



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

CAPSTONE PROJECT REPORT

**COMBAT STORIES: CREATING A WEB-BASED
GEOSPATIAL INTERFACE TO RECORD COMBAT
STORIES FOR VALIDATION AND OTHER RESEARCH
PURPOSES**

by

Christopher J. Mellon

June 2015

Project Advisor:
Second Reader:

Michael J. Jaye
Kristen T. Tsolis

Approved for public release; distribution is unlimited

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE June 2015	3. REPORT TYPE AND DATES COVERED Capstone Project Report	
4. TITLE AND SUBTITLE COMBAT STORIES: CREATING A WEB-BASED GEOSPATIAL INTERFACE TO RECORD COMBAT STORIES FOR VALIDATION AND OTHER RESEARCH PURPOSES			5. FUNDING NUMBERS	
6. AUTHOR(S) Christopher J. Mellon				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. government. IRB Protocol number ____N/A____.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (maximum 200 words) This capstone project created a proof-of-concept, web-based geospatial interface to record first-person written combat narratives from U.S. military service members in a story map format. The application compares the service members' geographic-referenced combat stories, called story maps, against the historical record with the intent to validate potentially beneficial aspects derived from service member storytelling. If the stories produce results that are consistent or comparable to other historical records, then one consequence might be that soldier and Marine narratives may constitute an under-explored reservoir of knowledge, observations, and data. The application accomplishes the project's original three goals: recording multiple narratives; turning the multiple narratives into a comprehensive map; and allowing an analyst to compare and contrast the narratives with historical documentation. The second battle of Fallujah in 2004 is this report's case study for testing the application. Using constructed stories from artificial authors, the application's narratives produced equivalent graphic illustrations as compared to the historical maps from the battle of Fallujah. The geographic accuracy of the graphic illustrations, on a par with the historical maps, validated the concept of obtaining service members' combat stories.				
14. SUBJECT TERMS narratives, storytelling, story maps, geospatial information system, combat stories, validation			15. NUMBER OF PAGES 73	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

**COMBAT STORIES: CREATING A WEB-BASED GEOSPATIAL INTERFACE
TO RECORD COMBAT STORIES FOR VALIDATION AND OTHER
RESEARCH PURPOSES**

Christopher J. Mellon
Major, United States Marine Corps
B.S., United States Naval Academy, 2003

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN DEFENSE ANALYSIS

from the

**NAVAL POSTGRADUATE SCHOOL
June 2015**

Author: Christopher J. Mellon

Approved by: Michael J. Jaye, Ph.D.
Project Advisor

Kristen T. Tsolis
Second Reader

John Arquilla, Ph.D.
Chair, Department of Defense Analysis

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

This capstone project created a proof-of-concept, web-based geospatial interface to record first-person written combat narratives from U.S. military service members in a story map format. The application compares the service members' geographic-referenced combat stories, called story maps, against the historical record with the intent to validate potentially beneficial aspects derived from service member storytelling. If the stories produce results that are consistent or comparable to other historical records, then one consequence might be that soldier and Marine narratives may constitute an under-explored reservoir of knowledge, observations, and data.

The application accomplishes the project's original three goals: recording multiple narratives; turning the multiple narratives into a comprehensive map; and allowing an analyst to compare and contrast the narratives with historical documentation. The second battle of Fallujah in 2004 is this report's case study for testing the application. Using constructed stories from artificial authors, the application's narratives produced equivalent graphic illustrations as compared to the historical maps from the battle of Fallujah. The geographic accuracy of the graphic illustrations, on a par with the historical maps, validated the concept of obtaining service members' combat stories.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	PURPOSE AND SCOPE.....	1
B.	LITERATURE REVIEW	2
1.	The History of Written Stories	2
2.	The Importance of Narratives	4
3.	Gaps within Current Interfaces Available on the Internet.....	7
C.	CAPSTONE REPORT STRUCTURE	9
II.	HISTORICAL BACKGROUND ON THE BATTLES OF FALLUJAH.....	11
A.	THE CITY OF FALLUJAH.....	11
B.	THE FIRST BATTLE OF FALLUJAH: OPERATION VIGILANT RESOLVE, APRIL 2004.....	13
C.	FALLUJAH BETWEEN THE TWO BATTLES: ABU MUS’AB AL ZARQAWI, MAY – OCTOBER 2004.....	16
1.	Ahmed Fadel al Khalaylah.....	16
2.	Abu Muhammad al Gharib	17
3.	Abu Mus’ab al Zarqawi	19
4.	Al Zarqawi’s New Narrative and the Effect on Fallujah	21
D.	THE SECOND BATTLE OF FALLUJAH: OPERATION PHANTOM FURY / AL-FAJR, NOVEMBER – DECEMBER 2004.....	24
E.	CONCLUSION	28
III.	COMBAT STORIES INTERFACE APPLICATION.....	29
A.	THE VALIDATION PROCESS.....	29
B.	MODE ONE: TELL YOUR STORY.....	31
C.	MODE TWO: VIEW STORIES.....	35
D.	THE GEOPROCESSING MODEL	36
E.	MODE THREE: VALIDATE MODE 1	39
F.	MODE FOUR: VALIDATE MODE 2.....	40
G.	IMPLICATIONS FROM THE VALIDATION.....	42
IV.	CONCLUSION	47
A.	SUMMARY	47
B.	RECOMMENDATIONS FOR FURTHER DEVELOPMENT	47
1.	Security / Access to the Application	47
2.	Narrative Review before Publishing on the Internet.....	49
3.	Instruction Video Tutorial	49
4.	<i>View Stories</i> Mode Changes: Narrative Clustering.....	49
5.	<i>Tell Your Narrative</i> Mode Improvements	50
6.	Validation Mode Change.....	51
C.	SUGGESTIONS FOR PHASE TWO / IMPLEMENTATION PLAN	51
	LIST OF REFERENCES.....	53
	INITIAL DISTRIBUTION LIST	57

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF FIGURES

Figure 1.	First Battle of Fallujah.	14
Figure 2.	First Phase of the Second Battle of Fallujah.	26
Figure 3.	Second Phase of the Second Battle of Fallujah.	27
Figure 4.	A splash screen first appears with directions for the user to read.....	31
Figure 5.	The green box identifies biographical information and battle-specific attributes a user must fill out.....	32
Figure 6.	The green box identifies the “Create a new story point” dialogue box as it appears to the user. The green circle identifies the point on the map that is associated with where this user’s combat story begins.....	33
Figure 7.	Switching Between Modes: The green box depicts how to switch between the four pages in the application.	34
Figure 8.	<i>View Stories</i> Mode: The green boxes illustrate how the application can filter the map by battle, unit, and/or time.....	35
Figure 9.	<i>View Stories</i> Mode: The green circles depict the multiple events in one narrative that appear after a user clicks on a yellow square. The green box illustrates the pop-up dialogue box that appears once a user clicks on a yellow circle.....	36
Figure 10.	The ArcGIS Narrative Validation Model is used for the validation.	37
Figure 11.	Implementing the Narrative Validation Model: Example A is a resulting polygon from a group of events in the same period of time. Example B is a line showing each individual’s chronological account of the battle. Example C is a red triangle, which is the geographic center of a polygon. Example D is a line linking the red triangles, which is the geographic mean path.	38
Figure 12.	<i>Validate Mode 1</i> View: The yellow circles represent the individual stories and events. The different colored lines differentiate the various authors. The green box depicts how an event can be selected and read.	40
Figure 13.	<i>Validate Mode 2</i> View: Example A is a polygon with low variance among stories; Example B is a polygon with high variance. The green arrow depicts the “outlier” story as compared to the other teal-colored grouped stories, which causes the elongated polygon.	41
Figure 14.	<i>Validate Mode 2</i> illustrates a battalion’s comprehensive narrative. The red triangles indicate the aggregated mean center of the grouped stories, while the black-and-white dotted lines link the triangles according to chronology.	42
Figure 15.	Sign-in page to access the Combat Stories application.	48
Figure 16.	The image on the left is a map before clustering is applied, while the image on the right is a map after clustering is applied. The green circle depicts 31 authors in the Central American region.....	50

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

AKA	Also Known As
AT&L	Acquisition, Technology, and Logistics
CAC	Common Access Card
CPA	Coalition Provisional Authority
DOD	Department of Defense
ESRI	Environmental Systems Research Institute
FSA-OWI	Farm Securities Administration and Office of War Information
GIS	Geographic Information System
IIS	Iraqi Intelligence Service
IO	Information Operations
MEF	Marine Expeditionary Force
RCT	Regimental Combat Team
U.N.	United Nations

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

I would like to thank my capstone project advisor, Michael Jaye, for his inspiration, guidance, and feedback. Without my second reader, Kristen Tsolis, I could not have navigated my way through the Geographic Information System world. I must also thank Thom and Pat for making my thoughts and ideas into reality.

And to “Droopy” Clark, thank you for getting me here.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

A. PURPOSE AND SCOPE

The purpose of this capstone project is to develop a proof-of-concept, web-based geospatial interactive interface to obtain first-person written combat narratives from military veterans and/or active duty personnel. This project will compare a comprehensive *Combat Stories* map with historical documents that ultimately might validate the importance of storytelling.

There are two overarching phases to this endeavor. The first phase involves designing the interface. There are three goals for this design: creating an interface to record multiple narratives; portraying multiple narratives on a comprehensive map; and comparing and contrasting the comprehensive map with historical documents. The comprehensive map of multiple narratives is considered a story map, which is a way of organizing and presenting information using geography.¹ A follow-on project (second phase) would gather actual narratives of a particular battle, employ the geospatial interface, and then analyze the comprehensive map of the battle by comparing it against available historical records.

This project uses the second battle of Fallujah in 2004 as a case study. There are two main reasons for selecting the second battle of Fallujah. First, this battle is well documented in published books and articles. Since part of this capstone seeks to test the validity of the story map of collected narratives, the story map needs to be compared to the historical records, which are readily available. The second reason for selecting this battle is because of the broad range of associated narratives. While a U.S. Marine general commanded the battle for Fallujah, various units were involved with ground operations, including units from the U.S. Marine Corps, U.S. Army, and U.S. Navy. Due to the broad representation of services in this battle, this project has a higher likelihood of collecting

¹ “What is a Story Map?” Environmental Systems Research Institute, accessed April 14, 2015, <http://storymaps.arcgis.com/en/articles/what-is-a-story-map/>.

multiple narratives discussing ground operations. The use of various services increases the ability to develop a more well-rounded story map from multiple perspectives.

Before going any further, the meaning of *narrative* needs clarification. According to *Merriam-Webster*, a narrative is “a story that is told or written.”² To narrow the focus further, this report uses award-winning author Samuel Hynes’ definition of *personal narrative* as “first-person writings in prose by participants in the events recorded.”³ In this context, the narrative will not be judged as to its accuracy. The narrative will be a compilation of multiple stories written by the service member who portray events from his or her unique perspective and memory. This capstone report considers narrative and storytelling synonymous.

B. LITERATURE REVIEW

This capstone report’s literature review has three main goals: to provide a brief history of written storytelling; to explain the importance of written storytelling; and to highlight the gaps within current Internet offerings that record combat narratives.

1. The History of Written Stories

The concept of communication through storytelling draws its roots from antiquity.⁴ The following three examples are some of the most famous written narratives in history. The oldest story ever written, recorded more than 4,000 years ago in the ancient city of Babylonia, is *The Epic of Gilgamesh*.⁵ While the story recounts multiple adventures by a legendary king, *The Epic of Gilgamesh* brings up issues of morality, creating civilizations, and eternal life. Over 1,200 years later, the *Iliad* and the *Odyssey*

² *Merriam-Webster OnLine*, s.v. “narrative,” accessed February 23, 2015, <http://www.merriam-webster.com/dictionary/narrative>.

