with a “No concussion” diagnosis (Miller & Zwerdling, 2010a). Later in the analysis, I will return to the problem of cheating the MACE diagnostic as a possible result of the extent to which soldiers construct mTBI as a legitimate wound.

3. Flowchart Algorithm

Following the administration of the MACE, the soldier’s injury has translated again into a point total that can be applied in the next set of diagnostic criteria. Because the brain injury now exists in double digits (instead of solely in the soldier’s skull), it is extremely mobile and easy to reproduce for various medical condition reports. The next translation occurs by placing this number into multi-stage, multi-page, flow-chart “algorithms.” The purpose of these charts is to solidify diagnosis with further evaluative questions and to determine if there is a necessity for evacuating the soldier. Due to the multi-step process of determining evacuating need, this diagnostic mechanism may require a more stable environment and, according to the DVBIC guidelines, may not even allow for action: “Operational and tactical considerations may in some instances override the [Clinical Practice Guidelines]” (Helmick et al, 2006).

4. ANAM

Though not available on most Forward Operating Bases (FOBs), the final diagnosis before the rehabilitation stage is a screening from the Automated Neuropsychological
Assessment Metrics (ANAM), a battery of tests designed to determine neuropsychological function and catch TBI in soldiers who have passed through previous tests. The ANAM is also being used pre-deployment in order to send pre-blast data with soldiers into the theater of combat as a baseline comparison with cognitive function post-blast. Unfortunately, there have been multiple reports of these baseline figures getting lost in the deployment transition (Miller & Zwerdling, 2010a; Lutz, Kane, and Lay, 2010). Also, General Eric Schoomaker, the Army Surgeon General, was recently quoted telling Congress that the ANAM is “fraught with problems” and “as a screening tool,” it was “basically a coin flip” (as cited in Miller & Zwerdling, 2010a).

Because this article is focused solely on the battlefield diagnosis, I will not proceed further in the chain of reference, though as noted above, Latour shows this chain can have infinite transformations in either direction. And while this article’s attention to the very focused view of battlefield diagnosis may simplify how one understands the problem of misdiagnosis, it is necessary to understand that misdiagnosis of TBI is a complex and multi-staged problem. Examining different discursive contexts in which the chain of diagnosis exists, the following analysis will utilize Star and Griesemer’s (1989) conceptual model of the boundary object as a tool to understand how “wound/injury” carries multiple meanings for the various discourse communities within the chain of diagnosis and may create moments where the chain is susceptible to interruption and, ultimately, misdiagnosis.

**Wound as Boundary Object**

Introduced by Star and Griesemer (1989) as a sociological construct to explain artifacts or information used by multiple groups to coordinate communication across a varied but interconnected network, boundary objects are
both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual-site use...They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable, a means of translation. (p. 393)

Boundary objects can be either abstract or concrete. Frost, Reich, and Fujisaki (2000) describe a case in the early 1990s where ivermectin, a pharmaceutical drug used to deworm animals, was distributed for human use in sub-Saharan Africa to cure “river blindness,” a condition caused by a particular worm present in many waterways. The boundary object in this case was a “middle-man” sub-committee located between Merck Pharmaceuticals and the local organizations in charge of distributing the drug. For all, the committee sat at the boundaries of each cohort’s local function and was seen as a way to move drugs from Merck to needy communities. However, in the more local contexts, the associations with the sub-committee were tighter and more precisely defined. For Merck, the sub-committee functioned as a vetting board to determine the level of corruption risk posed by a local community organization, particularly the risk of black market resale of the drug for veterinary medicine. For the local organizations, the committee was the neutral certifying organization and a final hurdle for bringing the drug to the local communities.

The concept of boundary object has been adapted by many disciplines including organizational management studies (Carlile, 2002; Koskinen, 2005) and most recently rhetoric and professional communication (Wilson & Herndl, 2007). As Wilson and Herndl (2007) point out, the scientific and sociological definition of boundary object has described a demarcation exigence for local groups, or, a Burkean function of
identification/division in relation to other constituent groups in a system. However, they suggest that boundary objects can also generate an integrative exigence and create what Galison (1997) has termed a “trading zone” where different communicative entities have space to communicate and contextualize local knowledge in relation to the common goal of the communicative network.

In the technomedical-military network of combat-caused TBI, the material outcome and rhetorical construct of wound/injury is the central boundary object around which policy decisions, low-level (not commander/administrative) combat preparedness, combat medicine research, and public relations efforts revolve. The concept of wound/injury holds its plasticity across all of these domains which, for example, allows disparate groups such as Harvard-trained MDs and multi-star generals to discuss possible preventative measures that lower the rate of multiple blast-related concussions. The concept of wound/injury, much like the sub-committee’s function in the Merck case, also has highly-contextualized meanings within the various communicative cohorts: where a wound in a hospital might signal a need for medical technologies, prognoses, and gauze, a wound in the context of combat might connote toughness and honor.

To analyze how wound/injury exists between the medical and military communities, I will rely on first-hand accounts from soldier and commander interviews in the popular press and military press. The artifacts under analysis are articles, military journal publications, and emails (acquired through web searches and ProPublica’s declassified document database) written between 2001 and June 2010. It was within this timeframe that many questions arose about the diagnosis and treatment of TBI in soldiers affected by blasts in both OIF and OED conflicts. As a result, on June 21, 2010, the Deputy Secretary of Defense, William J. Lynn III, released an official policy change
requiring all blast victims, regardless of condition, be taken off duty for a mandatory evaluation period (Lynn, 2010). While Lynn’s change rewrites the chain of diagnosis laid out in this paper, this rhetorical investigation can still provide a useful discussion on how one community forcing its local understanding of a boundary object into the local contexts of another, completely bypassing the “trading zone,” can hamper the life-saving efforts of that other group. Because diagnosis occurs within the local context of combat, it is useful to first understand how the military’s cultural history has shaped the meaning of wound/injury.

**Injuries: Visible, Honorable, and Heroic**

Bodily wounds or injuries are unavoidable indices of armed combat. Within military discourse, specifically in the United States, “wound” and “injury” have been constructed as visible manifestations of honor and patriotism. Visibility has generally determined what counts as a wound and therefore what counts as a legitimate, honorific injury. This section provides a brief context of how the localized use of the boundary object injury/wound has been situated within military discourse and how the epistemological framework for discussing injury differs from how the medical community discusses injury. Such context will be helpful later as the analysis interrogates the language soldiers use to talk about TBI and the language medical professionals use to diagnose TBI.

Throughout U.S. military history, injuries have been described as the visible alteration of bodies as a result of violent force. Scarry (1987) pointedly asserts, “Whether a boy announces that he is going off ‘to die’ for his country or going off ‘to kill’ for his country, he is saying that he is going off to ‘alter body tissue’” (p. 81). In the history of U.S. armed conflict, the visibly altered bodies of veterans have been arguments for both
the moral legitimacy and the reprehensibility of war. However, as Achter (2010) has argued, the visible displays of injury within *military-sanctioned* discourse “stand as palpable evidence of [soldiers’] commitment to country” (p. 47).

The most obvious reification of battle wounds as “honorable” is the Purple Heart medal, originally sanctioned by George Washington in 1782. According to the Military Order of the Purple Heart (“History of the Medal,” 2010), the medal is awarded “to members of the armed forces of the U.S. who are wounded by an instrument of war in the hands of the enemy and posthumously to the next of kin in the name of those who are killed in action or die of wounds received in action.” An Army regulations report on military decorations states the purpose of such medals is to “to recognize Soldiers for valor, meritorious service, and achievement; and to document and record that recognition for historical purposes” and to “support the Army’s life-cycle function of sustainment” (Schoomaker, 2006, p. 1). Not only is a wounded body upheld as valorous and as a symbol of merit, but the persuasive framing of that body as honorable is also a tool for improving morale and welcoming more bodies into the ranks. Recently, the U.S. military has been criticized for failing to award the Purple Heart medal to soldiers diagnosed with invisible wounds such as mTBI (an injury sanctioned as legitimate within medal regulations). In the recent investigative report from NPR and ProPublica, Sgt. Derrick Junge commented on the stigma surrounding invisible wounds which has made it difficult to acquire the Purple Heart medal: “As a soldier, you’re expected to be a certain level of tough. It’s across the board from top to bottom. If it’s not a visible injury, it’s kind of looked as a non-injury,” he said, ”For soldiers, it’s like, are you a puss?” (as cited in Miller & Zwerdling, 2010b). Without visible or tangible ways to describe a wound (a description of memory loss is not as tangible as a description of a bullet hole), soldiers struggle to have their wounds legitimized.
Concomitant with descriptions of wounds and injuries as honorable are the concepts of sacrifice and heroism. Achter (2010) has shown how these terms have been utilized in state discourse, as well as military-sanctioned video games designed for recruitment. Achter, claiming that the Bush administration utilized veteran’s bodies as metonymic arguments for the moral legitimacy of war, provides an example of how President George W. Bush framed Sergeant Tommy Rieman’s “self-sacrifice” in the 2007 State of the Union address:

[Rieman] was on a mission in Iraq when his team came under heavy enemy fire. From his Humvee, Sergeant Rieman returned fire; he used his body as a shield to protect his gunner. He was shot in the chest and arm, and received shrapnel wounds to his legs—yet he refused medical attention, and stayed in the fight.” (George W. Bush as cited in Achter, 2010).

Achter goes on to argue that Rieman’s body was an ideal candidate for Bush’s anecdote, because though Rieman was shot and injured, his scars were hidden from the American public, displaying a metonym of a sustained and healthy war effort. Reiman’s story was used in the Army-sanctioned recruitment tool, America’s Army, a downloadable videogame that cast Rieman as a “Real Hero,” a small-town gas station attendant who was injured in combat defending his country. Most interestingly for this analysis is how President Bush characterized Rieman’s actions once he became wounded. Bush claimed that Rieman “refused medical attention” and “stayed in the fight.” Taking the construction of Rieman as a whole, not only does a “Real Hero” sustain wounds in battle, but he or she continues to fight even after being shot in the chest and arm. Later in the analysis, I will return to this ethos of injured heroes fighting on after sustaining injury and I will detail the problems this might cause in producing accurate diagnosis of mTBI within combat environments.
Though military discourse often valorizes the wounded by describing the soldiers’ bodies through the conceptual frames of heroism, honor, sacrifice, and patriotism, the medical discourse through which mTBI is identified and diagnosed enlists a much different epistemological framework and therefore reframes the boundary object of wound/injury in contrasting terms to the localized version found in the military community.

While the ideal work of a physician is to describe an injury or disease without imbuing the description with value terminology that may elevate or lower the standing of that ailment as legitimate, invisible wounds force the doctor-patient dynamic to be mediated almost entirely with language—no blood, no visuals. For Foucault (1973), this type of entirely language-mediated diagnosis was a result of the reorganization of medical practice in the late 19th century which repositioned the physician in an *a priori* system of knowledge and known diagnoses, a world where the physician’s all-knowing “clinical gaze” expertly and unquestioningly named ailments and filtered observation through a pre-defined method of “seeing” (pp. xv-xix). In other words, the clinical model based on observation and an assumption that the physician held a practical wisdom of the body inadvertently redefined the possibilities for variation in diagnosis and framed the physician as the unopposed, objective truth-bearer. However, while a physician’s gaze may be truth-bearing, Mol (2002) suggests that the world of medicine (a specific hospital, in her case) allows for the body to exist as a site of not one, but multiple truths and terminologies, each specialist bringing her own epistemological framework and vocabulary to bear on the “thing” which ails the patient. Mol suggests that because these multiple ontologies exist across even a single hospital floor, “a plaque cut out of an atherosclerotic artery is not the same entity as the problem a patient with atherosclerosis talks about in the consulting room,” yet both refer to the
same thing, the same object of symptomatic concern (p. vii). While Mol essentially argues that these varying realities of a disease interact and allow teams of physicians to create effective treatment plans, injuries that remain unseen and are in need of instant diagnosis by a less-than-complete medical team (e.g., combat medics) pose a much greater threat to a patient when the multiple ontologies of the injury, including the patient’s own understanding of the injury, are in conflict.

Taking the patient’s reality of disease into consideration, Segal’s (2008) historical analysis of migraine diagnosis explains that “the person who enters the doctor’s office with chronic headache...is not the same rhetorical partner as one who enters with, for example, a visible tumor or gaping wound” (p. 40). The role of a patient with an invisible ailment shifts from passive reception of diagnosis to that of “interlocutor in a persuasive encounter in which the reward of credibility may be best care, and the price of lack of credibility may be more sickness and pain” (p. 27). With few symptoms readily visible for a physician to tally into a diagnosis, the burden of proof rests on the character and the argument of the patient. For mTBI, where few symptoms are present at the time of the concussive event, and where stepping out of battle for an unseen injury may reflect on a soldier’s character, the patient’s communicative role becomes a critical diagnostic link that has the power to confirm or invalidate a positive diagnosis.

Staying in the Game following a “Concussion”

One of the objectives of this investigation is to consider how the boundary object of wound/injury functions locally within the military combat culture and during combat diagnosis of mTBI. Inherent to the concept of wound/injury in a combat setting is the intentional downplay of an injury’s severity, subordinating individual health to the success of the mission and well-being of the combat unit. Compounding the downplay of injuries with the historical connotations of wound/injury as bloodied or visibly
altered body tissue, soldier acceptance of mTBI as a wound becomes an extremely unstable prospect within the battlefield context.