³ Samuel Hynes, *The Soldiers’ Tale: Bearing Witness to Modern War* (New York: Penguin Books, 1997), xiv. Hynes won a Robert F. Kennedy Book Award for *The Soldiers’ Tale* in 1998.

⁴ Tanja Buttler and Stephan Lukosch, “On the Implications of Lessons Learned Use for Lessons Learned Content,” *Proceedings of the 13th International Conference on Knowledge Management and Knowledge Technologies* (September 4–6, 2013, Graz, Austria), 2.

⁵ David Damrosch, *The Buried Book: The Loss and Recovery of the Great Epic of Gilgamesh* (New York: Henry Holt, 2007), 240–246 and Morris Jastrow and Albert T. Clay, *The Epic of Gilgamesh: An Old Babylonian Version* (New Haven, CT: Yale University Press, 1920), 11.

were recorded. Even though there is debate on when exactly they were written, since they were spoken first, the famous Greek poet Homer created the stories in the eighth century BCE.⁶ Homer's purpose was to convey the events of the Trojan War and the experiences of Odysseus on his way home. The final example is the Hebrew Bible that is composed from Old Testament stories, which were written by the third century BCE.⁷ These various narratives convey the meaning of the foundations of the Jewish faith.

In order to bring the history of storytelling into the twentieth century, let us look at four examples of the influence of personal narratives in the two world wars. In writing his dissertation in 1989 at Brown University, U.S. Air Force officer Thomas Bowie shows how the World War I Battle of the Somme is depicted by "an array of personal, historical, and literary narratives oriented around firsthand views of battle experience," such as personal letters, journalistic dispatches, diaries, and epic poetry.⁸ Bowie accomplishes this depiction of the battle by *a narrative matrix*, which is "a web of narratives that individually and collectively seek to convey the overwhelming experience of a particular Great War battle."⁹

Moving from World War I to World War II, Anne Frank's diary is one of the most powerful first-person perspectives of Jewish persecution during the Holocaust that gives insight and understanding into this affair.¹⁰ Personal narratives can take many forms such as memoirs, diaries, and journals. A diary is one form of a personal narrative that can give eye-witness accounts: author Iris Chang's book provides first-hand accounts of the Nanking holocaust in World War II when the capital city of Nationalist China fell to the Japanese and seven weeks of "mass execution of soldiers and the slaughtering and raping of tens of thousands of civilians took place."¹¹ Chang relies on first-person

⁶ Pierre Vidal-Naquet, *The World of Homer* (Paris: Perrin, 2000), 19.

⁷ John Riches, *The Bible: A Very Short Introduction* (Oxford: Oxford University Press, 2000), 37.

⁸ Thomas G. Bowie, Jr., "An I for an Eye: Personal Narrative and the Great War" (PhD dissertation, Brown University, 1989), 47.

⁹ Bowie, "An I for an Eye," 47.

¹⁰ Andy Alaszewski, *Using Diaries for Social Research* (London: SAGE, 2006), 17.

¹¹ Iris Chang, *The Rape of Nanking: The Forgotten Holocaust of World War II* (New York: Basic Books, 1997), XII.

narratives, such as the diary of John Rabe, a German businessman who sought to help the Nanking population, to depict this event. The final example is from author, historian, and broadcaster Studs Terkel, who won the Pulitzer Prize for his work "*The Good War*": *An Oral History of World War II*. Terkel collected first-person stories of over 100 various people's experiences, which incalculably help the reader comprehend the World War II era.¹²

2. The Importance of Narratives

This project follows the premise that narratives hold meaning and importance. There are three main reasons for this premise: narratives can be a form of communication; narratives can be an alternate way to understand the past; and, narratives can help educate. The following section illustrates the scholarly validation for this premise.

First, narratives are an important aspect to a culture's communication. In 1983, William Kirkwood proposed that storytelling has more significance than mere religious connotation and can be thought of as a form of communication.¹³ According to Kirkwood, the importance of storytelling was relegated to mainly religious connotation, largely via parables. Since Kirkwood shared this perspective on storytelling, the scholarly arena of communication through narration has exploded.

Walter R. Fisher first hinted at a second paradigm for human communication in 1978.¹⁴ He did not formulate this theory until 1984 after reading Alasdair MacIntyre's *After Virtue: A Study in Moral Theory* when Fisher took note that "man is in his actions and practice, as well as in his fictions, essentially a story-telling animal."¹⁵ Up until

¹² Studs Terkel, "*The Good War*": *An Oral History of World War II* (New York: Pantheon Books, 1984).

¹³ William G. Kirkwood, "Storytelling and Self-Confrontation: Parables as Communication Strategies," *Quarterly Journal of Speech* 69, no. 1 (February 1983): 59–60.

¹⁴ Walter R. Fisher, "Toward a Logic of Good Reasons," *Quarterly Journal of Speech* 64, no. 4 (December 1978): 376 and 378.

¹⁵ Alasdair MacIntyre, *After Virtue: A Study in Moral Theory* (Notre Dame, IN: University of Notre Dame Press, 1981), 201. Walter R. Fisher, "Narration as a Human Communication Paradigm: The Case of Public Moral Argument," *Communication Monographs* 51 (March 1984): 1.

1984, the leading paradigm for human communication was the traditional rational paradigm. While Fisher acknowledges that earlier scholars began to identify the significance of alternate means of communication (i.e., political and legal communication),¹⁶ he proposed the theory of *narrative paradigm* as another interpretation to describe human communication. Fisher's narrative paradigm proposes humans as *homo narrans*, or storytelling person, and he defines *narration* as "a theory of symbolic actions—words and/or deeds—that have sequence and meaning for those who live, create, or interpret them."¹⁷

In 1986, David Carr contributed to the narrative paradigm by stating "narrative is our primary (though not our only) way of organizing our experience of time, and understood in this sense it can elucidate our pre-theoretical past."¹⁸ While Carr believes it is important to capture individual experiences, the clearest picture of an event evolves after gathering multiple individual perspectives and placing together for a group picture.¹⁹ This report concurs with Fisher and Carr that narratives are a form of communication and that multiple perspectives provide the clearest picture. This capstone project is not comparing and contrasting single narratives against historical documents;

¹⁶ Fisher refers to W. Lance Bennett and Martha S. Feldman, *Reconstruction Reality in the Courtroom: Justice and Judgment in American Culture* (New Brunswick, NJ: Rutgers University Press, 1981); W. Lance Bennett, "Political Scenarios and the Nature of Politics," *Philosophy and Rhetoric* 8, no. 1 (March 1975): 23–42; W. Lance Bennett, "Storytelling and Criminal Trials: A Model of Social Judgment," *The Quarterly Journal of Speech* 64, no. 1 (February 1978): 1–22; Thomas B. Farrell, "The Tradition of Rhetoric and the Philosophy of Communication," *Communication* 7 (1983): 151–180; W. B. Gallie, *Philosophy and Historical Understanding* (New York: Schocken Books, 1964); Leonard C. Hawes, "The Reflexivity of Communication Research," *Western Journal of Speech Communication* 42 (1978): 12–20; Louis O. Mink, "Narrative Form as a Cognitive Instrument," in *The Writing of History*, ed. R.H. Canary (Madison, WI: University of Wisconsin Press, 1978): 129–149; Calvin O. Schrag, *Rhetoric, Hermeneutics, and Communication*, Unpublished manuscript (Purdue University, Department of Philosophy, 1984); Robert L. Scott, "Evidence in Communication: We are such Stuff," *Western Journal of Speech Communication* 42 (1978): 29–36; Herbert C. Simons, "In Praise of Muddleheaded Anecdotalism," *Western Journal of Speech Communication* 42 (1978): 21–28. In Fisher's follow up article "Clarifying the Narrative Paradigm," *Communication Monographs* 56 (March 1989): 55–58, he additionally lists three previous books on narrative and communication: M. M. Bakhtin, *The Dialogic Imagination*, trans. Caryl Emerson and Michael Holquist (Austin, TX: University of Texas Press, 1981); Frederic Jameson, *The Political Unconscious: Narratives as a Socially Symbolic Act* (Ithaca, NY: Cornell University Press, 1981); Jean-Francois Lyotard, *The Post-Modern Condition: A Report on Knowledge*, trans Geoff Bennington and Brian Massumi (Minneapolis, MN: University of Minnesota Press, 1984).

¹⁷ Walter R. Fisher, "Narration as a Human Communication Paradigm: The Case of Public Moral Argument," *Communication Monographs* 51 (March 1984): 1–2.

¹⁸ David Carr, *Time, Narrative, and History* (Bloomington, IN: Indiana University Press, 1986), 4–5.

¹⁹ Carr, *Time, Narrative, and History*, 5 and 122.

rather, the project's goal is combining multiple individual narratives into a larger comprehensive story in order to compare this larger story with official or alternate historical battle narratives.

The second reason why first-hand narratives are important is that they are another means to convey the past. History does not have to be elucidated purely from statistics. In 1986, Martin Wallace commented, "Philosophers of history have shown that narration is not just an impressionistic substitute for reliable statistics but a method of understanding the past that has its own rationale."²⁰ Storytelling should not be relegated to only children's bedtime stories or religious parables. Comparing the validity of compiled narratives into one comprehensive picture with historical documents can help show the importance, or lack thereof, of capturing individual narratives from combat battles.

Last, narratives can serve to educate. In 1997, Gary Kenyon and William Randall stated that "to be a person is to have a story. More than that, it is to *be* a story."²¹ Each person involved in a combat battle has his/her own perspective about what occurred. Phase two will be able to assess if these individual stories share more insight into a combat battle than what is represented in the historical documents. Robin Mello illustrates the essence and educational importance of storytelling by stating, "When we share narratives with others, insights and social knowledge evolve."²² This project ultimately takes steps toward validating if service members' narratives hold the essence of what historical records portray. It is also important to realize that stories serve to educate and understand something.²³ Gathering a wider base of personal narratives from the battle of Fallujah may illuminate new lessons learned not previously documented.

²⁰ Wallace Martin, *Recent Theories of Narrative* (Ithaca, NY: Cornell University Press, 1986), 7.

²¹ Gary M. Kenyon and William L. Randall, *Restoring Our Lives: Personal Growth Through Autobiographical Reflection* (Westport, CT: Praeger, 1997), 1.

²² Robin A. Mello, "Collocation Analysis: A Method for Conceptualizing and Understanding Narrative Data," *Qualitative Research* 2, no. 2 (August 2002): 233. doi: 10.1177/146879410200200206.

²³ David Snowden, "Story Telling: An Old Skill in a New Context," *Business Information Review* 16, no. 1 (March 1999): 32.

3. Gaps within Current Interfaces Available on the Internet

The purpose of this capstone is to develop a geospatial interactive interface to obtain combat narratives. The two key aspects to this are combining multiple narratives into a comprehensive map and comparing the comprehensive map to a historical map.

Currently, four main Internet sites offer web-based interactive maps to visualize written narratives. Additionally, three different sites have compiled multiple first-person veteran narratives, but these sites do not have a geospatial component. There are two overarching gaps among these seven sites. First, none has combined both multiple, first-person written narratives with a geospatial story map. Second, while these seven sites offer first-person narratives and geospatial story maps, none of these sites has attempted to compare a story map narrative with historical records. Below is a brief synopsis of each interface.

Story Maps by ArcGIS Online: Jack and Laura Dangermond first founded Environmental Systems Research Institute (ESRI) in 1969 with the mission to evaluate geographic information for environmental decision planners.²⁴ Today, ESRI supplies web-based Geographic Information System (GIS) software for interfaces. ESRI uses ArcGIS online to allow users to create *Story Maps*, which is the use of interactive maps to tell one's story.²⁵ One military-related story map created by ESRI is of the battle of Gettysburg.²⁶ While the web-based geographic map does a good job portraying the decisive moments in the battle on a timeline, it does not allow the recording of personal narratives. Other than the Gettysburg battle, ESRI does not have any other story maps relating to military history.

StoryMapJS: Since 2013, Northwestern University's Knight Lab has offered a website at no cost for users to tell a story from a geographic map.²⁷ StoryMapJS also allows the user to connect photos, videos, additional historic maps, and other image files

²⁴ "ESRI History," Environmental Systems Research Institute, September 3, 2014, <http://www.esri.com/about-esri/history>.

²⁵ This website is located at <http://storymaps.arcgis.com/en/> or <http://www.arcgis.com/home/>.

²⁶ This website is located at <http://storymaps.esri.com/stories/2013/gettysburg/>.

²⁷ This website is located at <http://storymap.knightlab.com/>.

to the map, in order to detail the timeline of the story. Currently, there are no historic military events captured on this site nor does this interface allow multiple users to collaborate on a single story map. Whoever creates the story map is the only one allowed to edit the story. Multiple narratives cannot overlay on one story map.

Yale University's Photogrammar Project: From 1935 to 1945, the United States' Farm Securities Administration and Office of War Information (FSA-OWI) officially documented over 170,000 photographs in response to both the Great Depression and World War II. In 2011, Lauren Tilton, Taylor Arnold, and Laura Wexler, two graduate students and one professor from Yale University, created an interface to link the digital files of the photographs, stored at the Library of Congress, with an interactive web-based map that allows users to gather data based on the visual representation of the map.²⁸ Tilton gave an example that "a user will be able to quickly plot the percentage of military images collected by month and location or see a gallery of sharecropping images created in Georgia."²⁹ While the web-based map allows multiple users to gather data and share with one another, this site only concentrates on the 170,000 photographs taken between 1935 and 1945.

WebMapSolutions: This company specializes in offering interfaces for creating story maps. While the company strives to help returning veterans, it is limited to creating a story map tracking 'military recognition banners' that honors a veteran with his or her picture on a banner hung from a lamp post throughout a particular city within the United States.³⁰

War-Stories: This website began in 1995 with the intent of capturing personal stories from veterans from the Vietnam War.³¹ This website allows veterans to share their personal narrative as well as upload photos and other relevant information. While the site has collected more than 500 stories since inception, the website does not attempt

²⁸ This website is located at <http://photogrammar.yale.edu/>.

²⁹ "Photogrammar Project Garner's Support from NEH," Yale Graduate School of Arts and Sciences, September 4, 2014, <http://www.yale.edu/graduateschool/publications/news/201111/photogrammar-image-database.html>.

³⁰ This website is located at <http://www.webmapsolutions.com/military-recognition-banners#more->'.

³¹ This website is located at <http://www.war-stories.com/warstory-5-author-title-az.htm>.

to link stories to a geospatial map nor does it try to combine related stories to a particular battle or operation.

Uncover “Her”story: Women in Military Service for American Memorial Foundation, Inc., offers a web-based interface that allows a user to click on a particular state within the United States, which then opens a portal to multiple woman veterans who have served and shared their personal story.³² The site’s limitation is that the stories stored on the site are categorized on the map in relation to what U.S. state the veteran originated from; there is no link to the timeframe, war, operation or geographic region they served in.

Veterans’ Stories from Around the State: Texas Capital Vietnam Veterans Monument offers an interactive map that has compiled 90 stories from Texan Vietnam veterans and used an interface to link them according to their hometown within Texas.³³ Again, this site does not attempt to link the stories to the geographic location where each veteran served during the Vietnam War; as well as, the site is limited to Texan Vietnam veterans.

C. CAPSTONE REPORT STRUCTURE

This report begins by providing the historical background on the 2004 battles of Fallujah. In Chapter III, the interface features are described along with an example of how the results would appear for the comprehensive story map. In Chapter IV, the conclusion contains a summary, recommendations for further development, and suggestions for the second phase.

³² This website is located at <http://www.womensmemorial.org/Membership/RegStateMap.html>.

³³ This website is located at <http://tcvvm.org/living-monument/interactive-map/>.

THIS PAGE INTENTIONALLY LEFT BLANK

II. HISTORICAL BACKGROUND ON THE BATTLES OF FALLUJAH

On March 31, 2004, four Blackwater USA security company contractors were ambushed by locals in Fallujah while escorting a two-vehicle convoy.³⁴ Their bodies were mutilated, burned, dragged through the streets, and eventually hung from a bridge over the Euphrates River; this incident became known as the Blackwater bridge incident. Images were broadcast worldwide; a strong wave of reaction emerged in the United States. In order to capture the assailants, Operation Vigilant Resolve, now known as the first battle of Fallujah, began on April 4, 2004.³⁵ Most Marines know about the spark that ignited the first battle of Fallujah. Even more Marines know that the failure to finish the first battle eventually led to the second battle seven months later. This chapter is a review of the two battles: an overview of the actual city of Fallujah; the conduct of the first battle; the al-Qa'ida leader who rose to power and ultimately caused the second battle; and the execution of the second battle. The intention of this chapter is to illustrate two of the historical maps that will form the validation baseline for the individual and comprehensive narratives.

A. THE CITY OF FALLUJAH

Fallujah is known as the City of Mosques for its nearly one hundred green-domed places of worship throughout the city.³⁶ The main road that runs through the city of Fallujah is a key line of communication, linking Saudi Arabia with Turkey and Syria, as well as Syria and Jordan with Iran; accordingly, Fallujah naturally becomes “a way station for merchants, smugglers, and thieves crossing the desert.”³⁷ Fallujah is located

³⁴ Bill Ardolino, *Fallujah Awakens: Marines, Sheikhs, and the Battle Against Al Qaeda* (Annapolis, MD: Naval Institute Press, 2013), 162.

³⁵ Dick Camp, *Operation Phantom Fury: The Assault and Capture of Fallujah, Iraq* (Minneapolis, MN: Zenith Press, 2009), 56 and 63.

³⁶ Vincent L. Foulk, *The Battle for Fallujah: Occupation, Resistance and Stalemate in the War in Iraq* (Jefferson, NC: McFarland, 2007), 4 and Camp, *Operation Phantom Fury*, 16.

³⁷ Camp, *Operation Phantom Fury*, 11.

inside Iraq's Sunni Triangle,³⁸ which is dominated by an extremely close tribal structure. Due to the high degree of commitment to tribal life, Saddam Hussein "heavily recruited members of these clans and tribesmen into his elite Republican Guard and the Iraqi Intelligence Service (IIS) and provided them privileges to ensure at least some loyalty to his regime," according to author Dick Camp, historian for the Battle of Fallujah.³⁹

In March 2003, a month after the invasion of Iraq, 1st Battalion, 325th U.S. Airborne Infantry Regiment entered Fallujah, setting up its headquarters on the main street in the heart of the city at a former Baath Party headquarters; 150 soldiers also set up at an abandoned school a few hundred yards south.⁴⁰ A few days later on Saddam Hussein's birthday, April 28, 2003, a crowd of approximately 250 people went to the school to protest the Americans' presence. Soon after dark, several Iraqis fired their AK-47s into the air as a sign of protest, yet the soldiers from the 82nd Airborne misinterpreted this as a threat, and in the confusion, the soldiers fired upon the crowd. Fifteen locals were killed, yet no Americans were injured, which *Al Jazeera* news station broadcast worldwide.⁴¹

The Coalition Provisional Authority (CPA), headed by Ambassador L. Paul Bremer, issued two orders in May 2003 that disestablished the Baath Party and disbanded the Iraqi Army. Tensions quickly rose within the country, especially in the city of Fallujah, due to the high number of Iraqis formally employed by Saddam Hussein.⁴² This led to increased lawlessness, unemployment, and frustration within the city of Fallujah. A locally elected Shura Council regulated the city after Hussein's removal in order to keep

³⁸ While most Arab countries are predominately Sunni Muslims, Iraq is one of the few countries where Sunni Muslims are the minority of the population; roughly 20%. While Iraq's majority population is Shi'a Muslims, the Sunni Muslims are the dominate majority within the Sunni Triangle, which is defined by roughly drawing a triangle around the south side past Baghdad, the west side near Ramadi and the north near Tikrit. Loretta Napoleoni, *Insurgent Iraq: Al Zarqawi and the New Generation* (New York: Seven Stories Press, 2005), 194.

³⁹ Camp, *Operation Phantom Fury*, 13.

⁴⁰ Camp, *Operation Phantom Fury*, 17.

⁴¹ Bing West, *No True Glory: A Frontline Account of the Battle for Fallujah* (New York: Bantam Books, 2005), 12 and Camp, *Operation Phantom Fury*, 18.

⁴² Camp, *Operation Phantom Fury*, 20.

order. While U.S. forces initially set up within the city, coalition forces were forced to maintain distance from outside the city by June 2003 due to insufficient personnel.⁴³

B. THE FIRST BATTLE OF FALLUJAH: OPERATION VIGILANT RESOLVE, APRIL 2004

On March 24, 2004, I Marine Expeditionary Force (I MEF), under the command of Lieutenant General James T. Conway, took over control of Fallujah from the 82nd Airborne.⁴⁴ One week later, the famous Blackwater bridge incident occurred. General John P. Abizaid, U.S. Central Command commander, and Lieutenant General Ricardo S. Sanchez, commander of all coalition forces in Iraq, recommended against an immediate offensive in Fallujah in response to the Blackwater incident. Secretary of Defense, Donald Rumsfeld, disagreed with their assessment and took the plan to President George W. Bush, who approved the future operation named Operation Vigilant Resolve.⁴⁵

Two of the four objectives of Vigilant Resolve were to “eliminate Fallujah as a safe haven for Sunni insurgents; . . . [and] capture or kill the perpetrators of the Blackwater ambush.”⁴⁶ Conway tasked his Ground Combat Element leader, Major General James N. Mattis, to plan the operation. The plan called for three Marine battalions, under the command and control of Regimental Combat Team 1 (RCT-1), to cordon and then begin a sweep of the city. A cordon was set by 3 April while 2d Battalion, 2d Marines set up a blocking position on the southern edge of the city. The plan called for the two maneuver elements to sweep the city from opposite sides of the city with the intention to squeeze the insurgents into the middle. 2d Battalion, 1st Marines began from the northwestern corner of the city and focused south by southeast. At the same time, 1st Battalion, 5th Marines would begin from the southeastern corner of the city and focus northwest.⁴⁷ Figure 1 shows the illustration of the plan:

⁴³ Camp, *Operation Phantom Fury*, 20.

⁴⁴ Foulk, *The Battle for Fallujah*, 20.

⁴⁵ Ricardo S. Sanchez with Donald T. Phillips, *Wiser in Battle: A Soldier's Story* (New York: HarperCollins, 2008), 331–333 and Camp, *Operation Phantom Fury*, 56.

⁴⁶ Sanchez, *Wiser in Battle*, 332 and Camp, *Operation Phantom Fury*, 63.

⁴⁷ Kenneth W. Estes, *Into the Fray: U.S. Marines in Iraq, 2004–2005: U.S. Marines in the Global War on Terrorism* (Washington, DC: U.S. Marine Corps Historical Division, 2011), 34–35.