A string of interviews from NPR/ProPublica, ArmyTimes, and a military medical journal records soldiers using this language to describe their desire to avoid a mTBI diagnosis. During her 2005 deployment, Former Army Major Michelle Dyarman was involved in two IED attacks and a Humvee crash. Never given the proper time to rest following injuries, Dyarman continued fighting, placing the well-being of her soldiers above her own health. “One of the first things you learn as a soldier is that you never leave a man behind,” explained Dyarman. “I always put military first, even before my family and friends” (as cited in Miller & Zwerdling, 2010a). Sgt. Victor Medina, noted above for receiving assistance to pass the MACE, said that though his symptoms showed clear need for evacuation, he also had a commitment to his team. “I wanted to be back with my soldiers,” he said (Miller & Zwerdling, 2010a). Within the textual artifacts analyzed, there were also multiple instances of commanders using similar language. Air Force Lt. Col. Michael Jaffee explains that “with highly motivated individuals, be they athletes, be they our service members in harm’s way, there is a motivation to stay within the unit and stay on the job or stay in the game” (as cited in Zoroya, 2007). Also, a case study from the Journal of Special Operations Medicine detailed the multiple injuries of one soldier that began due to the material circumstances of the operation:

This soldier possessed a specific skill set which was not redundant on his operational detachment, and his evacuation to higher medical care would negatively impact the capabilities of his unit. The Soldier was aware of the need for his skills and the challenges in evacuating him...Therefore, as is frequently observed in [Special Operations Forces] soldiers, the individual minimized his
symptoms in order to remain with his detachment. Specifically, he did not seek follow-up medical care until he became incapacitated following his third mission. (Lutz, Kane, and Lay, 2010, p. 28)

This particular article also cited soldiers, including the one detailed above, under-reporting injuries to “stay in the fight” or “game.” If soldier-patients, as Segal argues, take on the role of interlocutors who are responsible for persuading medical personnel toward a diagnosis of their possible injuries, and those injuries are not valorized as legitimate wounds within their particular paradigm, the argument towards diagnosis is less likely to be made.

Another potential gap in the diagnostic chain may arise from the military’s definition of mTBI as a “concussion.” The use of the word “concussion” is threaded deeply both in official defense department documents and soldier speech. The Clinical Practice Guideline and Recommendation Report (Helmick et al., 2006), the official “best practice” guide for adopting TBI prevention protocols, uses concussion synonymously with mTBI. In another materialized instance, the primary field diagnostic tool available to soldiers outside of medical bases, the MACE, also specifically refers to object under evaluation as a concussion. In 2009, Dr. Charles W. Hoge, Director of the Division and Psychiatry and Neuroscience at the Walter Reed Army Institute published a controversial editorial in the New England Journal of Medicine (NEJM) claiming that widespread use of the terms “mild TBI,” “signature injury,” and “invisible wound,” are poor examples of risk communication that are diagnosing synchronic events, concussions, as “present-tense incompletely healed” injuries, TBIs (Hoge, Goldberg, & Castro, 2009, p. 1589). Essentially, Hoge is framing what happens on the battlefield as a temporary event, a blow to the head that is not as lasting and causative of long-term symptoms. What TBI diagnoses invite, he argues, is unnecessary treatment that requires
large amounts of government funding. Though multiple head trauma physicians responded in opposition to his reframing of TBI (Sigford, Cifu, & Vanderploeg, 2010; Connors, Gordon, & Hovda, 2010; Eibner, Schell, & Jaycox, 2010), “concussion” terminology continues to be used in reference to TBI. Among service members, the use of “concussion” is present at the highest ranks. In a policy report in which he falsely determined the status of a soldier’s Purple Heart eligibility, Brig. Gen. Joseph Caravalho, former top medical commander in Iraq, noted that “[in] many cases,” he writes, “concussions…with minimal medical intervention” do not warrant the award (Caravalho, 2008). Also, Lt. Col. Mike Russell, the Army’s senior neuropsychologist, was quoted in a recent article combining both concussion terminology with the sports metaphor. Speaking of soldiers who sustain mTBI, he said, “They don’t want to be sidelined for a concussion. They don’t want to be taken out of play” (Miller & Zwerdling, 2010a).

Combining the values inherent in the statements about the importance of “staying in the game” with the use of “concussion” as a label for mTBI creates a problematic narrative for responding to brain injury. If placed inside the frame of a sports game such as football or hockey and labeled as a concussion, a TBI can be likened to a temporary event where a person is simply “shaken up” or “stung,” not permanently injured. In the sports world, a hard hit to the head has often been followed by a “just-rub-dirt-on-it” mentality, one that downplays invisible injuries as weak or insignificant. While recent attention (Coates, 2013; O’Conner, 2012; Schpigel, 2012; Trotter, 2012) to head injury in the NFL and youth sports has increased public awareness to the dangers of reinjury, it is yet to be seen to what extent that impression
is moving through the military ranks. Invoking the downplayed framing of the injuries in a 2009 comment, Gen. Peter Chiarelli, the Army’s vice chief of staff, worried that army culture has seen TBIs as “phantom conditions” exhibited by “weak soldiers trying to get out of deployment” (as cited in Cox, 2009). It seems to follow, therefore, that many soldiers would rather “fake” the diagnostic tests than bring on the stigma of “faking” a made-up injury, leaving their soldiers behind.

The Boundary Object and the Broken Chain

This analysis has been a close reading of military and medical discourse surrounding the diagnosis of mTBI. At the beginning of the discussion, I modeled the military’s chain of diagnosis on Latour’s (1999) “chain of reference,” a concept that describes how objects are converted from thing to language through a series of physical and conceptual translations. Within that model, I posed the question of whether or not thinking of wound/injury as a boundary object could illuminate any points of possible interruption within the chain of diagnosis. I think it is safe to draw a few conclusions from the analysis of military discourse about the incongruity between the medical

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1 Throughout the writing of this article the NFL has been increasingly scrutinized for its culture of downplaying the severity of head injury and has come under fire for high profile deaths, such as the suicide of linebacker Junior Seau, reportedly a result of mental health complications that developed following multiple head injuries spanning his football career. Some policy-level changes have been put in place in attempt to reduce head injury in youth sports and the NFL. For example, the popular Pop Warner youth football league has instituted new game rules to mitigate the number of full-speed collisions between players (O’Connor 2012). Additionally, the NFL has begun fining players it finds reckless in defensive contact; one tackle in 2010 resulted in a $75,000 fine against Steeler’s linebacker James Harrison. While the effects of these policies may not yet be seen or fit into the scope of this paper, the sporting world’s approach to legitimizing the severity of head injury may provide valuable insights into the communication about mTBI within the military ranks.
language existing within the diagnostic tools and the military culture that serves as the context for the physical diagnosis of mTBI.

The honor and heroism attributed to the concept of wound and injury are not present in the current diagnostic structure of traumatic brain injuries. Due to the framing of brain injury as “concussion,” the current military epistemological framework, which values strong soldiers, flesh-wounded heroes, “staying in the game,” and team mentality, does not provide an opening for acceptance of mTBI as a medically legitimate wound. Does this lack of cultural acceptance impede successful diagnoses of brain injury (interruptions within Latour’s chain of diagnosis) on the battlefield? Indeed, a major impediment to the acceptance of mTBI is the medical discourse that informs the language of the diagnostic process. The stability of the military’s localized understanding of the wound/injury boundary object prevents the “medical gaze” of the diagnostic tools, specifically the MACE, from moving mTBI across the chain of diagnosis. As noted in the discussion regarding the terms “injury” and “wound” within military discourse, the language of medical diagnosis is not as variable in valuing obvious wounds or broken bones differently than as it is when the injury is invisible, the symptoms undetectable. Foucault (1973) suggests that “the [clinical] gaze refrains from intervening; it is silent and gestureless” (p. 107). Though when the injury is a mTBI, the burden of a successful intervention is placed on the argumentative power of the patient’s character and credibility. And when a soldier’s understanding of what constitutes a legitimate wound does not match the severity of how the medical community understands brain injury, the wound is essentially rendered non-existent, its ontological grounding lost in the fog of combat. Griffin (1997) might define this phenomenon as value incommensurability, that between two discourse communities (in this case, medical and military) in which “there are values that cannot be got on any
scale, that they cannot even be compared as to ‘greater,’ ‘less,’ or ‘equal’” (as cited in Harris, 2005, p. 69). The communicative contexts that form the meaning behind diseases and injury are of such different constructions that, as boundary objects, they do not hold common identity across the entire communication network, limiting the possibility of a conceptual “trading zone” to exist, therefore severing the chain of mTBI diagnosis. My goal, however, is not to argue that the boundary object is a poor model for the concepts of wound/injury. Instead, my aim is to suggest that it is exactly because of the boundary object’s integrative potential, as Wilson and Herndl (2007) have argued, that medical diagnosis and military combat teams must form multidisciplinary cohorts to refine a shared meaning that will communicate the hazard and severity of mTBIs that result from IED blasts.

**Conclusion: Repairing the Chain**

While this article implies the need for further study on the rhetorical impasses between military and medical discourses, two important sets of questions have emerged that suggest other needs for practitioner and academic intervention. First, this analysis suggests concern regarding the extent to which the definition or cultural understanding of an ailment, such as defining traumatic brain injury as concussion, affects both immediate treatment and post-diagnostic care. Second, this analysis has uncovered broader implications of patient ethos in the diagnosis of invisible medical conditions. The first of these two implications suggests the need for multidisciplinary efforts at the federal level of military and medical policy, while the second suggests an opening for rhetoric scholars to further theorize patient roles in diagnosis.

Regarding the second question specifically, continued research in patient/practitioner communication must acknowledge that positive diagnosis, for
good or ill, is not guaranteed to be accepted by the patient, even if the new knowledge does provide a clearer picture of the individual’s health and suggest future treatment. Though most patients who visit their general practitioners for visible (and invisible) ailments have specific motivations (comfort, family, work responsibilities) to receive an effective diagnosis and treatment, many of the patients detailed in this article’s scenarios did not. Thus, this article moves rhetoric of medicine’s understanding of diagnostic work beyond a networking of multiple ontologies that merge into diagnoses, prognoses, and treatment plans. As I have shown above, the diagnostic chain is sometimes not easily linked from symptom/event to diagnosis—specifically, for patients whose injuries are invisible and/or stigmatizing.

Indeed, much of this article targets scenarios within battlefield contexts, yet its implications also suggest a more nuanced understanding of patient motives during diagnosis that would directly contribute to rhetorical inquiry in other healthcare domains such as geriatrics, end-of-life care, or sports-medicine, for example, where positive diagnoses of some conditions not only suggest the need for costly future treatment plans, but might manifest identity-altering stigmas. We might investigate to what extent diagnostic sidestepping is preventable by focusing our analyses on existing diagnostic methodologies, documents, and electronic interfaces used in positively identifying ailments or conditions most prone to patient denial and resistance (such as Alzheimer’s disease or sports-related head injuries). Yet, we might also seek to further understand how patient motives and fears (ex. fear of being placed in a rehabilitation facility) could be elicited during the diagnostic conversation to help the practitioner better articulate a condition’s severity and also determine treatment plans best suited to a patient’s lifestyle. By doing so, it is possible that rhetoricians might contribute to new
research that identifies critical breakpoints in diagnostic chains, improves diagnostic methodologies and, ultimately, saves lives.

References


CHAPTER 3 - PREFAB INTERFACE DEVELOPMENT AND THE PROBLEM OF EASE

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**Abstract**

This paper examines the practice of using front-end web development frameworks and associated plug-ins to develop web application interfaces and suggests returning to a rhetorical foundation for determining the propriety of code use and vetting of an open-source community’s plug-ins. Additionally, this paper asks developers and those teaching developers to further problematize development framework usability and its implications for designer judgment and agency.
Introduction

To elaborate on a recent tweet by Dan Cederholm of the development studio, SimpleBits, and author of the standards-focused *Bulletproof Web Design*, current web development practice, with its many device, format, and user contingencies, is creating an ever-expanding and increasingly complex geography for novice web writers and developers to navigate and learn. For a novice to output the ceremonial “Hello world” in 2013 is to greet a world of web writing barely comparable to the inline-styled, table-formatted, and JavaScript-leery World Wide Web which many veteran developers first learned.

Within the past ten years, many ad-driven services such as Blogger and WordPress.com have eased users into web “development,” taking most of the work out of site creation by providing WYSIWYG content editors and plug-and-play stock themes for easy content creation and styling. For users, the benefits of these services range from no-cost hosting to ease of a flattened learning curve. And while these services continue to hold prominence among new web writers, there is an increasingly public push for young professionals and students to learn how to program and develop literacy in the base languages of the web. The most public example of this promotion of code literacy has occurred in the exploding enrollment numbers of those taking programming and web writing lessons from Massive Open Online Courses (MOOCs) such as EdX and Codecademy (Wortham, 2012). Even New York City Mayor, Michael Bloomberg, famously proclaimed that his New Year’s Resolution for 2012 was to learn how to code with Codecademy.

Yet with the need to master syntax, web standards, accessibility, and browser compatibility issues, becoming a competent developer can take years. Fortunately for those new to web development, many open-source communities and individual
developers have created front-end development frameworks, code libraries, and a wealth of custom plug-ins that aid developers in the rapid development of software and website interfaces that meet the aesthetic and functional standards of the most current web trends. Many of these frameworks rely on APIs (Application Programming Interfaces) that simplify multiline functions for interface interactivity into single word calls from the script line, retrieving prefabricated functions from a code library. Essentially, a combination of an API-accessed code library and open-source and publicly available plug-ins creates a coding experience that allows a developer to rely heavily on the existing functions and hooks a within a framework, while avoiding the burdensome task of rewriting simple animations, data queries, and output loops.

While using frameworks and compatible plugins is in the interest of ease and efficiency, novice interface developers risk relying too heavily on the prefabricated work of others, ceding agency and context-based decision making to the community or developer responsible for the reused code, a user experience focused more on ease than skill, what Bradley Dilger terms “extreme usability” (Dilger, 2007). Additionally, such a practice allows a novice to be unaware of larger cultural or functional contexts within which the technology was developed. Ancient rhetoric, specifically with its concepts of the topoi and commonplaces, provides a heuristic for understanding the communicative dangers of relying too heavily on context-absent code and can also guide the vetting process of a novice developer choosing to use plugins from the myriad resources available on the web.

This paper examines the practice of using front-end web development frameworks and associated plug-ins to develop web application interfaces and suggests returning to a rhetorical foundation for determining the propriety of code use and vetting of an open-source community’s plug-ins. Additionally, this paper asks
developers and those teaching future web writers to further problematize development framework usability and its implications for designer judgment and agency.