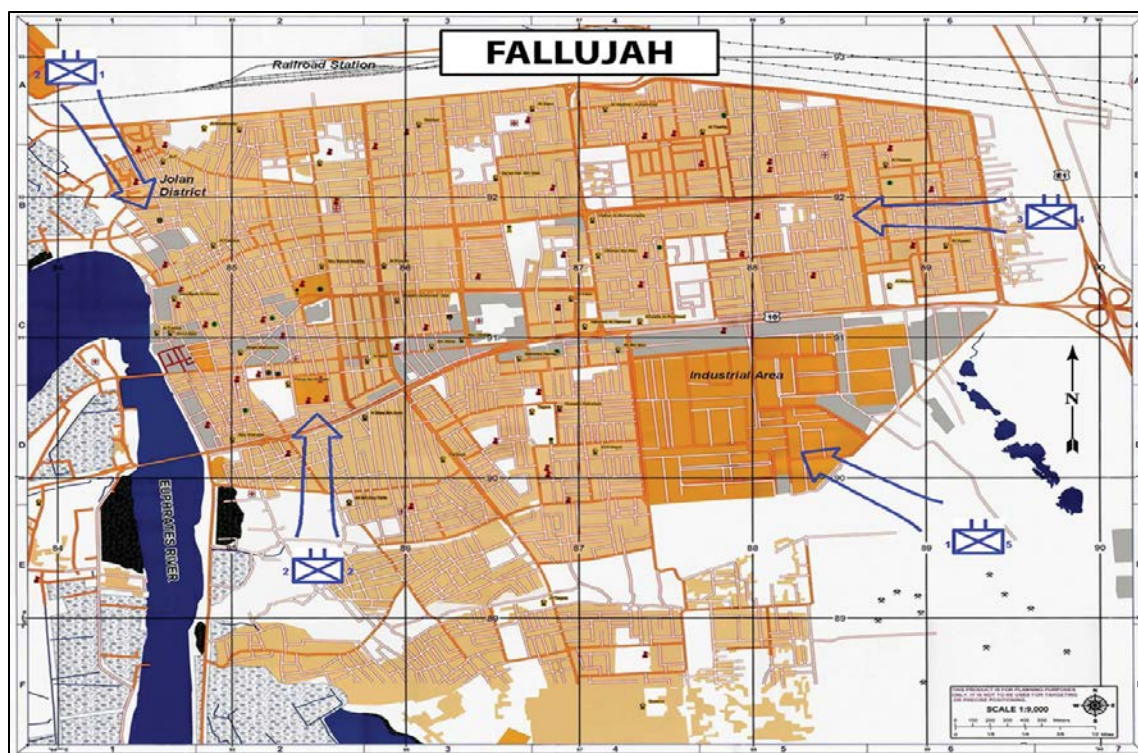


Figure 1. First Battle of Fallujah.⁴⁸

The assault on Fallujah began early morning on 6 April. On the same day, Mattis ordered an additional battalion from Regimental Combat Team 7 to join the battle. 3d Battalion, 4th Marines arrived on 7 April in the northeastern corner of the city and began sweeping westward.

Soon after the onset of fighting, a media frenzy began. General Sanchez, commander of all Coalition forces, recounts:

The fighting was house-to-house and door-to-door. It was fierce, bloody, and extraordinarily aggressive. . . . Al-Jazeera's television cameras and reporters showed up just at the right time to record major attacks against coalition forces . . . selective editing, and a reporter who consistently portrayed the side of the Sunnis incited resistance against the coalition.⁴⁹

⁴⁸ Estes, *Into the Fray*, 41.

⁴⁹ Sanchez, *Wiser in Battle*, 348 and 352

Reporter Ralph Peters concurs with this perspective that “the Marines in Fallujah weren’t beaten by the terrorists and insurgents, who were being eliminated effectively and accurately. They were beaten by Al Jazeera. By lies.”⁵⁰

According to General Sanchez, the Bush administration felt the pressure of the upcoming June 30 transfer of authority from the CPA to the Iraqi interim government, as well as the U.S. November elections. On 9 April, only days after the commencement, Bremer met with Abizaid and Sanchez to tell them to cease offensive operations.⁵¹

While I MEF was ordered to halt the assault, coalition forces still operated within the city from April 9–30. On May 1, 2004, I MEF withdrew all units from the city and conducted a transfer of authority to the Fallujah Brigade. Dick Camp’s investigative research into *Operation Phantom Fury* highlights that “Al Jazeera and Al Arabiyah provided extensive coverage of the insurgents’ version of the story. Fallujah became a symbol of resistance.”⁵² Even with the local Fallujah Brigade in charge, the situation grew worse as Fallujah became a safe haven for anti-coalition fighters. In *Fallujah Awakens*, author Bill Ardolino succinctly articulates:

As the insurgency began to coalesce in and around Fallujah in 2004, it morphed from being comprised of mostly former Baathist military personnel to a conglomeration of groups led by one of Iraq’s most prominent nationalist and Sunni religious figures [Harith al-Dhari, the chair of the Association of Muslim Scholars]. In addition, a new component began to insert itself into Iraq, the foreign mujahidin. Dhari and other Sunni insurgents welcomed or tolerated these foreign fighters, including al Qaeda-affiliated radicals, as visiting allies.⁵³

Abu Mus’ab al Zarqawi was one of the leaders of the foreign fighters invited into the city after April 2004, which ultimately led to the second Battle of Fallujah seven months later.

⁵⁰ Camp, *Operation Phantom Fury*, 90.

⁵¹ Sanchez, *Wiser in Battle*, 354–355 and Estes, *Into the Fray*, 38.

⁵² Camp, *Operation Phantom Fury*, 79.

⁵³ Ardolino, *Fallujah Awakens*, 162.

C. FALLUJAH BETWEEN THE TWO BATTLES: ABU MUS'AB AL ZARQAWI, MAY – OCTOBER 2004

Abu Mus'ab al Zarqawi was not the traditional al-Qa'ida leader in the sense that he was not a person from wealth like Usama bin Ladin, nor a person of education like Abdallah Azzam, nor a prolific writer like Abu Mus'ab al-Suri; yet, al-Zarqawi ultimately became al-Qa'ida's senior representative in Iraq in October 2004 when he pledged his allegiance to bin Ladin.⁵⁴ Al Zarqawi is one of al-Qa'ida's leaders who had many different faces. This next section shows how al-Zarqawi became the future al-Qa'ida leader in Iraq. Three main phases in al-Zarqawi's life must be understood- when he was called (1) Ahmed Fadel al Khalaylah, (2) Abu Muhammad al Gharib, and (3) Abu Mus'ab al Zarqawi.

1. Ahmed Fadel al Khalaylah

In 1966, the notorious al Zarqawi of Fallujah was born under the name of Ahmed Fadel al Khalaylah in Zarqa, Jordan, a city a few miles northeast of Jordan's capital.⁵⁵ Ahmed Fadel came from Bedouin heritage, the al Khalaylah clan of the Banu Hassan, which was an East Bank tribe loyal to Jordan's Hashemite royal family. One of three brothers and seven sisters, Ahmed Fadel was extremely close to his father. In 1984, Ahmed Fadel's father died causing his family to drop to an even lower poverty status than when his father had been alive. After dropping out of school and embracing drinking and the low-level gang life, Ahmed Fadel was arrested for possession of drugs and sexual assault and eventually sentenced to prison in 1987.⁵⁶

As the Afghan-Soviet war began in the 1980s, the idea of the anti-Soviet jihad began to spread. As a graduate of the University of al Azhar in Islamic jurisprudence, Sheikh Abdallah Azzam taught at the University of Amman, Jordan from 1973–1980,

⁵⁴ Jean-Pierre Milelli, "Abu Musab Al-Zarqawi, Jihad in 'Mesopotamia,'" in *Al Qaeda in its Own Words*, ed. Gilles Kepel and Jean-Pierre Milelli (Cambridge, MA: Belknap Press of Harvard University Press, 2008), 248.

⁵⁵ Napoleoni, *Insurgent Iraq*, 29 and 260.

⁵⁶ Napoleoni, *Insurgent Iraq*, 31.

spreading revolutionary messages connected with the Muslim Brotherhood of Jordan.⁵⁷ Upon arriving in Pakistan in 1984, Azzam founded the Maktab al Khadamat, the Arab-Afghan Service Bureau, to organize the increased numbers of Arab fighters traveling to Afghanistan to embrace the anti-Soviet jihad.⁵⁸ Upon release from prison in the late 1980s, Ahmed Fadel began attending al Hussein Ben Ali Mosque in Zarqa that was loyal to Azzam from his time there in the 1970s and accordingly, continued to promote Azzam's radical message. Soon after, a recruiter from the Arab-Afghan Bureau helped secure Ahmed Fadel's transportation to the Afghan cause via a plane to Pakistan; Ahmed Fadel took the name of Abu Muhammad al Gharib, the Stranger.⁵⁹

2. Abu Muhammad al Gharib

Soon after arriving in Pakistan in the spring 1989, al Gharib traveled to Khost but was too late to join the Afghanistan jihad due to the Soviet withdrawal in February 1989.⁶⁰ Sometime after 1991 in Peshawar, al Gharib met Issam Muhammad Taher al Barqawi, also known as Abu Muhammad al Maqdisi, "a distinguished radical Salafi thinker," who became one of two "main sources of authority for the Salafi jihadists ideology in Jordan, which established its stronghold in the city of Zarqa," according to author Loretta Napoleoni.⁶¹ The ideology of Salafism is based upon:

Muslims who . . . want to see the restoration of pure and pious religious practice, without the syncretism and impurities of later centuries. In short, they believe that Muslims have deviated from true Islam and that they need to be shown the errors of their current ways and to change for the "better."⁶²

⁵⁷ Milelli, "Abu Musab Al-Zarqawi, Jihad in 'Mesopotamia,'" 242.

⁵⁸ Thomas Hegghammer, "Abdallah Azzam, the Imam of Jihad," in *Al Qaeda in its Own Words*, ed. Gilles Kepel and Jean-Pierre Milelli (Cambridge, MA: Belknap Press of Harvard University Press, 2008), 92-93 and Napoleoni, *Insurgent Iraq*, 34-35.

⁵⁹ Napoleoni, *Insurgent Iraq*, 39 and 42.

⁶⁰ Jean-Charles Brisard, *Zarqawi: The New Face of Al-Qaeda*, with Damien Martinez (New York: Other Press, 2005), 17 and Napoleoni, *Insurgent Iraq*, 260.

⁶¹ Napoleoni, *Insurgent Iraq*, 50.

⁶² Ahmed S. Hashim, *Insurgency and Counter-Insurgency in Iraq* (Ithaca, NY: Cornell University Press, 2006), 25.

Al Maqdisi introduced al Gharib to this ideology while in Peshawar. According to Napoleoni, Al Gharib learned from al Maqdisi to “reject all those who do not believe in al Tawhid ideology, and to reject all those who do not join in condemning all tyrants, including Muslims and Arabs.”⁶³ This became the baseline for al Zarqawi of Fallujah’s ideology.

During 1993, both al Maqdisi and al Gharib traveled back to Zarqa, Jordan. Even though both were welcomed back as mujahedin, neither had participated in any battles in Afghanistan. Two events led both Salafist thinkers to adopt a more radical rhetoric in their messaging. On September 13, 1993, Israel and the Palestine Liberation Organization (PLO) signed the Oslo Peace Agreement and later on October 26, 1994, Israel and the Jordanian government also signed a peace agreement. Both al Maqdisi and al Gharib began to separate themselves from the Muslim Brotherhood, the Islamic Action Front, so they founded the al Tawhid group, later renamed Bayaat al Imam. Al Maqdisi and al Gharib focused on revolution jihad against the infidel regime because they felt the Jordanian government was practicing infidel policies by signing the peace agreement with Israel.⁶⁴ Due to their radical message, al Gharib and al Maqdisi were arrested by the Jordanian secret service in March 1994, and both were sentenced to 15 years in al Suwaqah prison for creating an illegal jihadist organization and possessing explosives.⁶⁵

Prison was a transforming process for al Gharib. Whether it was the solitary confinement or torture, al Gharib harnessed his organizational leadership.⁶⁶ During his time in prison, al Gharib grew out of the shadows of this mentor, al Maqdisi, and became emir of the al Tawhid group.

After seven years in prison, the new king in Jordan, Abdallah II, granted general amnesty to thousands of prisoners, including al Gharib and al Maqdisi on March 29,

⁶³ Napoleoni, *Insurgent Iraq*, 58. On page 55, Napoleoni lays out how Sayyed Qutb altered the meaning of al Tawhid in the 1950s to mean “God is the source of power, not the people, not the party neither any human being.”

⁶⁴ Napoleoni, *Insurgent Iraq*, 62–63.

⁶⁵ Brisard, *Zarqawi: The New Face of Al-Qaeda*, 40–42.

⁶⁶ Brisard, *Zarqawi: The New Face of Al-Qaeda*, 44 and Napoleoni, *Insurgent Iraq*, 69 and 72.

1999.⁶⁷ Only a few months later, al Gharib left for Hayatabad, Pakistan, with the intent to get involved in Chechnya. After an eight-day arrest for an expired passport, al Gharib was forced to go to Afghanistan, where the Taliban were in a struggle against the Northern Alliance. Al Gharib's al Tawhid group held approximately 80–100 Salafists from Palestine and Jordan but remained far from the fighting in Lougar.⁶⁸

In the beginning of 2000, Usama bin Ladin, emir of al-Qa'ida, and al Gharib met in Kandahar; al Gharib was looking for funding for his group. A key takeaway from this meeting is al Gharib's decision to decline the offer to join al-Qa'ida; al Gharib was not a believer in bin Ladin's transnational jihad.⁶⁹

3. Abu Mus'ab al Zarqawi

After meeting with bin Ladin in 2000, Muhammad Makawi, known also as Seyf al Adl, director of al-Qa'ida's military operations, recommended that al Gharib set up a training camp for his group.⁷⁰ Gharib moved his group to Herat, very close to the Iranian border in northwest Afghanistan. There he changed his name to Abu Mus'ab al Zarqawi. *Mus'ab* was one of the Prophet's famous warriors (Musab Ibn Omayr), martyred in 625 at the Battle of Uhud, and *al Zarqawi* means "from the city of Zarqa."⁷¹ By support of the Taliban and increased recruitment, al Tawhid became known as Jund al Sham.⁷² In December 2001, Jund al Islam (Soldiers of Islam) combined with other jihadist groups to form Ansar al Islam (Partisans of Islam); the emir became Najm al-Din Faraj (aka Mullah Fateh Krekar) with Abd al Moneem Mustafa Halima (aka Abu Baseer) as the spiritual guide with the focus on local regimes, in this case Saddam Hussein.⁷³ Accordingly, a logistical hub was set up in Bajra, Iraq. Soon after establishing the Herat camp, al

⁶⁷ Milelli, "Abu Musab Al-Zarqawi, Jihad in 'Mesopotamia,'" 243.

⁶⁸ Napoleoni, *Insurgent Iraq*, 95. Since the Pakistani authorities held al Gharib's expired passport and wanted him out of the country, Afghanistan was the only country he could enter without a passport at this time.

⁶⁹ Napoleoni, *Insurgent Iraq*, 95.

⁷⁰ Napoleoni, *Insurgent Iraq*, 97.

⁷¹ Milelli, "Abu Musab Al-Zarqawi, Jihad in 'Mesopotamia,'" 240.

⁷² Napoleoni, *Insurgent Iraq*, 99.

⁷³ Napoleoni, *Insurgent Iraq*, 102–103.

Zarqawi sent Abu Abdel Rahman Al-Shami (Ra'id Khuraysat) and three others to Iraqi Kurdistan.⁷⁴

After al Qaeda's attacks on September 11, 2001, the Coalition forces' campaign in Afghanistan began on October 7, 2001. Aligning with the Coalition forces, the Northern Alliance surrounded al Zarqawi's training camp in Herat; this forced him to leave his camp and to lead a convoy of 400 vehicles to Kandahar, but he soon left the city after his ribs were injured when a rocket hit the house he was hiding in.⁷⁵ Al Zarqawi then fled to Tora Bora where the majority of the Taliban and al Qaeda forces were concentrated. After losing the battle at Tora Bora, al Zarqawi did not follow bin Laden. Instead, he went to Pakistan, then to Zahdan, Iran, where he and his associates were hidden by Iranian Sunnis and then escorted to Teheran. In early 2002, the Iranian government shutdown al Zarqawi's bases and captured twenty of his followers, which forced him to move into Iraqi Kurdistan where he established two military training camps.⁷⁶ The Kurdish secret service knew al Zarqawi was in northern Iraq and informed the United States.⁷⁷

On February 5, 2003, al Zarqawi received worldwide recognition when U.S. Secretary of State Colin Powell mentioned al Zarqawi in a speech to the U.N. Security Council: "Iraq today harbors a deadly terrorist network headed by Abu Musab Al-Zarqawi, an associate and collaborator of Usama bin Laden and his al Qaeda lieutenants."⁷⁸ Ansar al-Islam took heavy losses upwards to 180 Islamist fighters killed and 150 captured shortly after the U.S. invasion of Iraq in March 2003.⁷⁹ In June 2003, Ansar al-Sunna (Partisans of the Sunna) merged under Al-Tawhid wal-Jihad (monotheism and Jihad) led by Zarqawi. It was not for another 17 months when al Zarqawi publically declared allegiance to bin Laden and renamed his group Qaedat al-

⁷⁴ Brisard, *Zarqawi: The New Face of Al-Qaeda*, 77.

⁷⁵ Napoleoni, *Insurgent Iraq*, 105.

⁷⁶ Napoleoni, *Insurgent Iraq*, 107.

⁷⁷ Foulk, *The Battle for Fallujah*, 15.

⁷⁸ Milelli, "Abu Musab Al-Zarqawi, Jihad in 'Mesopotamia,'" 245.

⁷⁹ Brisard, *Zarqawi: The New Face of Al-Qaeda*, 121 and Milelli, "Abu Musab Al-Zarqawi, Jihad in 'Mesopotamia,'" 245.

Jihad in Mesopotamia on October 19, 2004.⁸⁰ The next section covers how the city of Fallujah catapulted al Zarqawi to the forefront of all the other competing jihadists.

4. Al Zarqawi's New Narrative and the Effect on Fallujah

During the first battle of Fallujah, the Marines were directed to cease combat operations inside the city after four days, which did not allow them sufficient time to completely eradicate the insurgents and jihadists; this was seen as a victory for the insurgents. From May-October 2004, al-Zarqawi used Fallujah as a base of operations by harnessing the already present Salafi jihadists within the city. During this time, al-Zarqawi broadened al-Qa'ida's message to include brutal public beheadings and sectarian violence against Shi'a Muslims.

One of the reasons al Zarqawi was able to garner so much publicity was his new tactic of public beheadings. Gory and grotesque, the Internet and media publicized these beheadings, which propelled al Zarqawi to the forefront in the jihadist community. On May 11, 2004, the world was introduced to this new brutal tactic in a video of Nicholas Berg, an American civilian; a website with links to Islamist extremist groups released a video of Berg beheaded personally by al Zarqawi with a long knife.⁸¹ Afterwards, al Zarqawi released a statement *Recommendations to Jihad Fighters* that stated Berg was murdered because of the United States' inability to exchange prisoners held at Abu-Ghraib.⁸² According to a 2006 Foreign Policy magazine article, prior to al Zarqawi's death, al Qa'ida was responsible for five to ten percent of the attacks conducted in Iraq but still received a disproportionate amount of media attention.⁸³

The reason for al Zarqawi to resort to this brutal tactic might have been political. At the time of the first battle of Fallujah, there were up to six different jihadist groups

⁸⁰ Milelli, "Abu Musab Al-Zarqawi, Jihad in 'Mesopotamia,'" 248.

⁸¹ Foulk, *The Battle for Fallujah*, 56–57. The Internet site that released the video was Muntada al-Ansar Islamist, which is known "as a clearinghouse for statements and tapes by Al Qaeda and Islamic extremist groups." Maria Newman, "Video Appears to Show Beheading of American Civilian," *New York Times*, May 11, 2004, <http://www.nytimes.com/2004/05/11/international/middleeast/11CND-BEHE.html>.

⁸² Milelli, "Abu Musab Al-Zarqawi, Jihad in 'Mesopotamia,'" 245 and 342.

⁸³ Foreign Policy, "The List: the Future of the Insurgency," *Foreign Policy*, June 16, 2006, http://www.foreignpolicy.com/articles/2006/06/18/the_list_the_future_of_the_insurgency.

vying for power in Iraq.⁸⁴ It was not clear who would be the dominate jihadist group. In addition, al Zarqawi did not officially make his allegiance to bin Ladin's al Qa'ida until October 17, 2004.⁸⁵ By June 2004, al Zarqawi's release of Berg's death video united these groups under Tawhid wal Jihad, which allowed him to rise to power in Iraq.

While al Zarqawi and his group are reported to have comprised only a small percentage of the actual fighters in Fallujah from April to October 2004, al Zarqawi allied with key leaders within the city between the two battles. One was Omar Hadid, a local Salafist-jihadist, who was known to have shut down beauty parlors and music stores in the 1990s.⁸⁶ Fallujah was one of the few cities that saw an increase in Salafists in the 1990s, creating a solid foundation for al Zarqawi to leverage in 2004.⁸⁷ Al Zarqawi and Hadid had a hidden torture chamber and video studio within Fallujah. In September 2004, two Lebanese men, Charbel Hajj and Aram Nalbandian, were captured at a checkpoint manned by Tawhid wal Jihad and interrogated for 27 days to determine if they were aiding the Americans. While in captivity, they were interrogated in a building where they heard screams on multiple days and even witnessed a murder of another Egyptian accused of helping the Americans.⁸⁸

While there were other hotspots throughout Iraq, Fallujah afforded a safe haven for the jihadists. Tawhid wal Jihad's focus was the Sunni Triangle due to the high concentration support of Sunnis. They broke the Sunni Triangle down into nine areas of responsibility with Fallujah as the headquarters.⁸⁹ In Jolan Park within Fallujah's northwest district, this torture chamber and headquarters for al Zarqawi was discovered and destroyed during the second battle of Fallujah.⁹⁰ No videos of beheadings were

⁸⁴ Brisard, *Zarqawi: The New Face of Al-Qaeda*, 130–132. Brisard states the six groups contending for power were Ansar Al-Islam, Ansar Al-Sunna, Jaysh Mohammed, Al-Jamaa, Takfir wal Hijra, and Hund Al-Sham.

⁸⁵ Brisard, *Zarqawi: The New Face of Al-Qaeda*, 150.

⁸⁶ Ardolino, *Fallujah Awakens*, 167.

⁸⁷ Hashim, *Insurgency and Counter-Insurgency in Iraq*, 26.

⁸⁸ Brisard, *Zarqawi: The New Face of Al-Qaeda*, 139.

⁸⁹ Brisard, *Zarqawi: The New Face of Al-Qaeda*, 137.

⁹⁰ Ardolino, *Fallujah Awakens*, 167 and Foulk, *The Battle for Fallujah*, 224.

released before the first battle of Fallujah; only when the insurgents and jihadists held control of the city were these videos released. From May to October 2004, Tawhid wal Jihad claimed responsibility for nine beheading-style executions, at least one per month, and more than 150 foreigners were kidnapped throughout the entire year.⁹¹

Al Zarqawi's second method of broadening al-Qa'ida's message dealt with targeting Shi'a Muslims. On January 22, 2004, a letter was intercepted from al Zarqawi to bin Ladin that illustrated al Zarqawi's desire to fold under al-Qa'ida.⁹² That same letter also underlines al Zarqawi's strategy to target Shi'a:

This is why I say again that the only solution is for us to strike the heretics, whether they are men of religion, soldiers, or others, until they submit to the Sunnis. You might object that it is too soon, and unfair to throw the nation into a battle for which it is unprepared; that this will cause losses and spill blood; but this is precisely what we want.⁹³

Fallujah gave al-Zarqawi the confidence to implement his strategy. Al Zarqawi accused Shi'a Muslims as apostates, al Takfir.⁹⁴ On July 28, 2004, Abu Anas Al-Shami, al Zarqawi's senior representative in Fallujah during the first battle, declared on the radio that, "If the infidels take Muslims as protectors, and these Muslims refuse to fight, it is permitted to kill these Muslims."⁹⁵

One reason for al Zarqawi to undertake this new narrative may have been due to false assumptions. In the letter to bin Ladin and Zawahiri, al Zarqawi clearly stated one of his misbeliefs that, "They [Shi'a Muslims] know that, if a sectarian war was to take place, many in the [Islamic] nation would rise to defend the Sunnis in Iraq."⁹⁶ As

⁹¹ Brisard, *Zarqawi: The New Face of Al-Qaeda*, 142.