**Frameworks**

Broadly defined, development frameworks are “a set of tools, libraries, conventions, and best practices that attempt to abstract routine tasks into generic modules that can be reused” in the process of application development (“this paper considers web frameworks specifically, though there are many development frameworks for software as well”) (Croft, 2007). Some frameworks such as Bootstrap and jQuery Mobile are specifically front-end or client-side frameworks whose sole purpose is to abstract routine “presentation” code into modular chunks of information that allow for quicker building and greater replication. Other web development frameworks such as Zend, Rails, and CodeIgniter provide libraries and abstracted routines for server-side programming, or the functional part of the web application that processes, stores, and outputs data. Partially a result of the web-standards movement, and partially a result of a need for efficient and expedited coding, both front-end and back-end development frameworks are providing powerful standardization of common web writing practices. An example of a framework’s expeditious power can be explained in terms of quantity of work: while it might take a developer twenty lines of code to program, from scratch, a common function for animating an accordion-style registration form, a framework could provide a simple HTML-class or JavaScript API that serves as mechanism of communication that hooks into the framework’s library and allows the developer to call the same function in often no more than two lines of code or markup.
Additionally, most frameworks offer a collection of “plug-ins” or the ability to grab snippets of script from the web and hook into the framework’s existing code library. A quick Google search for open-source interface development plugins such as image galleries, styled forms, or animated navigation menus yields hundreds of websites offering tutorials and downloadable plugins—of varying quality—for quick integration with JavaScript libraries such as jQuery or MooTools, commonly used by popular frameworks. To be clear, while a framework might make a “slide” animation faster to code, a plug-in provides something such as a full-fledged image-gallery, pre-built and ready for use in any application compatible with the framework language. In terms of the web, these prefabricated functions and plug-ins combine together with mark-up and styling to create an interface between the user and the web application.

The field of rhetoric and professional communication has been increasingly interested in how interfaces mediate our retrieval and use of information (Johnson-Eilola, 2003) situate users within the power relations of technology use (Selfe & Selfe, 1994), and shape arguments about our own identities (Arola, 2010). At the base of these many inquiries is the understanding that an interface is an argument made up of visual claims, functional affordances, and appeals to a user’s values and sense of universal truths. And if we are to continue to situate interface design and technical communication in the rhetorical tradition, we will benefit from drawing on all ancient practices of argument construction and invention. In terms of web development frameworks that draw on abstracted or pre-built collections of code, this paper will argue for resurrecting the concepts of the topoi and commonplaces to move toward a rhetorically-based heuristic that allows developers, specifically novice developers, to gauge the propriety and value of the arguments available on the web and within the
development frameworks themselves, thus being better able to make context-specific arguments without overusing common rhetorical appeals within the interface.

**The Topoi and the Commonplaces**

If we are to consider the interface as a collection of visual and functional arguments, it seems appropriate that rhetorical theory could have many analogues or “cognates” (Kostelnick & Roberts, 2010) to ancient concepts of argumentation, style, and delivery. Two concepts, the topoi and the commonplace, share a similar purpose with the function of development frameworks and code libraries.

For Aristotle, Quintilian, and Cicero, the topoi (or topics), were the functional building blocks used in the invention of an argument. In other words, they were heuristics that provided an argument with clarifying frames such as who, why, to what degree, by what definition, etc. For Cicero, specifically, the topics did not function as full arguments, but merely as means to an end. As Michael Leff (1996) has written, Cicero believed the topics “offer material - timbers or planks … that may prove useful in constructing an argument and which, when combined with other resources, contribute to appropriate management of a case” (p. 447). In many arguments, these “other resources” were “commonplaces.”

The commonplaces were stock epithets, figures of speech, proverbs, quotations, praises or censures of people and things, and brief treatises on virtues and vices, all well known or respected turns of phrase or position statements that were commonly understood to find universal acceptance with audiences. Practiced during early schooling, the commonplaces served as a bank of prefabricated arguments that could be called upon to add “amplification” to an argument. Of course, this amplification was entirely dependent on the context of use and the skill in which the rhetor was able to
deploy the commonplace within the arrangement of the spoken composition. As Leff explains, arguments discovered and constructed by use of the topoi and commonplaces “must arise through knowledge of the case at hand, and a decision about whether and how they are used cannot be specified by topical method, per se, but must depend upon situated judgment” (p. 488).

Quintilian (1856/2006) stresses the importance of situated deployment of the commonplaces, suggesting that they are much like “weapons which we should always have stored in our armoury ready for immediate use as the occasion demands” (II.i.12). It is a practice of poor argumentation to memorize a commonplace and insert it carelessly into the argument without paying any attention to the context of the argument or the audience at hand. Quintilian argues that while the commonplace, however beautiful, can be called upon and deployed at any moment, it should be “ready,” not “wanted,” for careless use is almost always “superfluous and sometimes even noxious” (II.iv.32). Essentially, the use of common arguments must be reserved and shaped for specific rhetorical situations as to avoid diluted power and cliché.

Much like ancient rhetoricians, contemporary writers, web developers, and programmers have similar banks of arguments available for deployment. However, instead of building these commonplaces into verbal arguments, development frameworks allow developers to build plug-ins and widgets into interfaces, sometimes quite easily. And for novice developers, it is this ease of usability that can limit the developer's ability to exercise agency and sound judgment in the development of an interface.
Usability, Agency, & Techne

As usability studies has transitioned from user-friendly design, to user-centered design, to user experience design, the streamlined “ease” of product use and interface use has been a central concern (Krug, 2005; Norman, 1990). This ceding of problem solving abilities and judgment to our interfaces is the subject of Bradley Dilger’s (2007) critique of consumerist values of “ease” and simplicity driving current work in usability studies, a trend he calls “extreme usability.”

Dilger argues that while usability evangelists such as Jakob Nielsen and Don Norman promote multi-faceted definitions of usability, much of their message focuses on the ease of products and their ability to make consumers’ lives easier and avoid the extraneous work of figuring technology out for themselves. Steve Krug (2005) has gone so far as to make this consumerist demand central to his best selling usability manifesto, which he titled Don’t Make Me Think. Dilger suggests that this version of usability, in extending the ideological framework of “ease” and consumerist values of speed and convenience, encourages an “out-of-pocket rejection of difficulty and complexity,” and that it “displaces agency and control to external experts, and represses critique and critical use of technology in the name of productivity and efficiency” (p. 52). The result for the novice user, is that the “frictionless and transparent nature of extreme usability becomes self-perpetuating; because novice users develop only instrumental knowledge of a system...their need for extreme usability - and their need for the system to know their “needs” - can be perpetual” (p. 56). By perpetuating the novice/expert binary and relying on products and systems which disconnect the novice from the cultural and historical contexts of their technologies, “extreme usability” essentially black boxes the expertise and the reasons for why technologies were invented, built, and deployed.
Robert Johnson has also interrogated our cultural understanding of “use” and technology, juxtaposing these modern terms with the ancient concept of *techne*. The ancients described techne as the skill or knowledge on which an artist or craftsperson relied to shape raw materials into useful objects, discursive or material. However, Johnson reminds us that techne was not only associated the production of an object, but was also concerned with knowledge of an object’s use and “thus was indelibly imbued with concepts of human action (phronesis/praxis) and ethics” (p. 344, Johnson, 2010). Johnson suggests that if our approach to technology replaces the “meditative” practice of techne, with its attention to problems of use and societal implications, and becomes inverted with the modern “calculative” approach to technology, thoughtless, task-focused, and ephemeral in its scope, the makers of technologies may become “untethered from the social fabric and, as a result, out of touch with the humans who use those technologies” (p. 349).

While Dilger’s critique of extreme usability might be primarily focused on physical products and GUI interfaces, and Johnson’s argument concerned with technological praxis between producer and user, the writers’ arguments regarding user agency and a general “deskilled,” short-sighted approach to technology are salient to the discussion of development framework usability and its effect on the social and practical success of development teams. As Jakob Nielsen (1993) reminds us, even an alpha-numeric command line is a kind of interface with a producer on one end, and often another user/producer on the other.

**Use and the Developer Community**

All developers, regardless of expertise, reuse code. A central tenet of programming states that “no problem should ever be solved twice” [19]. Reuse of
common functions and structures is a survival skill one must learn in order to meet the demand for efficiency and expedited work, which is a primary reason for the creation of development frameworks. However, when novice developers scour the web for frameworks and plug-ins to enhance the aesthetics of a page, they may be trying to answer problems different from those of the developer who originally built these scripts and systems. The open source communities that share these plug-ins attempt to show transparency in their work by providing a wealth of tutorials that demonstrate the plug-ins and also display and explain the code. Unfortunately, a tendency exists within the novice community to grab code, paste it into applications, and ignore the implications of plug-ins built for specific purposes.

In his 2011 *TechCrunch* article titled, “Why the New Guy Can’t Code,” software developer Jon Evans, describes the agony that thoughtless, patchwork plugin deployment can cause for development teams: “We've all lived the nightmare. A new developer shows up at work, and you try to be welcoming, but he can't seem to get up to speed; the questions he asks reveal basic ignorance; and his work, when it finally emerges, is so kludgey that it ultimately must be rewritten from scratch by more competent people” (Evans, 2011). Evans is not alone in his description of less-than-competent developers infiltrating development teams. In the case of jQuery, the popular JavaScript library, many techie forums and programmer blogs have castigated “noobs” or novice users for perpetuating the use of the JavaScript language through jQuery without necessarily knowing how to use it, without knowing how to use it well (writing bad code), and without knowing the specific developer culture from which it has grown.

And though many of these posts or forum titles may hint at an elitism within programmer culture, these concerns are revealing the existence of a growing population
of web writers whose calculative approach to production places the value of the work in product-focused rather than use-oriented development. In Johnson’s terms, this inversion of ephemeral product-oriented thinking over craft knowledge “untethers” the technology from not only the user/developer and the social fabric of development team, but also risks alienating the end user for whom the plugin or the presentation aesthetic was never intended. This change in developer culture provides impetus for a focus on rhetorical foundations of framework reliance, code-reuse, and analysis of plugin propriety for specific contexts of use.

Analysis of a Framework: Twitter Bootstrap

To elucidate the concerns central to the use and misuse of front-end development frameworks, this section will examine one of the most popular front-end frameworks in use at present, Twitter Bootstrap.

Originally developed by Mark Otto and Jacob Thornton as a collection of libraries to aid the development of user interfaces for internal data management applications at Twitter, Twitter Bootstrap was released as open-source in 2011 and is at the time of this writing the most watched project on GitHub, the collaborative versioning and revision control network for software and web development projects. Bootstrap provides a powerful HTML, CSS, and jQuery-based framework for the rapid development of “cross-everything” compatible web pages/applications that retain their integrity on desktop monitors, tablets, and mobile device. The framework provides a simple CSS class-based initialization for many of the plugins, such as dialog boxes, carousels, and dropdown menus, allowing developers to introduce components to their web pages with single word class declarations in their HTML. Additionally, since
Bootstrap 2.0, the framework defaults to a responsive layout, allowing the display of the page to render differently depending upon the device being used.

While such features are a boon for developers building cross-compatible applications that rely heavily on common JavaScript functions, Twitter Bootstrap has attracted criticism from the expert developer community for its often replicated stock layouts available with a default loading of the framework. Others have raised concern about Bootstrap’s bloated JavaScript collection, which, novice developers may leave “unpared,” sometimes causing unintended conflicts with external scripts. In his recent article, “Great, Another Bootstrap Website,” Paul Scrivens (2012), web designer and social media expert at North Social, describes a worrisome trend in the design of web-based information where using development tools are becoming synonymous with programming knowhow. Describing both Bootstrap and the popular Ruby framework Ruby on Rails, Scrivens writes,

“This is the danger behind frameworks. Ruby on Rails is great for a lot of people, but there are some who learn how to program from it and in the end don’t really learn how to program at all. If you are a designer and you are using Bootstrap as your learning tool then you might be in for a rude awakening when you finally have to venture out on your own and create a custom design.”

Scrivens cites Bootstrap’s showcase gallery of sites using Bootstrap, and laments the glaring similarities between them, arguing that front-end frameworks should exclusively be used as a code base for developers, not an aesthetic silver bullet. However, developers such as Reuven M. Lerner (2012), see that for a programmer “who is design-challenged, the introduction of design frameworks has made it possible... to make a Web application that doesn’t cause people to go screaming into the night.”
Both Scrivens and Lerner bring their disciplinary biases to their arguments, the designer tired of visual clichés, and the developer relying on those clichés for “good design.” While this dichotomy represents the common concerns about Bootstrap between designers and developers, we should be complicating this question further if we are to vet and use front-end frameworks responsibly. Does Twitter Bootstrap, or similar front-end development frameworks represent what our fields describe as effective communication? Does an unquestioning allegiance to a framework’s default code set, structure, and aesthetic ever achieve this goal? The answer to these questions should be a resounding “Maybe” if we are to understand our work as a rhetorical and context-based enterprise. However, in order to have full control over our communication, we must help novice developers master the tools, their languages, and their topical and aesthetic landscapes in which they exist in order for their communication to be products of “situated judgment.”

Conclusion

As our UX-related fields continue arguing for information designers to shape interface design and write code, we must include in these discussions questions of agency, expertise, and argumentative best practice. Borrowing from Cicero and Quintilian’s discussions of the topoi and the commonplaces and problematizing the usability of frameworks through the lens of extreme usability, we might find rules of thumb and assertions to follow as we design and build.

Primarily, we must reiterate that what we design are interfaces and that interfaces mediate information dispersal and communicate arguments. The building blocks of those arguments will only be as effective as the skill with which a developer deploys programmed functions and prefabricated plug-ins and the level of awareness
she has for the micro and macro contexts where the interface will be used. If, as Quintilian suggests, our commonplace arguments—in this case, plug-ins—exist as weapons available for use at the appropriate time, we must be aware of user needs and user goals before we deploy plug-ins for interactivity’s sake. Overuse of common tropes or figures will dilute our arguments and run the risk of cliché, and eventually diminished use of our applications and websites.

Additionally, we must acknowledge the imbalance of power we accept if we are to build with highly usable frameworks and also question the intentions of communities that provide frameworks that function at such a high level of abstraction that manipulating at the source is reserved only for expert builders. At a pragmatic level, relying on the expertise of framework developers limits our options as designers and developers to whatever currently exists. Such an approach to design cripples the invention process and, continuing Quintilian’s battle metaphor, forces us to work with the army we have, rather than the one we need.

Finally, if we are going to take building seriously, we need to be thinking about source code as an interface as well. Some in the Digital Humanities and Critical Code Studies communities are doing just this. However, as information designers, we have an immense amount of experience with audience analysis, text design, and document usability to inform the interrogation and development of best practices for web designers.

Ease will surely remain an illegitimate rhetorical justification for how to compose and design situated communication for as long as our associated disciplines exist. As such, ease is also rarely justifiable in user-centered development, because ease in the development process is enjoyed solely by the developer - as well as the institution,
organization, or developer community controlling the overall design of that communication.

Developing new practices that move away from usable code experiences may be uncomfortable for developers. Though, if we can avoid the seamless user experiences made possible by development frameworks and APIs, we can break the novice/expert binary, reclaiming agency and building applications better fit to user needs and specific contexts of use.

References


CHAPTER 4 - TEACHING A TRUSTWORTHY UX IDENTITY IN TECHNICAL COMMUNICATION PROGRAMS

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Abstract

This paper addresses the question of how technical communication students graduating into the job market can better communicate trustworthy identities as User Experience (UX) professionals. I consider the evolution of the technical communicator to understand how changing professional roles have positioned the field to succeed in the world of UX. Next, I address recent literature addressing some of the impasses that have blocked communication and shared understanding between technical communication and user experience professionals. In order to distill the types of skills and professional identities that help young professionals get hired in the UX field, I surveyed a sample of online publications and interviews from prominent industry magazines, journals, and blogs written by or about UX hiring managers regarding their thoughts on hiring practices. Following the survey and discussion of the commonly desired traits and skills that emerged from the articles, this paper will suggest actions we can take in our programs to help prepare our students’ portfolios and their design practices to speak to the needs of professional design teams.
Introduction

At the 2014 Conference for the Council of Programs in Technical and Scientific Communication, a common theme murmured through the panels and hallway conversations during breaks: many of us in technical communication see a drastic need to incorporate more training in user experience (UX) design theory and practice into our programs. In fact, considering the trajectory of scholarship on the professional role of the technical communicator over the last decade and a half, it should be no surprise that our field is hungrily closing in on this holistic design field that incorporates many of our current professional sympathies such as user advocacy, usability, ethnographic research, information architecture, and user interface design.

However, the question hanging in the air at the conference, and in our professional publications, remains: If we are to train future technical communicators to be competent in the UX practices and thinking valued by hiring managers in the world of industry, how should we in academia train our graduates for the UX workplace? Additionally, a number of trends in UX titles and practices are converging on one another, complicating what it means to be a UX professional in the field. A recent article by consultant, Sarah Deane, titled “How to Spot a UX Masquerader” explains that some project leaders often do understand that they need a UX designer but do not necessarily understand what that they’re looking for. Deane notes that the confusion can be seen in job ads that list calls for “UX/UI Designers,” not necessarily understanding that a true UX designer has to “understand every phase of the product lifecycle, from concept to design through testing and delivery…and how carefully designing the connection points with the end user in mind throughout will impact the user experience” (“How to Spot,” Deane, 2014). Additionally, due to the the ubiquity of foolproof prototyping
tools, the explosion of UX-expert-in-a-month tech academies (Deane’s latest venture is an educational series and book titled, 4-Hour UX), and the amorphous definition of what a UX professional even looks like are creating a context in which the proof of expertise risks becoming increasingly obscured and diluted.

As technical communication programs begin to see themselves as a new training ground for UX practitioners, we must consider how best to prepare our graduates to understand, develop, and articulate trustworthy identities as UX professionals. Recent work in professional and technical communication scholarship has suggested that our rich history in document usability and information design positions us well to be teaching UX principles and methods (Redish & Barnum, 2011; Getto, Potts, Salvo, & Gossett, 2013). However, few in the field have surveyed what UX practitioners and hiring managers expect when an applicant walks in their doors. Some attempts have been made within technical communication scholarship to assess skill needs in other areas of information design, such as Rebekka Andersen’s (2014) survey of the content strategy landscape. The article provides a strong foundation for how technical communication might draw on industry knowledge to keep pace with expectations surrounding intelligent content delivery and “Total Information Experience” design. Additionally, there have been some attempts in the UX community to categorize core competencies of UX designers, such as Steve Psomas’s (2007) framework charting out UX design roles by skill set and possible deliverables. While such resources provide a wonderful starting point for understanding the basic roles and end products of UX work, there’s much more to uncover and categorize in terms of desired thought processes, personality traits, and professional training.

This study will consider the evolution of the technical communicator to understand how the changing professional roles have positioned the field to succeed in
the world of UX. Next, I will discuss recent literature addressing some of the impasses that have blocked communication and shared understanding between the technical communication and user experience professionals. In order to distill the types of skills and professional identities that help young professionals get hired in the UX field, I will survey a sample of online publications and interviews from prominent industry magazines, journals, and blogs written by or about UX hiring managers regarding their thoughts on hiring practices. Following the survey of articles, I will suggest actions we can take in our programs to help prepare our students’ portfolios and their design practices to speak to the needs of professional design teams.

**Literature Review**

*Where we’ve come from: A brief history*

For the past 25 years, scholars in technical communication have been observing and predicting changes to the work roles in technical communication. What had partially been a profession concerned with producing long-form documentation for technical products has transformed in some sectors toward the management of communication processes and the design of information systems and user interfaces. As a result, those concerned with programmatic strategies and curricular design for training the next generation of the profession continue to revisit and revise what types of skills, tools, and theories our programs should be teaching in order to graduate students into the workplace with convincing UX identities.

By the late 1980s, the field of technical communication had already seen a sweeping evolution in the work of the technical communicator through the introduction of the graphical user interface (GUI), subsequent developments in desktop publishing software and laser printing, and the thinning of in-house creative departments
(Carliner, 2009). These changes required not only that technical writers develop visual literacy skills for creating page layouts and document designs, but that the academic side of the discipline pay serious attention to questions of visual rhetoric and design theory (Kostelnick, 1989, 1990, 1994). As early as the mid 1990s, scholars in technical communication were sounding the call to both academics and professionals that advances in information technology as well as a certain shift into post-industrial work roles would require a reframing of technical and professional communication work from a product support role to a knowledge-as-product paradigm, situating technical communicators as value-added participants within their organizations.

Drawing on Robert Reich’s characterization of the post-industrial worker as a symbolic-analyst, Johnson-Eilola (1996) suggested that the new technical communicator must be able to “possess the ability to identify, rearrange, circulate, abstract, and broker information” (p. 255). He noted that changing technologies could enable this type of transition, predicting that the “rapid adoption of communicative links in technologies…offers the potential to integrate communication into a much broader range of technological contexts” (p.256). Johnson-Eilola was not telling a story of technological determinism, but instead understood the ways in which we leverage how new technologies, specifically data-linking (in its broadest sense), can shape practice.

Indeed, one of the most significant catalysts shaping the work of the technical communicator in the past twenty years was the rise to prominence of database-driven technologies in the late 1990s and early 2000s. Michael Albers (2000), observing the developing uses of structured markup languages such as XML and SGML in conjunction with database technologies, predicted the single-sourcing of content would fundamentally change the work of technical editors, suggesting they would “function as more than someone who simply ensures the commas are properly placed,” but rather
develop “the integrity of ‘the rhetorical, syntactical interface between technology and the ultimate reader user’” (Albers 2000 citing McCormick, 1977). Hart-Davidson (2001) echoed Albers’ prediction of the technical editor moving into the role of communication manager concerned with the holistic experience of the writing process. He suggested that as writing specialists became better acquainted with communication practices within an organization, their work roles would increasingly shift to content organization, information architecture, and interface development to guide subject matter expert (SME) production of technical content. Patrick Moore and Melinda Kreth (2005) agree:

“the days of being grammar cops, wordsmiths, and software applications experts are not over for technical communicators, but those skills are diminishing in value as the global information economy becomes more cost-conscious, profit-driven, and focused on designing and delivering better experiences to individuals, groups, organizations, and entire cultures.” (p. 303)

In fact, by the mid-2000s, the management of content production and the user experience of such tasks, was beginning to be identified by practicing professionals as a key aspect of their job descriptions. Referring to a study he conducted on professional roles in 2004, Carliner (2009) explained that the primary roles of technical communicator were bifurcating along two distinct tracks:

At one end were technical communicators who designed the user experience of a web site, from determining the purpose of the site, to preparing its flow and interface, to designing the content and conducting assessments of its usability…At the other end were technical communicators working in groups primarily to prepare online help, user’s guides, references, and similar technical content. (p. 41)
While lower-level work of editing, writing help content, and building technical information repositories do continue to exist within organizations, recent trends in offshoring and sub-contracting such work threatens diminishing returns for that side of the profession (Andersen, 2014).

It appears UX-related work will increasingly be more relevant to organizations and project teams for two reasons. First, in the highly competitive marketplace of digital products, companies can no longer ignore the expectation that their products will have seamless user experiences. Dicks (2009) explains that “users now exercise much more power than previously over product evaluation. In the past, products might have been reviewed in a few magazine articles published months after the product was released,” adding that “[it] is much more difficult for an organization to get away with products, documents, or services that are flawed” (p. 74). Second, as a result of this trend of product teams using iterative product development practices such as Agile and Scrum, user experience and interaction designers are increasingly seen as central players in product development and must be able to speak the language of product management from discovery to ideation to prototyping. Speaking of the need to have significant, embedded roles on product teams, Lockett-Zubak urges, “We need to be proactive and take part in the product development process. We need to be perceived as an important part of the technology” (Giamonna, 2004, p. 352). In order to prepare students within technical communication programs to take more active roles in whole product development processes and fill UX-related roles on project teams, some have argued that our curricula must reflect these industry trends (Johnson, Zemliansky, McKee, 2008; Redish, 2011; Henschel & Melancon, 2014).
Technical Communication’s Relevance and Silence

Technical communication’s history of usability testing in document design (Schriger, 1997) as well as recent efforts to adapt the profession to new work roles in information technology (Geisler et al. 2001; Spinuzzi, 2003) have piqued scholars’ interest in cross-disciplinary work with associated fields such as human-computer interaction, computer science, and information design. These associations have welcomed the adoption of research methodologies such as user-centered design (UCD) that have served to shift the field’s usability orientation from post-prototype testing in lab-environments to early and frequent inclusion of users throughout iterative design lifecycles (Redish, 2010, p. 194). In fact, many within the technical communication community have long seen the discipline as inextricably connected to the goals of the user experience community, but haven’t necessarily had a large enough UX presence within their programs to fully train students to credibly step into this industry.

In a recent article in the Journal of Usability Studies, Carol Barnum argues the case that technical communication teachers need to be doing more UX work in their classrooms. She suggests that our central interests of audience, purpose, and context map effortlessly onto UX concerns of “who are the users?”, “what is their purpose with the product?” and “under what conditions will they be using the product?” (Redish & Barnum, 2010, p. 95). Barnum argues there are three primary reasons why product development teams are less likely to incorporate technical communicators into UX roles. First, she observes that while many in technical communication are well aware of its community’s evolution from the wordsmithing technical writer to a role concerned with whole product problems of safety, ease, feasibility, and value, those in the UX community are not. Many organizations separate technical communicators out of
product teams and therefore do not recognize the value these employees could bring by way of user advocacy and testing. A second problem Barnum observes, likely stemming from the first, is that a degree in technical communication is simply not often seen as a good background for UX job openings. A several-month-long review of the job board on the Usability Professional Association’s (UPA, now UXPA) website revealed an interest in human factors, psychology, and design degrees, but rarely sought technical communication graduates. Barnum suggests that a technical communicator could possibly convince hiring managers to hire him/her based on qualifications, “but the challenge is to be appropriately persuasive when the job does not identify the degree held by the technical communicator” (p. 100). Finally, Barnum calls out both the technical communication and UX communities for their lack of participation within each other’s primary communication channels such as professional events and in publications. The problem may be symptomatic of deep disciplinary ties in professional communities where the interdisciplinary practice of UX has yet to recognize technical communication as one of its affiliated disciplines. In a recent paper presented at the 2013 SIGDOC conference, four technical communication scholars noted that programs training students to be UX professionals are almost non-existent. In fact, much like those in web development-related careers have found, the authors note that most UX expertise is not developed in dedicated programs, but “through internships, solitary courses, or intensive, and—often self-propelled—study” (p. 65, Getto, Potts, Salvo, Gosset, 2013).

And while some technical communication programs do struggle with questions of how to welcome UX into their programs as a shared identity, some have already made such a transition or are continuing to advocate for such a change. As Barnum points out, a few programs, such as the University of Washington’s Human Centered
Design and Engineering Department (previously Technical Communication) have shifted outside the traditional bounds of technical communication curricula and moved in name and focus toward user experience concerns (p. 96). Additionally, more scholars in technical communication are attempting to develop focused programmatic conversations around the question of how to welcome UX into our departments and our literature. For example, in the proceedings for the 2013 SIGDOC meeting, Getto, Potts, Salvo, & Gossett (2013) published an experience report on the state of UX curricula within technical communication with a goal of sparking a conversation about how our programs could best develop training to produce the next wave of UX professionals. The authors demonstrate the ways in which technical communication’s focus on user-centered design practices have grown to welcome coursework in UX methods and even large interdisciplinary programs such as Michigan State University’s new Experience Architecture Program. Additionally, echoing Barnum, they assert the need for technical communication programs to reach out to industry partners in order to understand current UX practices: “Connecting student experiences and academic research projects to industry practitioners and contexts is key to ensuring both learners and professionals enrich their individual knowledge bases as well as their portfolios” (p. 68).

As industry leaders continue to express a need for dedicated user experience training, conversations such as these will surely increase in number and prominence. Evidence of such a move can be seen not only in the increase of such conversations at our national conferences but also in the development of edited collections such as the forthcoming collection from Liza Potts and Michael Salvo, tentatively-titled, *Experience Architecture and Rhetoric*. However, as we move from the initial calls for programmatic adaptation to sketching out what these programs should look like,
we will require direction from within the academy and out in industry to guide the courses to best train our students for success in UX professions. Such is the goal of this paper.

In an attempt to address Barnum’s concerns on technical communication’s disconnectedness from the UX profession and answer Getto, Potts, Salvo and Gossett’s call to listen to the needs of industry in developing stable UX curricula, the following study will train its focus directly on what our industry partners are seeking in their new hires. While individualized hiring practice certainly exists within an ecosystem of disciplinary affinities and complexities much larger than an individual applicant, understanding ways our students might get their feet in the door with UX teams might, in-turn, help technical communication get through that door as well.