⁹² "If you make your plan and agree to the idea of fighting heretical sects, we will be your soldiers, standing ready. We will rally to your banner, obey you, and even pledge our allegiance to you, publicly and in the media" Abu Mus'ab al Zarqawi, "Letter to bin Ladin and Zawahiri" as found in Milelli, "Abu Musab Al-Zarqawi," 267.

⁹³ Al Zarqawi, "Letter to bin Ladin and Zawahiri," as found in Milelli, "Abu Musab Al-Zarqawi," 264-265.

⁹⁴ Napoleoni, *Insurgent Iraq*, 56.

⁹⁵ Brisard, *Zarqawi: The New Face of Al-Qaeda*, 135.

⁹⁶ Abu Mus'ab al Zarqawi, "February 2004 Coalition Provisional Authority English translation of terrorist Musab al Zarqawi letter obtained by United States Government in Iraq," U.S. Department of State, February 2004, accessed November 21, 2014, <http://2001-2009.state.gov/p/nea/rls/31694.htm>.

history has shown, the Muslim community did not condone the sectarian war in Iraq. This might have been the same reason why al Qa'ida took so long to accept al Zargawi's allegiance in December 2004.

D. THE SECOND BATTLE OF FALLUJAH: OPERATION PHANTOM FURY / AL-FAJR, NOVEMBER – DECEMBER 2004

It was an Iraqi decision to execute the second assault on Fallujah. On June 24, 2004, CPA authority was turned over to Ayad Allawi, the interim prime minister of the new Iraqi government.⁹⁷ Also during late summer, Lieutenant General John F. Sattler took over for Conway as the commander of U.S. Marine forces in Iraq.⁹⁸ Due to the events occurring within Fallujah over the past six months, Sattler recounts how it was Allawi's decision to conduct the second battle of Fallujah:

Allawi determined that Fallujah had to be cleared to keep from exporting terrorism. Thugs could come to the city; get their missions, ammunition and training; and move out to other parts of the country to execute their missions. The only way to stop those thugs was to clean them out.⁹⁹

By the beginning of September 2004, planning began for the assault upon Fallujah. Learning from their mistakes in the first battle of Fallujah, Coalition forces made new changes. In order to combat the anti-Coalition media campaign that was so successful in the first battle, Allawi shut down *Al Jazeera's* Baghdad office to limit the insurgent's information operations campaign.¹⁰⁰ Sattler also decided to use a much larger force as compared to the first battle, which only used four battalions.

Inevitably, the Fallujah Brigade disbanded by September 10, 2004 unable to secure the city. On October 14, 2004, peace talks fell apart due to the Fallujah leadership's inability to meet the coalition's demands to hand over al-Zargawi and

⁹⁷ Camp, *Operation Phantom Fury*, 117.

⁹⁸ Estes, *Into the Fray*, 54.

⁹⁹ Camp, *Operation Phantom Fury*, 119.

¹⁰⁰ Camp, *Operation Phantom Fury*, 119.

foreign fighters.¹⁰¹ Sattler set the commencement for November 7 and named the upcoming assault *Operation Phantom Fury*.

Two days prior to the start, Prime Minister Allawi felt there was a better name for the operation since the current one had no meaning with the Iraqi people. Allawi recommended *al-Fajr (new dawn)* as a way to combat the insurgent Information Operations (IO) campaign under *Remember Fallujah*.¹⁰²

Operation Phantom Fury called for a massive north-to-south clearing operation that involved six U.S. maneuver battalions and an additional U.S. Army armored brigade and Marine battalion for blocking positions. The plan was broken down into two phases. The first phase involved the six battalions starting at the northern edge of the city and moving southward until reaching Highway 10, the main east-west running road. Major General Richard F. Natonski previously took over as Commander of the Marine GCE from Mattis on August 29, 2004, and was responsible for the execution of the battle.¹⁰³ Natonski assigned Regimental Combat Team 1 to command and control the three most western maneuver battalions, and Regimental Combat Team 7 to control the three eastern maneuver battalions. Each regimental combat team had two Marine Corps infantry battalions as well as a U.S. Army armored battalion.¹⁰⁴ An additional U.S. Army armored brigade was assigned to blocking positions to the east and south sides of the city, and an additional reinforced Marine light armored reconnaissance battalion was assigned to blocking positions to the west of the city. While there were nine U.S. Army and Marine battalions directly used in the operation, there were also six Iraqi battalions for a

¹⁰¹ Estes, *Into the Fray*, 181–182.

¹⁰² Camp, *Operation Phantom Fury*, 153.

¹⁰³ Timothy S. McWilliams with Nicholas J. Schlosser, *U.S. Marines in Battle: Fallujah, November – December 2004* (Washington, D.C.: U.S. Marine Corps History Division, 2011), 5.

¹⁰⁴ McWilliams, *U.S. Marines in Battle: Fallujah*, 7 and 13. Regimental Combat Team 1 consisted of 3d Battalion, 5th Marines; 3d Battalion, 1st Marines; and U.S. Army Task Force 2–7 (2d Battalion, 7th Cavalry). Regimental Combat Team 7 consisted of 1st Battalion, 8th Marines; 1st Battalion, 3d Marines; and U.S. Army Task Force 2–2 (2d Battalion, 2d Infantry). The southern and eastern blocking position consisted of 2d Brigade Combat Team (2d Brigade, 1st Cavalry), which included mechanized infantry battalion, designated Task Force 1–5 Infantry (1st Battalion, 5th Infantry), to the south and Task Force 1–5 Cavalry (1st Battalion, 5th Cavalry) to the northeast. The blocking position to the west on the western side of the Euphrates river was Task Force Wolfpack, consisting of Company C, 3d Light Armored Reconnaissance Battalion; Company B, 1st Battalion, 23d Marines; and U.S. Army reinforced mechanized infantry Company C, 1st Battalion, 9th Infantry.

total of 12,000 ground troops involved with the actual assault.¹⁰⁵ The first phase took place between 7–10 November. According to U.S. Marine Corps historical records, the map below depicts the first phase of the operation:

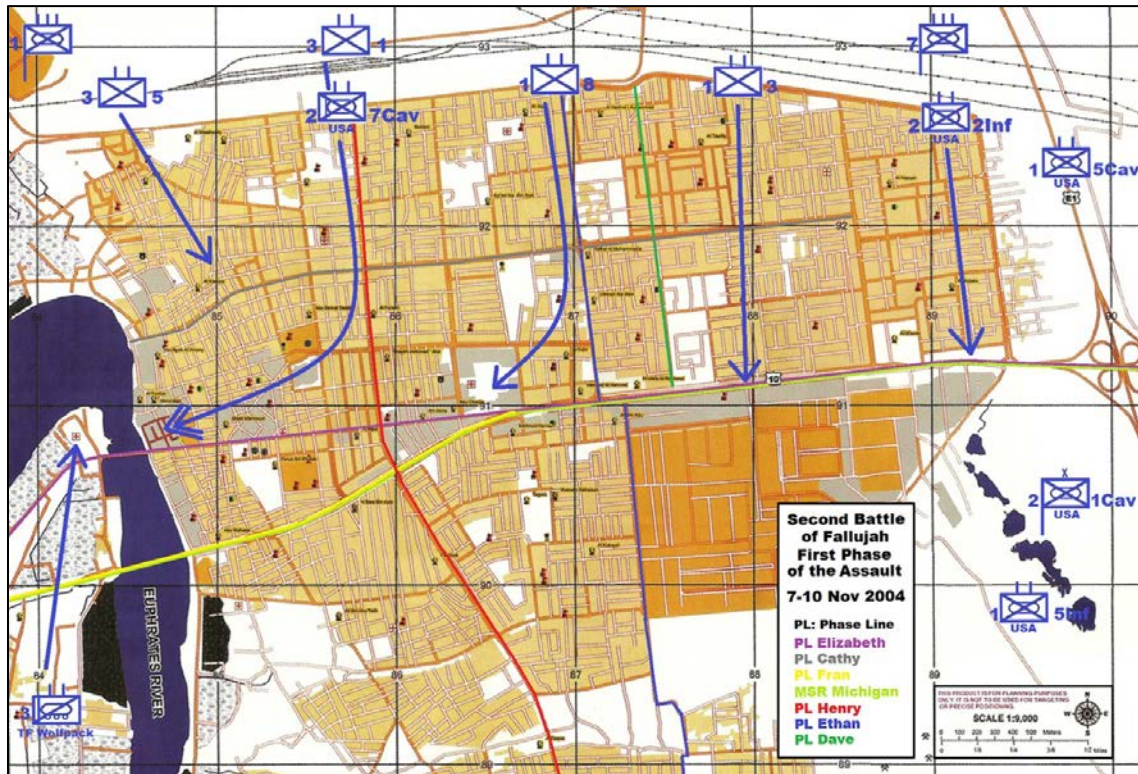


Figure 2. First Phase of the Second Battle of Fallujah.¹⁰⁶

¹⁰⁵ McWilliams, *U.S. Marines in Battle: Fallujah*, 8.

¹⁰⁶ McWilliams, *U.S. Marines in Battle: Fallujah*, 15.

During the second phase of the operation, one Marine maneuver battalion and one Army armor battalion from each regimental combat team continued the clearing operation from the main east-west running road southward to the edge of the city, while one Marine maneuver battalion from each regimental combat team would remain in their previous sectors and continue to back-clear. The second phase took place from 11 to 16 November. According to the U.S. Marine Corps historical records, the map below depicts the second phase:

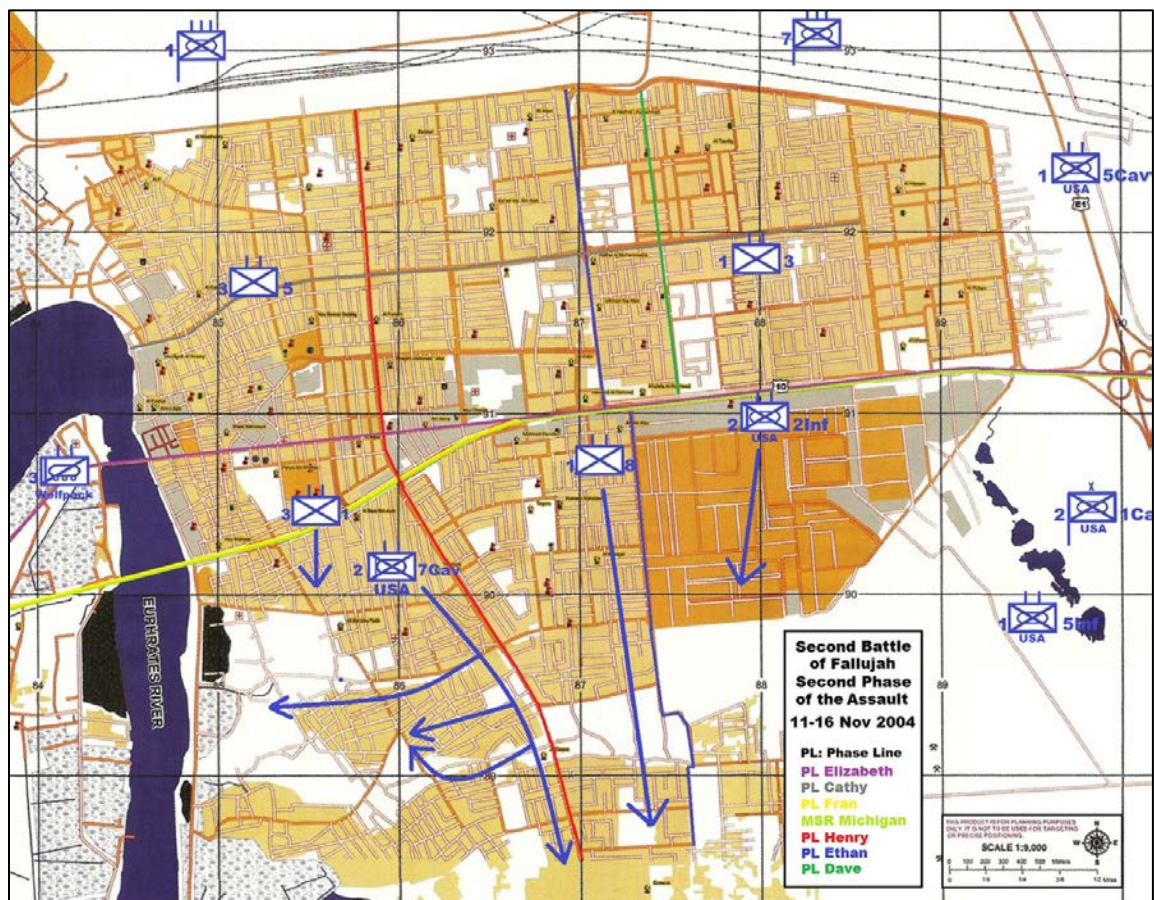


Figure 3. Second Phase of the Second Battle of Fallujah.¹⁰⁷

With most of the intense fighting completed by the end of the two phases, Allawi formally announced that citizens could return to the city on December 23, 2004.¹⁰⁸

¹⁰⁷ McWilliams, *U.S. Marines in Battle: Fallujah*, 40.

¹⁰⁸ Foulk, *The Battle for Fallujah*, 225.

Sattler remembers just how tough the battle was: “The fighting was intense, close, and personal, the likes of which has been experienced on just a few occasions since the battle of Hue City in the Vietnam War.”¹⁰⁹ Out of the primary six U.S. assault battalions involved in the battle, there were 63 dead and over 500 wounded.¹¹⁰ The coalition captured 1,052 fighters and killed an estimated 1600.¹¹¹ Fallujah was no longer a safe haven.

E. CONCLUSION

Even though Colin Powell specifically identified al Zarqawi as an insurgent leader in a U.N. speech on February 5, 2003, al Zarqawi had not yet solidified his leadership within the ranks of al Qa’ida. The United States’ inability to complete the first battle of Fallujah allowed al Zarqawi to establish a base of operations. In the city of Fallujah, al Zarqawi obtained unparalleled recognition by using new tactics of beheadings and secular violence during the period from May to October 2004. The Iraqi interim prime minister then recognized the situation in Fallujah could no longer be ignored. Using an overwhelmingly more aggressive and thoroughly planned operation, the second battle of Fallujah eradicated the city of the insurgents and foreign fighters. The two Marine Corps historic maps previously depicted in this chapter are those used in this capstone project to assess how similar or divergent the collection of individual soldier narratives are in comparison to the historic maps.

¹⁰⁹ John F. Sattler and Daniel H. Wilson, “Operation AL FAJR: The Battle of Fallujah-Part II,” *Marine Corps Gazette* 89, no. 7 (July 2005): 12–24.
<http://search.proquest.com/docview/221457465?accountid=12702>.

¹¹⁰ Camp, *Operation Phantom Fury*, 299.

¹¹¹ Foulk, *The Battle for Fallujah*, 224.

III. COMBAT STORIES INTERFACE APPLICATION

This capstone project created an application from ESRI software that is designed to be both powerful and simple.¹¹² The application is intended for use on a desktop or laptop computer using the JavaScript programming language, which allows the user to access the application from most web browsers.¹¹³ While the application and geodatabase physically reside on a Naval Postgraduate School server, the application can be accessed online through the Internet.¹¹⁴ There are four modes to the interface: *Tell Your Story*; *View Stories*; *Validate Mode 1*; and *Validate Mode 2*. In this context, a mode is considered a different page of the application that has a unique purpose. The first two modes of the application are designed for all users to access; authors can enter their narratives as well as access the *View Stories* mode to explore other narratives after they have entered their own. The last two modes of the application are designed to be accessed by analysts only. The following sections describe the attributes of the four modes and explain how the validation and analysis is performed for the final two modes.

A. THE VALIDATION PROCESS

This project compares combat stories with historical records that ultimately may validate potentially beneficial aspects derived from service member storytelling.

¹¹² *Powerful and simple* is one of the user-interface and interactive design guidelines defined by Jeff Johnson, *Designing with the Mind in Mind: Simple Guide to Understanding User Interface Design Rules* (Boston, MA: Morgan Kaufmann, 2010), xii.

¹¹³ David Flanagan, *JavaScript: The Definitive Guide*, 5th ed. (Sebastopol, CA: O'Reilly Media, 2006), xv and 1–3. While the application is designed for desktop or laptop computers, the application can be deployed to mobile devices without significant development requirements. This project did not incorporate the use of the application on a mobile device since the essence of the application is to capture and record a user's written narrative. It is expected the user will type more than 300 words for each event in their narrative for a particular battle; a desktop or laptop computer is best suited for this. For inputting narratives, Google Chrome is the preferred Internet browser.

¹¹⁴ The narratives are stored on a geodatabase, which is “a database or file structure used primarily to store, query, and manipulate spatial data. Geodatabases store geometry, a spatial reference system, attributes, and behavioral rules for data. Various types of geographic datasets can be collected within a geodatabase, including feature classes, attribute tables, raster datasets, network datasets, topologies, and many others.” Michael Law and Amy Collins, *Getting to Know ArcGIS for Desktop*, 3rd ed. (Redlands, CA: Esri Press, 2013), 729. This project's geodatabase contains two main feature classes; one contains the first event of each author's narrative and the second feature class contains the remaining events in a narrative.

Validation is “the process of determining the degree to which a model or simulation and its associated data are an accurate representation of the real world from the perspective of the intended uses of the model.”¹¹⁵ In this context, the model is the graphic representation of the author’s narrative.

This project does not intend to validate the accuracy of the narrative but rather the potential importance of service member storytelling. An appropriate method to validate storytelling could be the *Comparison to Other Models* method, which is when “various results (e.g., outputs) of the simulation model being validated are compared to results of other (valid) models.”¹¹⁶ Using this *Comparison to Other Models* method, service member storytelling would be validated if the majority of the narratives with similar events in the same time period and location achieve resemblance to published historical accounts.

In addition to the *Comparison to Other Models* method, a complementary validation method is to use the *Face Validation* method, which is “an informal validation method wherein expert observers subjectively compare simulation results with their knowledge of the behavior of the actual simuland.”¹¹⁷ Differences between the simulation results and the experts’ expectations may indicate model accuracy issues.”¹¹⁸ Using the *Face Validation* method, the analyst would be the expert observer, who uses his or her military knowledge of the battle of Fallujah, comparing the service members’ narratives with the historical map in order to validate storytelling. The following section describes

¹¹⁵ Under Secretary of Defense (AT&L), *DOD Modeling and Simulation Verification, Validation, and Accreditation*. DOD Instruction 5000.61. Washington, DC: Under Secretary of Defense (AT&L), December 9, 2009, 10. The instruction defines a model as “a physical, mathematical, or otherwise logical representation of a system, entity, phenomenon, or process. (Non-comprehensive examples: a mathematical formula, a mock-up, a logically rigorous representation of a system or a systems behavior, and a human behavior representation).”

¹¹⁶ Robert G. Sargent, “Verification and Validation of Simulation Models,” paper presented at 2007 Winter Simulation Conference, Washington, DC, December 2007, 128.

¹¹⁷ *Simuland* is “the real-world system of interest. It is the object, process, or phenomenon to be simulated.” Mikel D. Petty, “Verification and Validation,” in *Principles of Modeling and Simulation: A Multidisciplinary Approach*, ed. John A. Sokolowski and Catherine M. Banks (Hoboken, NJ: John Wiley & Sons Inc., 2009): 122.

¹¹⁸ Petty, “Verification and Validation,” 142.

the first step in the validation process: recording a written combat story using the *Combat Stories* application.

B. MODE ONE: TELL YOUR STORY

The *Tell Your Story* mode is the page that records the individual narratives with the understanding that one author's narrative might consist of multiple stories or events. After loading the application, the user will automatically begin in the *Tell Your Story* mode. The user begins at this mode so that he or she does not have the opportunity to read any previously recorded narratives; the goal is to stimulate a narrative from an author that is unaffected by reading other narratives concerning the same battle. Figure 4 depicts a splash screen prompt that first appears on the page to give initial guidance and directions to the user, which highlights the application's ability to record multiple, different stories or events in a single narrative. Also illustrated in Figure 4, there are no other stories displayed on the greyed-out map on the right hand side of the screen. The only option is to click on the "Create New Narrative" button.

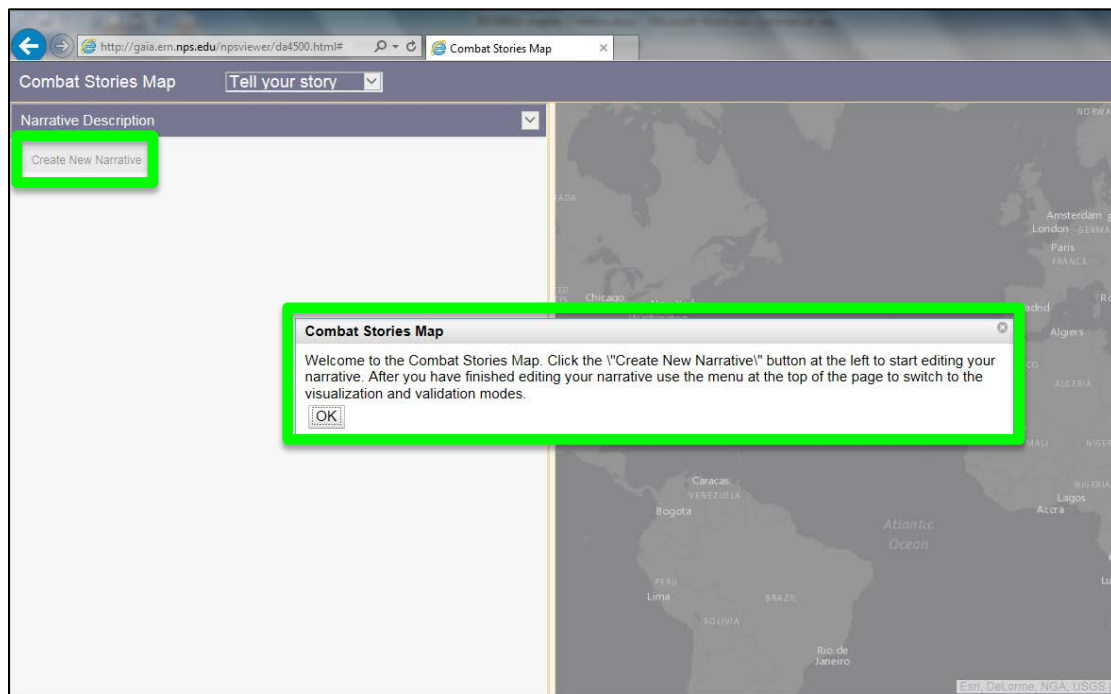


Figure 4. A splash screen first appears with directions for the user to read.

Figure 5 illustrates that once the user clicks on the “Create New Narrative,” a form appears, which allows the user to either type in biographical information or use a drop down menu to select battle-specific attributes. Once the button “Save Narrative Details” is selected, the user will begin adding story events to his or her narrative.