Methods

This study follows a format common to technical communication publications such as Rachel Spilka & Ann Blakeslee’s (2004) “The State of Research in Technical Communication,” Carolyn Rude’s (2009) “Mapping the Research Questions in Technical Communication,” and Rebekka Andersen’s (2014) “Rhetorical Work in the Age of Content Management: Implications for the Field of Technical Communication” in an attempt to take a snapshot of current practices within certain areas of the discipline. In fact, Andersen argues that our scholarship tends to focus too much on existing academic literature when forecasting industry trends and that to keep pace with industry, we must do a better job of expanding our study to include the conversations outside of the academy (pg. 117). In order to understand the employer needs that drive
the hiring process in UX, I have examined statements about hiring processes, applicant skills, education, disposition, and backgrounds in interviews, articles, or blog posts from a collection of the most commonly read web publications in the UX industry. The thirty-one articles selected are specifically written by hiring managers or about hiring managers who are speaking directly to the questions of hiring practice and/or meditating on the ideal candidate for user experience positions (see the appendix for a full listing of the articles). I chose to analyze only articles found on the World Wide Web, as the publishing cycle for manuscripts and even e-books can lag behind current conversations. The websites that housed the majority of these articles are some of the primary web publishing platforms for UX, usability, web design, and product development audiences. I included sites if they were known beacons of professional development within the UX industry, such as boxesandarrows (boxesandarrows.com), UX Magazine (uxmag.com), and UXmatters (uxmatters.com). Additionally, I scoured other websites focused on general web and interface design expertise including Smashing Magazine (smashingmagazine.com), Medium’s UX topic area (medium.com), and A List Apart (alistapart.com). I also included articles from independent UX consultants whose pieces had either been cross-referenced in articles from one of the larger sites or named directly in a piece. To discover and validate a number of these sources, I conducted a brief analysis on the publications included in the Eserver TC Library (tc.eserver.org), a collaborative library representing multiple disciplinary interests in both technical communication and web/interface design fields. The selection of articles includes mostly US-based writers; however, two of the articles were written by an Australian-based consultant. To be clear, this collection is not at all attempting to represent a comprehensive reading of the field, but instead simply identifies key concerns present in many of the publications popular in the field.
My method of analysis is based on a grounded theory approach of immersing myself in the texts and allowing themes to emerge from a standardized coding process. The coding of the representative articles was two-fold. First, in order to develop a collection of codes to apply across the entire data set, I read all articles and coded for concepts within the discussions of hiring practice. This first pass would serve as my base for developing patterns from a process of pattern coding. In pattern coding the researcher labels significant sentences and phrases with objective descriptions or themes. Miles & Huberman (1994) explain that pattern coding is “explanatory or inferential,” and a process that helps the researcher identify “an emergent theme, configuration, or explanation” (p. 69). The process has a number of benefits, specifically its ability to reduce a large amount of content into smaller analytic units, as well as its ability use “surfacing common themes” and “directional processes” for cross-case (in my case, cross-article) analysis (p. 69).

Once I reached a point of pattern saturation and no new themes were emerging, I moved my analysis to the entire set of articles in a closed, focused coding process (Esterberg, 2002). Going line by line in each article, I applied the themes discovered in the pattern coding to the data. Making analytical memos (and a mess of chicken scratch concept mapping in an 8.5” x 11” sketchpad), I tracked relationships and differences between the hiring approaches by the writers of the various articles. Finally, using the collection of tagged data points across the various articles, I created a typology by which to develop comparisons and contrasts among common groupings of emergent ideas. This typology is what forms the basis of my results and discussion sections.
Results and Discussion

Table 1 The emergent themes which developed from the survey of the industry literature.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Theme Breakdown</th>
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| Designer needs to be a culture fit | • Fit Specific to Team Need  
                                • Constant Collaboration Dictates Need for Personality Fit |
| Strong Communication Skills   | • Ability to Effectively and Persuasively Articulate Designs and Research  
                                • Ability to Work with Diverse and Distributed Teams  
                                • Keeping an External Communication Channel |
| Demonstrate Empathy           | • Research-driven Empathy  
                                • Passionate about the Human Element |
| Business and Product Lifecycle Knowledge | • Product and Team Complexity Dictates Need for Business Knowledge |
| Process versus Portfolio      | • Articulate Process  
                                • Demonstrate Process On-site/Practice Exercise |
| Training                      | • Educational Background  
                                • Experience Speaks Louder than Degrees |
| Technical Skills              | • Traditional Deliverables  
                                • Web Development Languages |

The results and analysis presented here represent the themes and typologies that emerged from multiple passes through the articles selected for the study (as seen below in Table 1). Because the central focus of this paper is to discover desired skills and traits named by UX professionals and hiring managers, portions of articles that did not pertain to hiring practice were left out of the coded data collection. Additionally, some coded pieces were not category exclusive and, in some cases, spanned up to three categories. In cases where repeat content spread across categories, it is quoted or mentioned in the category to which it most heavily pertains.
While the focus of this section is to report the UX designer traits and skills that emerged as important to the industry and to discuss the significance of these findings, one theme outside of this pattern seemed to thread its way through many of the articles: distrust. In fact, distrust of qualifications, titles, and demonstrable experience seemed to often be the exigency for why many of these articles were written. Some in the industry feel that there is still much confusion around the work itself. As Amy Marquez (2013) noted, “The fact that the design community as a whole is still trying to define precisely what a user experience designer is or is not should give you a clue as to just how complex that can be.” A good amount of the advice and concerns about hiring practice within UX attempted to address this problem by providing strategies for presenting oneself as a credible candidate. Where applicable to the traits and skills themes, the theme of distrust will be seeded into the discussion.

Across the dataset, certain hiring expectations emerged as standard practices in many UX offices. Primarily, hiring managers are interested in candidates who match the culture of the team on which the designer would end up working. The designer should be able to demonstrate empathy, design competency, and an understanding of iterative build-measure-learn cycles common in various flavors of Lean product development. Due to the multidisciplinary demands of product teams, designers are also expected to demonstrate strong communication skills by which to share ideas and pitch projects to a variety of audiences. Additionally, designers should have a strong sense for product development cycles and a basic understanding of business dynamics. In terms of technical skill sets, a large number of authors noted the great benefit of having actual web development skills, as the ability to prototype one’s designs adds
clear value to smaller teams that may have to spread roles a bit thin across a small number of individuals.

Because all of these traits seem to span across a range of skill sets, it is no surprise that a common mention in many of the noted categories and role descriptions was a persistent allusion to “T-shaped” individuals, a term made popular by IDEO CEO, Tim Brown (Hansen, 2011). Brown’s description of the ideal candidate for a creative team uses the “T” as a visual representation of skills a candidate has. The long vertical bar on the T represents a deep expertise in one area of creative practice that will benefit the team in specific ways. The horizontal represents both empathy and interest in other skill sets on the team. Brown believes that being able to both provide a crucial skill set and shift perspective to understand team member concerns creates a highly functional dynamic that allows teams to quickly build ideas that are viable, desirable, and feasible.

The following subsections will detail the primary skill themes that emerged from the dataset. Within each subsection, I will include a discussion of the relevant excerpts and in some cases foreshadow recommendations that will follow in the conclusion. All content in the dataset is included in the appendix following this paper’s references.

**Designer Needs to Be a Culture Fit:**
Common to many of the articles surveyed was employer interest in culture fit. Such might possibly be a result of these authors working in agile development environments where the designers are not siloed off from engineering and product marketing, but instead integrated with all aspects of a product team. Additionally, interest in fit also seems to be associated with the extent to which applicant’s have shown interest and/or
become embedded in the external UX community through meet-ups and professional speaking events.

*Fit Specific to Team Need* - A few authors focused their comments on “fit” to specific needs on a team they are trying to staff. In these cases, discussion of team fit was not only considering fit as a question of filling the missing piece in the team puzzle, but finding a piece that would transform the shape of the puzzle entirely. UX Magazine contributor, Vipor Cipan (2014) suggests vetting the candidate on their personal and non-professional activities in order to discern fit: “[We] tend to love and hire people who have hobbies they are passionate about: DIY projects, music, organic food, traveling, biking.” He includes that “what’s really important, that the person will have something new, refreshing, and energizing to add to the team.” Additionally, in her 2013 piece, titled “How to Hire a UX Designer,” Amy Marquez echoes Tim Brown’s t-shaped thinking in describing finding individuals with a broad range of interests, though she notes that such a range doesn’t necessarily mean finding someone spread thin with no focus. “Does this make them a jack of all trades and a master of none?” asks Marquez, “Not the good ones…The effective UX designer has a great depth of knowledge in one or more fields…The puzzle you have to solve as potential employer is to determine which of these skills you need the applicants to have the most experience in.” Greg Zapar (2013) agrees: “Most of the UX people I know are brilliant and multi-talented with minds like Einstein, the business acumen of Henry Ford, and the passion of Van Gogh. But what role or roles do I need them to support in my organization, at this time, on these specific projects?”

While an obvious takeaway of such comments is for applicants to expose the multi-faceted skill sets during the application process, a more difficult challenge is also
presented here. Such comments point to a need for applicants to be intimately aware of how organizations work rather than simply memorizing talking points from a company’s website a day before the interview.

Constant Collaboration Dictates Need for Personality Fit - The trope of the “hero” designer is one found all too often in design industry literature. A visionary and creative genius, the hero designer is a symbol of top down creative work informed more by art school training than user-centered learning. Not only is the narrative of the hero designer increasingly considered a relic of mid-20th century design culture; it is seen as counter-productive to the increasingly collaborative “design thinking” processes of software and product development teams. Whitney Hess (2012), decries the assumption of a successful hero designer, describing how lack of collaboration can quickly kill momentum in development lifecycle:

I’ve seen some of the most highly skilled designers refuse to collaborate with teammates because it clouds their vision. They keep their methods to themselves, working alone until they’ve reached a solution they’re pleased with. Then they present the direction to their colleagues with a tremendous sense of self-righteousness, only to discover that none of their ideas are technically or operationally feasible. They’ve assumed they know everything without allowing anyone else to do their jobs.

Accordingly, as software development continues to echo the Agile Manifesto’s assertion that “the best architectures, requirements, and designs originate from self-organizing teams,” we’ll see design work that focuses more on shared understanding and collaborative processes to inform the overall product architecture and aesthetic (pg. 5,
Fowler & Highsmith, 2001). Traci Lepore (2014) shares this very idea, stating “It takes many people from many disciplines to create the end product. An ability to work successfully with the different disciplines of product development enhances the strength of the end product.”

This type of collaboration shouldn’t simply be based on an educated guess from looking at an applicant’s materials, writes Janet M. Six (2014), but is often something that a hiring team desires to experience. Referring to popular design exercises (mentioned later in more detail) used during the UX interview processes, Six argues that these sessions shouldn’t “simply test whether a designer can come up with the same type of design solution that you’d expect from a team member who is much more knowledgeable about your problem domain.” Instead, employers will “take a collaborative approach and work with candidates to solve a real design problem, providing the domain-specific information they’d need to come up with a good solution.” This interactive work experience helps hiring teams discern the communicative nuances that might bolster or threaten ideas.

**Strong Communication Skills:**

Having strong communication skills should be an obvious strength and expected characteristic of any applicant for a job in the 21st century workplace. What’s not always so obvious are the modes of communication and varied use of the modes required for specific occupations. Piggybacking on the theme of cultural fit and collaboration, this section will discuss the different typologies of how communication revealed itself in the data as an important factor in UX hiring decisions.
Ability to Effectively and Persuasively Articulate Designs and Research - Among the articles and interviews read for this study, communication was primarily written about as a tool for persuading team members and internal stakeholders on the efficacy of one’s research and design decisions. This topic emerged both as a recommendation for hiring managers but also hiring managers writing to future professionals.

Nathaniel Davis (in Janet M. Six’s (2014) article “How to Spot Good UX Designers”) notes the need for an applicant who can communicate design plans, suggesting that it’s important for employers to “have discussions with candidates to observe their ability to verbally articulate their recommendations.” In a similar mention, Vibor Cipan explains that hiring managers look to see if an applicant “is able to fluently describe…” the apps and interfaces from their portfolios in order to demonstrate the challenges that arose and strategies they employed to overcome those challenges. John Lay (2014) suggests a more dire situation for those who lack persuasive abilities: “So much of UX is about communication…If you can’t argue for and convince people of your ideas, you won’t be able to make it.” And giving a nod to the importance of a solid writing foundation to inform this type of persuasive communication, Susan Farrell (2014) adds, “A good writing course is essential for all UX staff, considering the importance of communicating with other team members.”

Additionally, Tony Parke (2013) and Matthew Magain (2014) write of designers’ persuasive abilities as having necessary storytelling qualities to them. Parke writes, “UX professionals need to tell stories every day in developing their work and explaining the user’s needs to others. This skill is also what hiring managers are looking for during the interview process.” The storytelling component is a key organizing skill for designers who need to process the complex paths users could take through their applications.
Often these paths take on the shape of a simple plot and it takes the designer to articulate where plot lines diverge or hit roadblocks.

*Ability to Work with Diverse and Distributed Teams* - Another common instance of hiring managers discussing communication comes in the form of understanding how to communicate with diverse teams. As mentioned earlier, the increased emergence of multidisciplinary project teams has created an environment where conversations and team tasks might touch on engineering, design, or marketing, with all team members needed to move between these areas effortlessly. Victor Cipan explains this need as a result of the brokering that must go on between different roles in a company.

“[Absolutely] paramount in the case of UX designers is excellent communication skills,” he writes:

> Often, a UX designer will find themselves positioned between developers, business stakeholders, project managers, end-users... To understand their points of view and to be able to come from user needs and app objectives to the final visual design and representation, communication is a must-have skill.

Whitney Hess agrees with this sentiment, asserting that the “best user experience designers aspire to be liaisons between different factions of the business that are not currently working together effectively.” Both Cipan and Hess touch on what Johnson-Eilola (1996) predicted to be some of the key rolls of the symbolic-analyst: broker, circulator, and arranger of information.

Kyle Murphy (2013) takes the liaison role a step further and suggests that its a successful designer who has the ability and experience of not only brokering relationships between diverse team members but also among diverse locations. He suggests that some hiring teams might give designers a “contract project with loose
rules and deliverables to see how they handle communication.” Validating this very point, Traci Lepore explains common communication patterns in her work: “Today, I work with distributed, global teams on a daily basis. Being able to speak in a voice that is clear...helps me to make myself understood—regardless of poor phone or virtual-meeting connections or language barriers.”

*Keeping an External Communication Channel* - Finally, another communication recommendation for those new to the field was to keep a blog or some form of web publication discussing UX-related topics. Chloe Lloyd (2012) explains that keeping “a blog alongside your portfolio can be a great way of...discussing topics relating to user experience.” She writes that this is even more important “if you are largely self-taught, because you may have different insights into certain processes than those with formally *(sic)* schooling.” Such writing not only demonstrates a commitment to self-initiated learning; it gives employers a sense of how an applicant thinks and processes design problems.

**Demonstrate Empathy:**

It’s no surprise that demonstrating empathy for users is a primary skill for anyone who is seriously considering a role as a UX designer. And though it may have been expected as one of the primary skill sets to emerge from the study, an interesting pattern developed of how the authors discussed this emotional quality. Because this “soft skill” is one that can go unseen in interactions with an applicant, many of the authors discusses ways in which applicants might demonstrate how empathy was built into their designs or discuss their empathy building processes.
Research-driven Empathy - One method for designers to demonstrate empathy in job applications/interviews is through research-driven processes. This might either be by showing stages of past projects and the questions that guided their inquiry, or simply explaining methods for gathering hard data, both qualitative and quantitative, on users. A key indicator of designers whose empathy building process is research-based, says Anthony Colfelt (2007), is that they can “separate themselves from an emotional attachment to their own ideas.” Colfelt suggests that hiring teams will get a good sense of this by probing a designer’s ability to analyze data. He writes that some designers will be “happy to make general assumptions” when in reality a strong applicant will have a curiosity and an “exploratory” nature when it comes to discussions of the data. “This skill,” he writes, “is about asking questions and illuminating a subject area in unobvious ways.” Whitney Hess also notes the importance of rich explorations of the data. She writes,

The best user experience designers strive to gather the richest possible information about their target audiences in order to make the most informed design decisions. They don’t like making decisions based on their gut reactions, and assumptions are their worst enemy. They recognize that there are many different answers to the same question, and figure out which answer is the right one for [the] company based on a variety of inputs.

Avoiding assumptions and keeping a critical distance from the data and the design is a central consideration that develops as designers see the role as less about what they can create, and instead more about how they can best serve the user based on what they’ve learned from the data. Janet Six (2012) suggests that this “means learning more about human behavior, group dynamics, research and testing techniques, bread-and-butter psychology that informs how people employ user interfaces, development tools, and
graphic design.” She recognizes that while there are many roles in the UX field, having a focus on research-based design is going to benefit any new designer looking to get their foot into a position.

**Passionate About the Human Element** - While part of demonstrating empathy in one’s work is having a strong command of how research can illuminate the true needs of users, another is having the genuine passion for human needs. Multiple designers have mentioned the need for this passion in their applicants. Whitney Hess, in an explanation that is cross-referenced by two other articles explains this passion:

> The best user experience designers practice UX because they love getting to know people on a very personal level. Their passion in life is connecting with other people and understanding them in ways others don’t. At the most fundamental level, a first-class user experience designer is obsessed with other people’s happiness and has chosen this career in the hopes to change the world. Not because it will make them famous or rich or powerful or get them attention in any way, but because they have the desire to make people’s lives better — and this is the best way they know how to do it.

In other words, the best UX designers don’t view their work as just another job. These are passionate people hungry to improve the lives of the people on the other side of the screen. Before choosing this career path, future designers must decide if they’re more interested in people or pixels. Others talked about designers needing a “certain level of social skills and empathy so they understand end-users’ real needs, expectations, and fears, and see users as real, living people who’ll be using the product” (Cipan, 2014). Additionally, Amy Marquez notes that of all designers she’s worked with, “the truly great ones had one thing in common. If you asked them what their goal in their professional life was, their answer would be ‘to make peoples’ lives easier.’” And while
it’s not advisable to put on a front for interviews and cover letters, it seems this kind of language and demonstration of passion will put an applicant ahead of those simply looking to impress with a spotless portfolio.

**Business and Product Lifecycle Knowledge**

As noted in both the communication and culture fit sections, designers are less frequently holed off in a “creative” wing of their companies. Instead, they’re often sharing team leadership with product managers and must be able to think intelligently about business problems and product lifecycles. They must understand how to determine value and how to balance questions of design feasibility with budget constraints.

**Product & Team Complexity Dictates Need for Business Knowledge:** Most of the authors or excerpts which coded under this theme projected a fairness about the extent to which designers need to be business experts, while still iterating the importance of such acumen. Nathaniel Davis writes, “While UX designers do not need to be business professionals, they should at least be business aware—and comfortable in discussing a business’s goals and balancing them with strategies to meet the needs of the user.” As for what this business knowledge looks like in action, the editorial staff at UXforthemasses state, “[UX designers] will need to be comfortable delivering presentations, writing business cases, dealing with key business stakeholders and handling the inevitable politics that are rife within most organisations.” Additionally, having better business awareness helps designers determine parameters by which to validate their work. Stephen Turbek (2013) writes, “It helps to understand what the people you are working with mean by success...Senior managers are typically more
concerned with defining the overall vision before building the whole project. User research can validate the concept; concept designs can help communicate their vision.”

Other designers suggested that with the UX field increasingly becoming more competitive, business awareness could certainly become a differentiating factor between those who are hired and those who aren’t. Nathaniel Davis (2011) explains that the field is getting more difficult to break into “because of the growing complexity of creating digital products and services that work.” In fact, in his answers to a ten question survey delivered to a handful of prominent UX designers, Justin Cook (in Ogsten 2012) suggests that the one most prominent needs in the newest generation of UX designers is “a stronger understanding and awareness of the entire customer journey; a desire to improve the entire service, rather than just the experience.”

Customer-centric thinking tends to differ with user-centric thinking in the literature as it positions the user as one piece of the entire business problem.

Process vs. Portfolio

One of the most common themes to emerge were statements concerning the value of a designer’s portfolio, specifically if the designer is pursuing a UX design position where he/she will likely being doing work that can’t necessarily be captured or demonstrated on a static screen. Distrust of the portfolio’s merits was also a common concern. Jordan Julien (2014), an independent experience design strategist explained he “wouldn’t use something as obvious as past work to evaluate whether a person is good at something. It’s hard to know the role that anyone’s had in the creation of a thing” (in Six 2014). Additionally, some writers questioned the value of a portfolio in an industry where much of the work of an interaction designer can get locked behind a non-disclosure agreement (NDA), never to be shared with prospective employers.
Because the more nuanced and critical discussions mostly centered on how potential designers demonstrated design processes and approached design problems mostly within the interview process, I will not focus my discussion on the portfolio. In fact, the question of the portfolio’s value seemed to have a mostly unanimous answer from all designers and hiring managers: “Yes, it’s important for getting your foot in the door and to prove you have basic design chops, but we’d rather see how you think.” As a deliverable in the hiring process, a portfolio will show attention to detail, clarity of visual thinking, knowledge of common design patterns, and basic anticipation of user interactions. This section explores the various ways designers should be prepared to demonstrate this thinking.

**Articulate Process** - A common explanation of how hiring managers evaluated new designers was to prompt them to articulate their process of thinking through a design, user needs, and validating prototypes. Many of the cases that coded in this category had plenty of overlap with the communication category and the importance of being able to articulate design decisions. The excerpts here discuss the process itself rather than the communicative aspect of the act.

Speaking from the point of view of a hiring manager, Jordan Julien writes that a portfolio is a good determiner of skill, but applicants should be prepared to answer questions about “approaches to team integration and collaboration, the processes and tools that they use, team environments with which they’re familiar, the ambitions they have, how well they know themselves,” adding that a big part of process description is discussing how well they worked with a team. Also commenting on the limited value of the portfolio, Whitney Hess asserts, “The bottom line is that any decent designer can present you with a slew of impressive screenshots. It’s being able to explain in detail
how they arrived at those screens that differentiates the user experience designer from the visual designer.” It was common to speak of the portfolio as a jumping-off point or a visual aid to inform the meat of the presentation. Hess suggests that the portfolio and a list of titles may not communicate an accurate picture of the applicant; it’s the designer’s mind that a good hiring manager will seek to understand: “I’ve come to learn that it really isn’t about whether someone has the best pedigree, has mastered all the right tools, has memorized all the latest terminology, or has worked on the most recognizable brand names. What matters in a user experience designer is the way they think.” And while articulating a design process based on static artifacts is a common practice with some hiring teams, a much more common approach was to see the designer in action through a take-home design problem or on-site challenge.

*Demonstrate Process On Site/Practice Exercise* - While articulating one’s process was a common mention from hiring managers, a much more common theme was the description or promotion of on-site design practices or collaborative exercises with current employees. By either providing applicants with an exercise to be completed before the interview or by giving applicants a problem and a marker board, employers can garner information about an applicant’s process, personality, performance under pressure, and level of curiosity in their designs.

Many designers reflected on their past experiences on hiring teams concluding that you couldn’t get any better information than from on-site demonstrations. Janet Six touched on this idea with an apt comparison to evaluating other types of performance: “You wouldn’t want to hire a juggler without seeing him juggle. I wouldn’t want to hire a UX designer without seeing him or her do design work—ideally, with the team that person will be working with.” Hess and Cooke agree, with Cooke writing, “Years of
experience and portfolios are useful inputs and metrics, but we are more interested in a candidate’s answers to our questions and their response to the task that we set.” Troy Parke echoes this same thought, suggesting that much of the design expertise that make UX designers successful is often the invisible thinking that happens between the deliverables:

The nature of UX work is hard problems that must be solved collaboratively. Candidates must find ways (however they can) to prove that they’re trustworthy. These are the soft skills that are difficult to demonstrate without a solid personal connection or established career path. To build trust, you will need to show how you work and how you think.

Essentially, Parke is suggesting that when a resume doesn’t show clear training and when the applicant doesn’t have someone in the organization to vouch for his/her skills, it is the responsibility of that applicant to prove a team can trust they have the intellectual chops to get the job done.

Janet Six mentions cases where interviewers may not have set an exercise prior to the interview, but instead surprise a candidate with a set of process deliverables such as wireframes and prototypes. The team might ask the applicant to talk through the process he/she is observing and suggest improvements. Such activities are crucial for companies looking to hire designers who will be joining existing projects without prior knowledge of the problem. Fresh perspectives such as these are great ways to see how a designer’s skill and aptitude at seeing “use” within static designs can augment a team’s collective expertise.
Training

In many of the articles surveyed, education and training were prominent topics. Generally the discussion focused on three primary areas of education: diversity of training, type of degree program, and type of institution. Some writers attempted to ease the concerns of readers who didn’t have degrees or have degrees specific to the field by suggesting that experience generally speaks louder than training. Yet most agreed that some level of university education, rather than academies or online training programs, gave the applicant the best chance at succeeding on the job market and in the job itself.

Educational Background - Because UX is inherently multidisciplinary in its practice and theory, the mention of diversity in college majors was expected. However, a number of authors suggested the training need not be in traditionally UX-associated disciplines at all, but rather areas of study that have some exploration of human needs and cultures. Of all the advice and recommended credentials that came out of this study, such a sentiment bodes well for technical communication students interested in joining the field. Amy Marquez tells her readers to not limit their their work to degrees in Human Computer Interaction or Web Design. “UX designers need to be keen observers of human nature.” She suggests that many can find success with “backgrounds in psychology, anthropology, theater & performance arts, communications, music or other programs that require an understanding of human interactions and collaboration.” Others also made mention of the importance of a degree, placing more focus on the cognitive skills garnered from a degree rather than the technical skills associated with the specific discipline. Steve Baty, Vice President of the Interaction Design Association (IxDA), agrees that a specific degree program won’t necessarily prepare a designer
better than others; however, he notes that “having studied a discipline that teaches a scientific way of thinking is a big advantage...A key skill in user experience is being able to look objectively at evidence and make decisions based on it” (in Six 2012).

In 2014, Susan Farrell & Jakob Nielsen ran a survey for the Nielsen Norman Group, asking current UX designers how to prepare for a career in the field. Regarding college education, the overwhelming takeaway is that it was needed and that diversity is welcomed:

Even though continual on-the-job learning is the most important, 90 percent of respondents had obtained a university degree. There’s no single degree to define the field: design, psychology, and communication were the most common major areas, sharply pursued by English and computer science. All of these fields make some sense as a partial educational background for UX professionals, but together those five disciplines accounted for only 45% of bachelor’s degrees. The majority of UX professionals hold degrees from an immense range of other disciplines, from history to chemistry, most of which don’t have a direct bearing on UX work. Farrell and Nielsen’s study seems to suggest that it is still relatively standard to enter the field with a degree in the social sciences, design, or communication-related disciplines.

Yet, other designers such as Diego Mendez (2013) imply that HCI degrees can still bring more impact than the humanities-related degrees that Farrell & Nielsen mentioned. He writes, “Going to a strong program in Human Computer Interaction, Human Factors etc... has awesome positives. You will learn quickly, get plugged into the community and do a lot of projects.” In fact, Mendez was not the only person who mentioned the community benefits of a degree program. Adrian Howard writes, “A degree will get you an instant network of people in the field of user experience—your
classmates. They’ll all go off to different places and have different work experiences. Keep in touch. You’ll learn a lot from them.” Howard adds, “My having a degree didn’t make me employable. What I did with the contacts and knowledge I obtained in the course of my studies did” (in Six 2012).

Those who did see value in a traditional UX degree such as HCI highlighted the completeness of the training. Steve Baty, while a supporter of a broader base of education, explains that a focused degree “provides you with an opportunity to learn this body of knowledge in a structured manner…A degree program also ensures that you don’t skip over parts, that you lay a solid foundation, and that you do, in fact, apply knowledge in practical ways” (in Six 2012). Mike Byrne also notes that if a designer is specifically looking to get into UX research, most companies will be expecting graduate education: “We’ve placed undergraduates in non-research jobs, but for research-oriented jobs, generally companies have indicated that they want at least a Masters degree” (in Six 2009).

Experience Speaks Louder than Academic Degrees - It seemed that for most authors who mentioned the value education, they almost always finished the conversation with a concession that experience in the field would always be more favorable than the degree. Kenny Chen (2013) suggests that finding small jobs and collecting endorsements after is a wonderful demonstration of experience: “If you freelance … endorsements from the clients show they are happy with your work and can help get you additional work. Endorsements from co-workers show you are great to work with and get the job done.” Matthew Magain suggests that for those just starting out, finding small projects can build nice resumes. “Whether it means spending some time after hours helping a
friend’s small business, a local non-profit, or a personal project,” he suggests applicants “seek out the opportunity to apply some of the theory, and start getting those runs on the board.” Again, weighing in on questions of preparation, Steve Baty writes that of most of the practitioners he knows with more than eight years of experience will tell you they didn’t necessarily need a degree: “They learned by doing; through trial and error; by reading, sharing, and putting what they learned into practice daily.” (in Six 2009).

**Technical Skills**

While many of the themes that arose from the analysis focused mostly on soft skills, personality, and collaboration, technical skills of UX designers were of equal importance to the authors. Many authors are quick to point out that while great UX designers don’t necessarily have to have deep experience in areas such as graphic design, a knowledge and proficiency with the tools designers use is highly desirable. Additionally, as organizations continue to lean out there production cycles, finding UX designers who can prototype their own ideas in HTML and CSS is a boon to product teams that are already stretching their development resources thin. Also, having some semblance of web or software development knowledge provides a shared understanding between design and development teams and allows clearer communication on the requirements and specifications needed to build out a product.

*Traditional Deliverables* - Many of the articles advised that designers looking to get into the UX field have some knowledge of traditional prototyping tools and “create meaningful wireframes, sketches or prototypes in order to show and describe the structural design and presentation of information” (Cipan, 2014). In some cases, it is
fine for designers to use whichever prototyping process they choose, but Troy Parke (2013) suggests that it is in their best interest to learn the standard prototyping tools. He notes that many designers use software such as Axure, Visio, and Photoshop. Jon Lay (2014) also suggests Axure and adds that a lot of designers are currently learning Omnigraffle and a popular cloud-based tool, Balsamiq. In fact, any mention of required skills suggested that a baseline knowledge of wireframing, user flow creation, and mockup design is such an essential for the job, that these abilities are seen as the equivalent of listing “word processing” on a resume. For example, Emil Lamprecht (2014) candidly notes, “After dozens of designer applications and interviews, I’ve heard practically everything. And knowing how to use UX Pin or Balsamiq doesn’t even begin to qualify you.” In other words, if a designer is resting only on tool use and little on other qualities mentioned above, chances of showing oneself to be a credible professional may prove difficult. A more common conversation, however, was the increasing need for designers to be able to code up their own prototypes.

Web Development Languages - Overwhelmingly, authors of the individual articles suggested that having some knowledge of web languages and also knowing how to prototype their own designs would open up many more opportunities than designers who could not do so. Both Jon Lay and Troy Parke find that if designers know how to code, they open themselves up to opportunities working on smaller startup teams. Parke explains, “I’ve seen that if you can’t code, you’ll be restricted to trying to find yourself a job in a larger team where there are coders who can implement your ideas.” Lay takes the discussion a step further, specifically targeting those applicants who have little UX experience:
But I still believe that as someone with zero UX experience, you’ll have a much better chance of getting hired if you can code. I’ve written before about how, for me, designers need to be learning how to code in order to be as effective as possible within a small team or at a startup. Even if you might be able to get a job without knowing how to code, I’d say it still massively boosts your chances of getting hired.

Most of the designers who mentioned web development knowledge argued that prototyping is only one area where designers can be beneficial to their organizations. The other crucial piece is that code knowledge and some sense of the technological feasibility of some tasks makes communication between the designers and developers much easier.

Because the communication between designers and developers regarding feasibility of a design could be the difference between shipping or not, it’s crucial to keep team members on the same page as much as possible. Anthony Colfelt (2007) writes that

Some companies like to have their graphic designers produce CSS, thereby ensuring that every detail is captured in the finished product. When a graphic designer must compromise their design for technical reasons, an acceptable solution is arrived at more quickly with no friction between development and design.”

Jessica Ivins (2014) agrees with Colfelt, and suggests that if novices are worried about “learning to code,” they shouldn’t feel like they need to get overly involved. “You don’t have to master it, but an understanding of front-end web development…is a must for any UI designer, including UX designers…You’ll also need to know how to communicate with the developers or engineers that work with you.” As noted above in
the section on communication, many small teams forgo heavy documentation and specifications writing for a focus more on shared understanding. When the designers and developers can make sure they both are sharing the same understanding, projects can be more successful and ship on time.

Implications for Technical Communication Programs

This article began by illustrating the recent trajectory of technical communication programs, as well as technical communication professionals in industry, to suggest our natural fit within the UX community. With our ability to advocate for users, conduct usability testing, and implement designs based on sound visual communication principles, our programs do prepare students for some of the basics UX professionals expect to find when they’re hiring. However, as Carol Barnum mentioned, technical communication is not always seen as a legitimate background for UX jobs. Additionally, if applicants only have surface knowledge of deliverables or “buzzwords,” as some designers mentioned, they face a difficulty articulating a stable UX identity. Thus, this survey of articles proposed a central question:

• How might we as Technical Communicators best prepare our graduates to understand, develop, and articulate trustworthy identities as UX professionals?

While the findings are limited by the scope of the article survey (thirty one pieces from industry magazines within the last eight years), the patterns that emerged were strong and provide a helpful initial step in considering how to address questions of curricular structure and program outreach.
Redefining Existing Coursework

In many professional and technical communication programs, we currently have courses in place that can be infused with UX assignments that reflect the needs described in the above analysis. Courses such as usability testing, writing for the web, content management system design, and visual communication all have capacity to create learning opportunities favoring the skills that emerged as important in the readings above. Getto, Potts, Salvo, & Gossett (2013) note that only twenty of the seventy two undergraduate technical and professional communication programs listed on the Association for Teachers of Technical Writing’s (ATTW) include dedicated courses on UX design. With the sometimes sluggish movement from departments to adopt new courses, we can at least find ways to bring more UX thinking into the existing courses we do teach. In fact, as Tim Brown (2009) suggests, it is only through constraint that true innovation is possible. By working within the structures of existing courses, we might develop innovative delivery of UX content within our traditional technical communication curricula.

For example, if the outcome of the standard resume, portfolio, and cover letter assignments is to help students produce materials that will eventually get them hired, we need to be able to target students on track for UX careers and help them understand where the value is and isn’t in a portfolio. As multiple writers suggested, if the static portfolios will only get an applicant in the door (at best), we should help students understand the value of process pieces and to leverage their ability to tell stories about their work. We often teach common genre pieces such as analysis memos and activity reports, but due to a sometimes antiquated focus on static deliverables, we rarely suggest to students the value of such story telling as proof of expertise. Because portfolios are fairly flexible genres, we can encourage different ways of shaping
process-focused demonstrations of work to show iterative thinking vs. product-focused creation.

Additionally, as part of the resume and portfolio creation process, we should help students learn to read between the lines on job postings. According to writers such as Susan Farrell and Amy Marquez, educational background for UX designers is not limited to only HCI and design programs. And as Carol Barnum explained in her survey of current job postings, many UX jobs rarely mention technical communication as an applicable major despite the fact that the students could be equally as qualified as students graduating from dedicated design programs. Thus, we have a responsibility to help students match their skills to job descriptions that may not always seem fitting to their education. Afterall, many employers are looking for how people think and how people fit the team culture.

Some writers suggested that applicants benefit from showing examples of communication such as blogging as a way to practice articulating design concepts and to demonstrate expertise. While writing blogs in technical communication courses has become commonplace (or once tried and abandoned), students could be getting more value out of this type of knowledge production. In the case of a web writing or content management course, a blog assignment could be inclusive of all types of needed skills: building the content management system to learn the mechanics of data-driven architectures, discovering and iterating on the design, and finally documenting the process using the blog itself. When teaching the designing and building of such projects, some scholars have suggested that coursework should include tool use, but not necessarily restrict students to any specific software package or product (Getto, Potts, Salvo, & Gossett, 2003). Yet with many of the writers in the surveyed articles suggesting a basic knowledge of common software such as Axure and Illustrator, and with many
organizations relying on these common applications to develop centralized style guides
and pattern libraries, it would be in our best interest to license our labs with these tools
and at least provide them as options in developing these assignments (Gothelf &
Seiden, 2013).

In the process of building anything from static document designs to web
application prototypes, we must also work to dispel the myth of the “hero” designer.
We cannot reserve user-testing methods for usability courses only. From foundational
technical communication to document design, we must instill research-driven design
practices to help our students understand that while design concepts might sometimes
be novel individualized epiphanies, “good” and usable design is most often a
collaborative effort and comes from researching user needs and then using findings to
inform continuous iterations on projects. Such practices also encourage the much-
needed empathy-building required for creating usable and valuable designs.

However, the most effective way to help students develop expertise and show
themselves to be trustworthy designers is to actually do have them do UX work in a
professional environment. Many programs have internship courses already partnering
with local and regional businesses. The work ranges from document design at non-
profit organizations to junior technical writing at product companies. Additionally,
many departments on our campuses have web writing work requiring the expertise we
teach in our programs. The goal we must pursue is to communicate to our industry and
campus partners the value of UX projects our students could develop within these
existing frameworks. For example, if our students are working on projects such as
campus websites, we could help them and their internship host develop a plan to not
only do minimal content management work, but also prototype new layouts and run
basic user research. We should require some form of presentation to our students’
stakeholders at the end of the internship to give them the practice of talking through their design problems and to explain how their work improved communication and use for their user base. Once students can communicate such problems and internalize the value of process reflection, they’ll be comfortable and more convincing discussing such practices with potential employers.

**Augmenting Our Course Catalogs**

In order to promote the development of “T-shaped” people ready for multidisciplinary product teams, we must find the time to guide our students’ path through additional coursework. Some of the best designers, engineers, and business people I’ve met in consulting work and on in-house product teams have all discussed how they strategized the use of their electives to broaden their skill sets as well as develop a shared understanding of other disciplines’ practices and assumptions. One path for extra-discipline coursework that became obvious in the research was a need to understand product management cycles as well as business processes. As Jack Molisani asserted in Barbara Giamonna’s (2004) survey of the technical communication profession and its future, “We are ignorant of how business works. We need to be able to justify our costs against the bottom line. We need to speak ‘CEO’” (p. 31). If we don’t have the space to formally build these courses into our required programs of study, students should be encouraged to pursue basic business and product marketing courses to understand how to build business concerns of value and feasibility into usable designs.


**Teaching Best Practices**

Returning to Rebekka Andersen’s argument that academia needs to direct continued attention to industry trends and practices, those teaching UX-related principles in technical communication programs should be doing more to understand the project development methodologies being used by product teams in the field. Many of the articles in the surveyed dataset discussed how lean and agile methods are requiring that UX designers are better able to work with a variety of team members. What this means for technical communication courses is that not only do we need to prepare students to be conversational across a number of areas of expertise, but we need to train them in well-documented and standardized project management practices.

For example, a user experience methods course might focus on common design practices such as needs gathering, scenario construction, and prototyping, but teach all of these projects through the lens of an agile product team. Too often our semester schedules, rather than curricular concepts, shape how course assignments are introduced and structured. Yet if we are to simulate actual project workflows and help students internalize the challenges of rapid build-measure-learn loops involving multiple stakeholders, we need to allow flexibility in our traditional project-to-project course delivery. For example, project teams could be set at the beginning of the semester with roles such as product manager, user experience designer, content strategist, and scrum master (or delivery manager). Students would spend the first few weeks of a semester reading about and understanding how such teams function. Useful texts for understanding these various roles could include such titles as Shore & Warden’s (2007) *The Art of Agile Development*, Cagan’s (2008) *Inspired: How to Create Products Customers Love*, and Gothelf & Seiden’s (2013) *Lean UX: Applying Lean Principles*.
to Improve User Experience. While the last title isn’t specifically focused on agile
development, it is a brief and enlightening read on how product teams work and how
best to elicit useful data from users and validate designs at lightening speed.

Of course, all of these curricular recommendations are assuming traditional
technical communication programs which have yet to join in interdisciplinary
collaboration with other departments. Where Human Computer Interaction and design
programs already offer such courses, technical communication faculty will need to
communicate how their expertise analyzing and responding to rhetorical situations can
contribute, and why their students are viable candidates as the next generation of user
experience professionals. Michigan State University’s new interdisciplinary program in
Experience Architecture is one example of how UX design education can leverage the
expertise of colleagues across campus to train the holistic product knowledge and
humanities background students will need to succeed in the marketplace. We will see in
time the extent to which such a model is successful.

Forming Professional Connections Outside of Academia

For years, scholars in technical and professional communication programs have
documented the tensions existing within academic and industry communication
channels (Blakeslee & Spilka, 2004; Dicks, 2002; Hayhoe, 1998; Mirel & Spilka, 2002).
The reasons for the disconnect between industry and academia have included lack of
funding in the liberal arts for the type of collaboration scholars desire (Bernhardt, 2002),
the short-term focus of research on the tenure-system (Blakeslee, 2008), the
unwillingness of practitioners to have their work published (Dicks, 2002), and the
imbalance of incentives in classroom-industry collaborations (Blakeslee, 2002).
Additionally, Barnum (2011) suggests that the two communities simply are not
spending enough time attending each others’ events and publishing in each others primary publications.

While some professional organizations such as SIGDOC (Special Interest Group on the Design of Communication) have welcomed a more balanced community of both practitioners and academics, the associated publications and professional meetings are largely read and promoted, respectively, by those in the academic community. If technical communication scholars and their associated programs are to show their relevance to those outside of the academy, we must make targeted efforts to attend practitioner-focused events such as IXDA’s (Interaction Design Association) annual conference as well as conferences sponsored by popular industry publications such as *Smashing Magazine* and *A List Apart*. We should expect that in breaking into these communities, our papers and our talks might not always get accepted at first. But with continued involvement and networking within the community, we might create speaking and writing collaborations.

Academia’s involvement in these communities is crucial for our students’ professional successes for a number of reasons. First, as Barnum noted, UX job ads and job descriptions often suggest a finite set of academic backgrounds as necessary requirements for employment. Through involvement at industry events and in publications, academics can be out in front of this trend advocating for the diverse and expert skill sets of our students looking to join the UX profession. Because part of arguing one’s worth to a company can be largely dependent on the authority of one’s training, it is imperative that technical communication scholars communicate our value. Second, just as shared understanding is a crucial practice on UX product teams, knowledge about current UX practice is not possible if we do not focus our attention on industry and practitioner texts discussing current trends in design studios and in-house
UX departments. While practitioner blog posts and books from the popular O’Reilly series or Peachpit Press do not look or read like the theory-laden journals academics are used to encountering, their thinking and arguments are certainly products of highly theorized and intentional thinking. Some scholars are already highly inclusive of such texts, but their research could do more to interrogate practitioner thinking, not only to stay abreast of the trends, but also to understand the theoretical concerns most important to those in industry. Finally, technical communication programs need to hire from industry in order to bring in individuals who have a wealth of case studies to apply to in-class conversations, as well as fresh perspectives to bring to research. Publication amount as well as extensive teaching experience cannot be determining factors for such hires. Instead, we must simply seek experienced professionals with strong project management and communication skills. Our programs can put initiatives in place to shepherd in practitioner converts, whose native professional cultures are not in the halls of an English Department.

Conclusion

As our programs invite more UX work into the core competencies of the discipline, we will need additional scholars interrogating industry needs and finding ways to respond that will provide our graduates with the most opportunities for success and leadership in their professional environments. While this article provides a base framework of skill sets and practices valued by industry, there is much more technical communication can do as a discipline to discover and teach these needed skills. A recent piece by Sally Henschel & Lisa Meloncon (2014) provides a framework that maps broad industry needs onto an evaluation tool which programs can use to determine where they are strong in attention to industry expectations and where they
need more development. With continued understanding of what the UX community needs as it grows and evolves, focusing the design of a tool on UX industry expectations would help the technical communication discipline make credible arguments for changing course requirements and augmenting the traditional curriculum with more design and user research experiences.

Our long history of evolving to current work practices and moving from support to leadership roles within organizations suggests continued resilience as we shift to meet industry needs. However, in order to leverage the value that such shifts welcome, we need more conversation outside of the discipline. As Carol Barnum suggested, we still have yet to find a voice in professional discussions at UX conferences and within UX and design publications. Some strides have been made with organizations like SIGDOC and its associated publication, *Communication Design Quarterly Review*, to create shared spaces for such conversation. It is not until such conversations grow in number that we’ll be able to lay the groundwork with industry hiring managers and help them seek out our graduates to be the next generation of UX professionals.
APPENDIX: ARTICLES CONSULTED FOR SURVEY OF HIRING PRACTICES


References


This dissertation presented three separate papers considering the ways in which distrust manifests in communication through diagnostic procedures, new media tool usage, and professional identity construction. While seemingly disparate in topic, all three papers are bound by an attention to the invisibility of trust and the various maneuvers communicators must deploy in order to bolster an audience’s confidence in their messages. All three papers provide the field a different contribution, each of which is detailed below.

**Redefining Blast Outcomes**

The first paper, “Legitimizing the Wound: Mapping the Military’s Diagnostic Discourse of Traumatic Brain Injury,” has been accepted by *Technical Communication Quarterly* for publication in 2015. This paper contributes to theory in the sub-discipline of medical rhetoric by expanding on observations of the diagnostic process in cases where the ailment is invisible and the diagnosis is unwanted. Additionally, the paper builds on Annemarie Mol’s (2002) theorizing of a pathological condition as having multiple ontologies by suggesting that where an ailment is invisible, those ontologies are amplified and play a larger argumentative role regarding the severity of a wound or injury.

As mentioned in chapter two, certain policies have changed since the submission of the article regarding the wait time a soldier must incur following exposure to a blast. The US Army currently requires a twenty-four hour isolation from combat for the soldier to undergo observation and evaluation. This wait time provides a new link in
the chain of diagnosis and opens an additional window for military medical professionals to assign and communicate the severity of a brain injury diagnosis. Unfortunately, there remains no single reliable method to produce an accurate picture of the severity of a TBI on a living brain. The most accurate information showing how blasts damage brain tissue currently comes from research at labs such as a Bethesda, Maryland brain tissue repository founded by the Department of Defense in 2013 to study the tissue damage of deceased soldiers (Alexander, 2015). There have been some attempts, however, to detect brain injury through methods other than memory quizzes and brain scans. Some scholars in the medical community are suggesting that it is possible, up to three days after a blast, to detect biomarkers in a blast-affected soldier’s blood stream, which could indicate changes to tau, a neurological protein that is found to be warped and tangled in post-mortem examinations of affected brains (Dabinova, Hayes, & Wang, 2012; Sharma & Laskowitz, 2012).

Such early markers of brain injury could significantly transform the effectiveness of diagnosis by communicating a report of severity officially imbued with the authority of the US military, a key factor which seems to lack certain presence in the diagnostic chain examined in Chapter 2. If these methods can improve the detection of brain injury, technical communication might find a voice more in the prevention of such injuries than in the diagnosis of them.

Specifically, medical researchers are developing more understanding around the differences between traditional concussive events (as found in a football injury) and those resulting from blast shockwaves. Current studies are showing that the brain damage from a blast can originate not only in the skull, but in the rest of the body as well (Alexander, 2015). When a shockwave pounds a soldier’s torso, it sends energy through blood and spinal fluid straight to brain where neurons are fractured,
sometimes without showing any sign of contusion caused by blunt force. What this means for preventative measures is that the understanding around the effectiveness of current helmet and body armor design is deeply flawed. In a recent interview Daniel Perl, a professor of pathology at the Uniformed Services University of the Health Sciences, explains, “I think we’ll have to sit down with the helmet-design people and the body-armor people,” he suggests. “A lot of designs were based on very different assumptions” (qtd in Alexander, 2015). For technical communication, specifically cohorts of scholars interested in medical rhetoric and disciplinary communication, this new understanding of how blasts affect brain tissue merits a variety of studies into how traditional perceptions of medical outcomes are credibly overturned and argued to the manufacturers ultimately tasked with producing the protective devices. Additionally, drawing on Robert R. Johnson’s focus on techne from Chapter 3 as design-situated-in-use, professional communicators might show interest in how biological findings translate into the design and deployment of medical products, as well as the types of proofs used to communicate effectiveness when human subjects aren’t an option in the research and development process.

*Frameworks and Interface Design Education: A Rhetorical Marriage*

The second paper, “Prefab Development Frameworks and the Problem of Ease” is published in the Winter 2013 issue of *Communication Design Quarterly Review*. This paper addresses the increasingly problematic use of web development frameworks and openly available plugins as proof of web development expertise, as well as proof of competent design skills. This paper’s contribution to the field is two-fold. First, for practitioners it promotes an awareness of how tools can be misused due to their ease and availability. Such misuse can lead to diluted rhetorical impact of interfaces and
interactive designs, as well as serious production costs when bugs sideline a project due to an unfamiliarity with a framework. Second, for teachers of web writing and user experience design, the paper serves as a cautionary statement about the emphasis we must put not only on the web development products our students produce, but also on the tools and languages they use to produce them.

Chapter three trained its attention on how novice developers misuse frameworks and code libraries as proofs of expertise and as easy methods for designing interfaces, ultimately risking the creation of rhetorically diluted projects. A recommendation in that article was that professional communication instructors help students understand the reasons behind designs and not simply how to create them. A recent example of how this might be taught is in how product guidelines are written for open source development frameworks.

Many product companies that welcome integration from outside developers, such as Apple and Android app stores, offer product design guidelines to force a consistent look, feel, and behavior for the apps produced using their open-sourced SDKs (software development kits). However, such design guidelines don’t always communicate the reasons and use cases behind such standards.

Recently, Google launched a campaign to standardize the interaction design between all of their products. “Material design” as it is titled, is a visual language “that synthesizes the classic principles of good design with the innovation and possibility of technology and science” (“Material Design,” 2015). Drawing on the metaphor of sheets of physical material, the guidelines describe a cohesive interactional pattern bound by rules of visual communication principles as well as physics. In conjunction with the release of the Material Design campaign, Google also released a code library called Polymer to help developers easily implement the functionality of the new design
specifications. What is interesting here is not that Material Design will surely be the next design buzzword or that Google has added yet another code library to the glut of libraries already on the web. It’s that they’ve added a new code library in conjunction with formal visual and, though they don’t term it as such, rhetorical education. Such a pairing may be a sign of the software engineering world embracing user-centered design practices. But it also presents an engaging example for technical communication programs interested in teaching students to think about interface design through other methods besides traditional rhetorical analyses.

An interface production course might model Google’s pairing of a code library with design education. For example, a semester-long project might be to investigate a popular framework such as Twitter Bootstrap or a code library such as jQuery, and to develop a wiki or other living document that tracks and suggests use cases of various visual and interactive components based on rhetorical theory and visual communication principles. For scholars, this type of classroom project might provide a useful research site for studying effective models that practitioners could use to develop similar theory-infused educational texts for commonly used libraries or in-house frameworks. Developing designs with a strong rhetorical and visual design foundation can ensure the effectiveness and hopefully the perceived legitimacy of the products those tools were used to design.

UX Designers as Boundary Brokers

The third paper, “Teaching a Trustworthy UX Identity in Technical Communication Programs,” will be submitted as an original research article to either the Journal of Business and Technical Communication, or CPTSC’s Programmatic Perspectives. This paper contributes to the field a survey of current UX industry hiring
trends as a possible guideline for helping technical communication programs better prepare students to communicate trustworthy identities as UX professionals.

One possibility for future research around questions of trustworthiness and identity grows out of the findings in chapter 4 that UX designers must now be able to negotiate the various product development responsibilities of all team members, from developers to product managers. With each role on these teams representing a separate domain of expertise, the product essentially exists as the boundary object between team members. In order to communicate needs from marketing to development or from product management to copywriters, a UX professional becomes the boundary broker, a negotiator of sorts, using the product/boundary object to discuss the problem in terms that all team members map different but useful values. Mol’s theorizing of the multiple ontologies present in diagnosis additionally fits such a model: depending on the perspective from which a team members “sees” the product, her understanding of what makes it valuable could vary significantly from others. This predicament holds interesting possibilities for scholars interested in pursuing the UX profession as a research site and also those generally interested in organizational communication. Specifically, looking at lean product teams, professional communication scholars might use the aforementioned theoretical frameworks as the basis for studies regarding strategies used by UX designers to build trusting relationships with varying team members.

A Final Note

These individual conclusions were implicitly stated in the end of each article, and each also suggested implications for the field or our classrooms. Yet while each article had its own implications and paths forward, there remain interesting threads between
some or all three pieces, which together suggest future paths in technical and professional communication.

At their core, the three articles in this dissertation demonstrated theoretical perspectives and methods of observation that illuminate how trustworthiness is created or dismantled. While the methods by which this creation/dismantling happen are contingent and situated within very specific rhetorical dynamics (as seen in the difference in topics), all scenarios leave a similar and recognizable outcome that can act as a first clue for rhetorical investigators seeking answers about why certain communications dissolve. The boundary mapping perspective, which I demonstrated explicitly in chapter two and implicitly assumed in chapters three and four, reveals audience alienation to be a clear outcome resulting across all three cases. From a Burkean perspective, such a result might be a clear example of communicators failing to build consubstantiality—identification—with their audience. In other words, the lack of attention to an audience’s cultural paradigm and/or conventional expectations could be a possibility for such breakdown; however, simply detecting the trace of alienation doesn’t confirm such a cause.

However, the three cases presented in this dissertation do seem to share a similar common cause. Whether it was medical personnel replicating traditional diagnostic procedures on the battlefield, developers deploying cookie-cutter interface modules out of context, or technical communicators applying for UX positions using traditional deliverables, all three cases demonstrate an uncritical replication of genres. For Carolyn Miller (1984) genres are not simply different collections of conventional communication practices that can be used at whim, but instead “typified rhetorical actions based in recurrent situations” (p. 159). In other words, genres are the (temporarily) fossilized patterns that result from a discourse community’s common interactions. For example, a
diagnostic protocol in a hospital might develop from common questions used over decades by a range of doctors; it would then be deployed across an entire hospital system as a conventional way to effectively ascertain information about a patient’s malady. The protocol is effective, in the hospital, because it grew out of the repeated and formed use that developed over years of medical practice. To rip that genre out of its original context and attempt to deploy it elsewhere may be one case that partially creates an environment of audience alienation. Indeed, one result of such a case, as Spinuzzi (2003) has shown, is that automated deployment of genres can quickly produce workarounds, creating audience suspicion against the tools they were strong-armed into using or responding to.

Kenneth Burke (1935/1984a) shared a similar concern for the automating influences of technology and communication, forces that discounted the value of non-technological and humanistic thinking, a condition he termed the “technological psychosis.” He noted this condition arises when positivist representations of reality blind humans to the controlling ideologies of institutions and power structures outrunning our abilities to intervene (p. 44-50). In response to this fear, Burke developed a critical device, “perspective by incongruity,” as a method for breaking from the processes of automated thought. Burke’s concept is important for thinking about problems such as uncritical deployment of genres, specifically for its ability to suggest an approach to communication design that breaks loose comfortable practices and looks to remediate existing genres based on situated action. Much like Orwell’s (1946) concerns regarding cliché and empty language use as devices for obscuring truth, Burke argues that language can misrepresent and mislead when it becomes naturalized in familiar categories of occurrence. Borrowing from Thorstein Veblen, he (1984b) suggests that becoming comfortable with these familiar categories induces a “trained
incapacity,” or a way by which our trained orientation toward the world blinds us from seeing multiplicity of condition. And though “perspective by incongruity” was devised as a method for critics to shape new perceptions of literary and artistic works, it suggests useful methods for re-seeing affordances of existing communication with the goal of reshaping them to better communicate trustworthiness in their new environments.

This collection of articles does not purport to provide a solution to problems of distrust. However, what it can do is model ways in which scholars might better recognize when distrust is a cause of communication breakdown by searching for traces of audience alienation and lying, clues not always obvious on the surface. We must continue to research and teach methods of garnering tacit knowledge and audience assumptions in order to best design communication for specific contexts. By reading rhetorical situations from shifted perspectives, we might begin to map out common causes of distrust and develop frameworks for recognizing the signs before alienation crops up. Through continued research into trustworthiness, our field can, for example, better anticipate the forces that keep information systems from being adopted, notice the triggers that might keep an otherwise-qualified student from pursuing an interested path of study, or help those with stigmatized health problems accept diagnoses and get the help they need. If trustworthiness is, as Aristotle noted, a key method of persuasion, and if rhetoric, as Burke noted, is indeed concerned with the cacophony and chaos of dissimilar communities talking past one another or getting wires crossed when they do connect, our work must focus on questions of building trust between these communities as ways to bridge differences and solve problems.
References