The screenshot shows a web browser window titled "Combat Stories Map" with the URL "gaia.ern.nps.edu/npsviewer/da4500.html#". The page has a dark blue header with the text "Combat Stories Map" and a dropdown menu "Tell your story". Below the header, there is a section titled "Narrative Description" with a dropdown arrow. Inside this section, a form titled "Create New Narrative" is highlighted with a green border. The form contains the following fields:

- Your last name:
- Your first name:
- Your middle initial:
- Email (not required):
- Your phone number (not required):
- Your age during the battle?
- Gender:
- Your rank during the battle?
- Your service?
- Which battle?
- Your unit during the battle?
- Date you arrived at the battle:
- Date you departed the battle:

At the bottom of the form is a button labeled "Save Narrative Details". To the right of the form is a map of Europe and North Africa with various cities and countries labeled.

Figure 5. The green box identifies biographical information and battle-specific attributes a user must fill out.

Figure 6 displays how the user can immediately designate the location of the story's first event by clicking on the map. The user is able to zoom into a specific location at street level by either using the + / - symbol in the top right hand corner of the map or using the scroll button on the mouse. The user can then enter the date, time, and story of the event that occurred at this location. The user will then be able to classify this event by selecting the involvement type. The user clicks on "Save Point" when he or she is ready to tell the next story at the next event location. The user will then start adding the next event by date, time, story, and involvement type. The user can add as many story event locations to the narrative as he or she wishes. When the user is done adding all the story events to their narrative, he or she clicks "Finished" to save, and the narrative page resets.

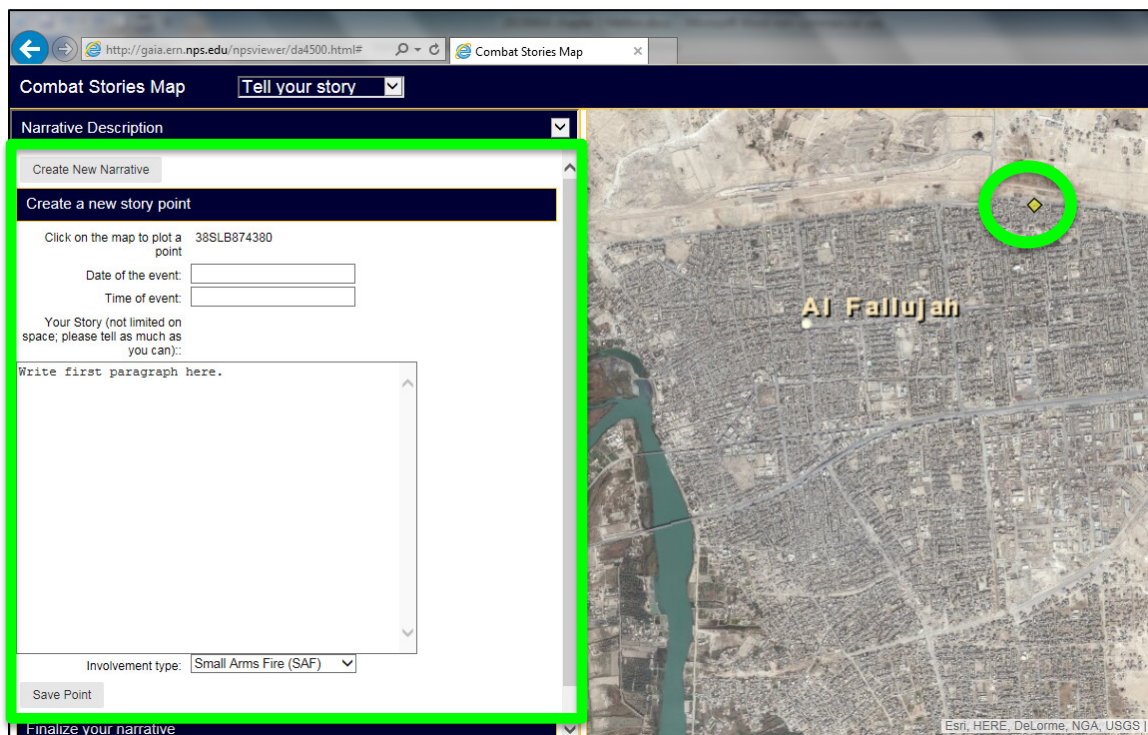


Figure 6. The green box identifies the "Create a new story point" dialogue box as it appears to the user. The green circle identifies the point on the map that is associated with where this user's combat story begins.

Figure 7 shows a drop-down menu at the top left hand corner of the application that allows the user to move between one of the four pages in the application. Selecting one of the four drop-down options will change the viewer modes.

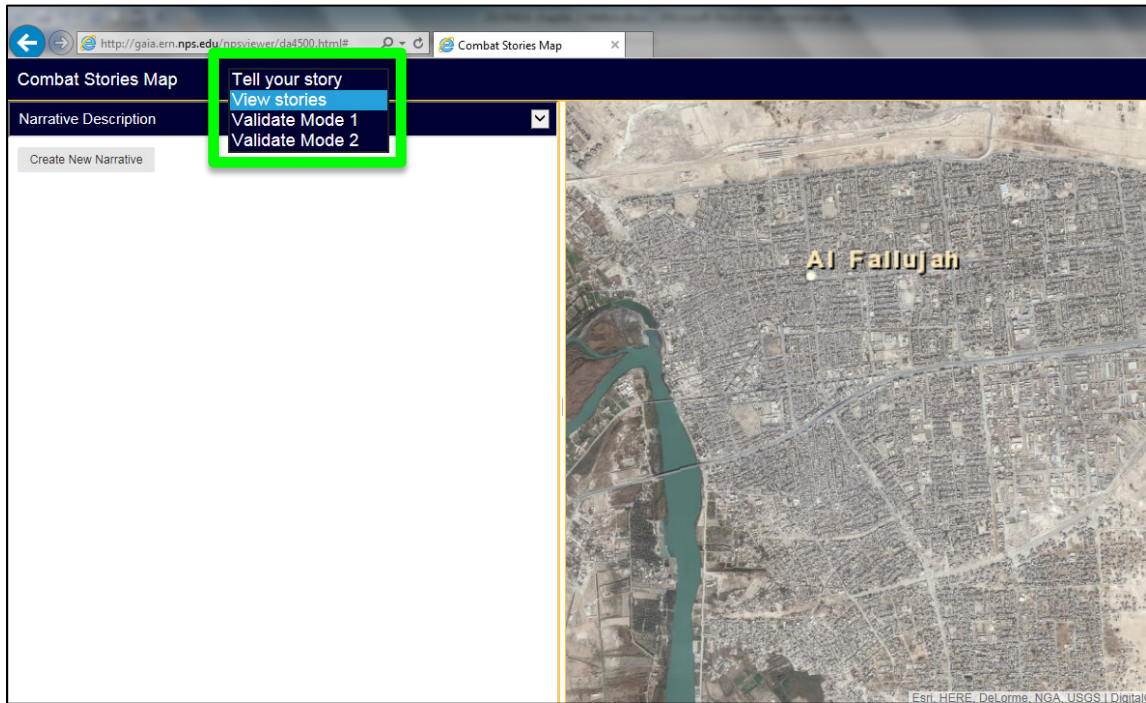


Figure 7. Switching Between Modes: The green box depicts how to switch between the four pages in the application.

C. MODE TWO: VIEW STORIES

The *View Stories* mode allows the user to view submitted narratives. As depicted in Figure 8, the user can narrow the scope of his or her research interest in a particular narrative by filtering by battle, unit, and time. Yellow square symbols represent various combat narratives in the database. In this mode, the application only displays the starting points for all narratives, not the particular event or events in a single narrative; the map displays the number of authors, not the total number of stories within all narratives.¹¹⁹

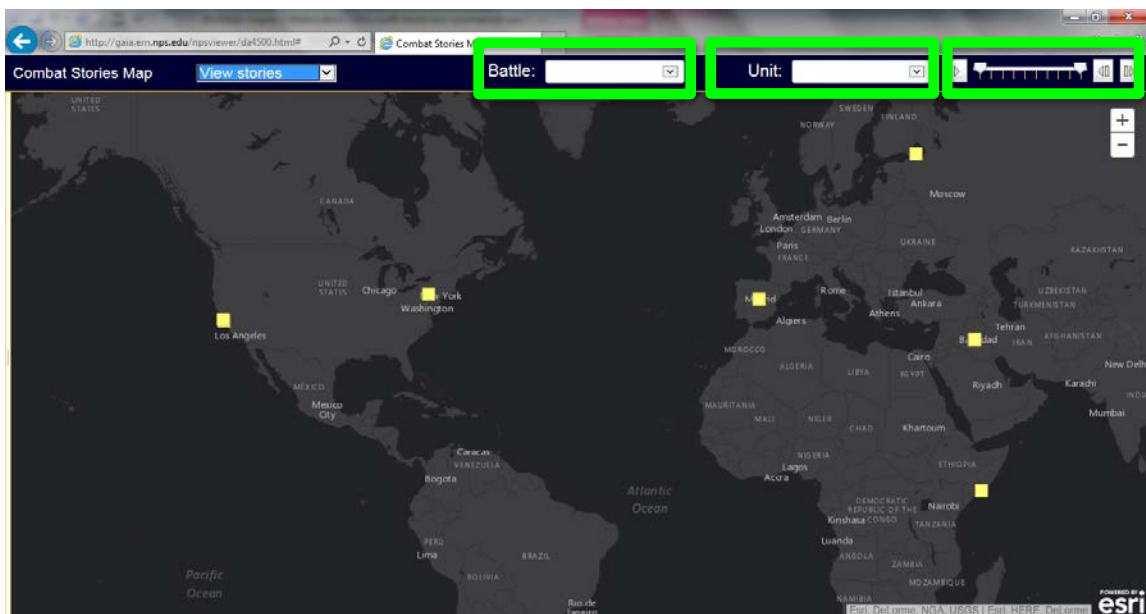


Figure 8. *View Stories* Mode: The green boxes illustrate how the application can filter the map by battle, unit, and/or time.

While in the *View Stories* mode, the user is able to view the individual events that make up a particular narrative. After zooming into a certain geographic location, the individual narratives are indicated by single yellow *square* pin-drops. These yellow squares are the first event locations for each author. Figure 9 depicts that once a user clicks on a yellow square, all other stories appear for that single narrative and are represented with yellow *circles*. The user is then able to scan and/or select through the

¹¹⁹ This capstone project narrowed the case study to the second battle of Fallujah. However, the application is designed to accept narratives pertaining to a host of battles. Figure 8 is displaying contrived narratives from different battles throughout the world.

different events and read each combat story. Figure 9 shows that there are three additional events and stories after the user selected the initial narrative.



Figure 9. *View Stories Mode*: The green circles depict the multiple events in one narrative that appear after a user clicks on a yellow square. The green box illustrates the pop-up dialogue box that appears once a user clicks on a yellow circle.

The next step in validating storytelling is to compare and contrast the combat stories with historical records; the next section describes how the *Combat Stories* application helps the analyst conduct the comparison using a geoprocessing model.

D. THE GEOPROCESSING MODEL

A geoprocessing model is “an interconnected set of processes, with each process consisting of input data, a tool, and output data, which can be fed into another process.”¹²⁰ In order to perform the GIS analysis for the two validate modes, a geoprocessing model is used. Figure 10 is a graphic depiction of the geoprocessing model used for this application. The dark blue circle is the input data set, in this case the database of narratives. The light blue circle is the model parameter, which is what the

¹²⁰ Law and Collins, *Getting to Know ArcGIS for Desktop*, 620.

analyst sees when opting to run the model; this prompts the analyst to enter the total number of days to analyze (i.e., the duration of the battle). The yellow boxes are the actual geoprocessing tools that perform the analysis, and the green circles are the data output from those tools. The remaining objects are model remnants, which are values, processes, or datasets that are used only within the database for geoprocessing operations.

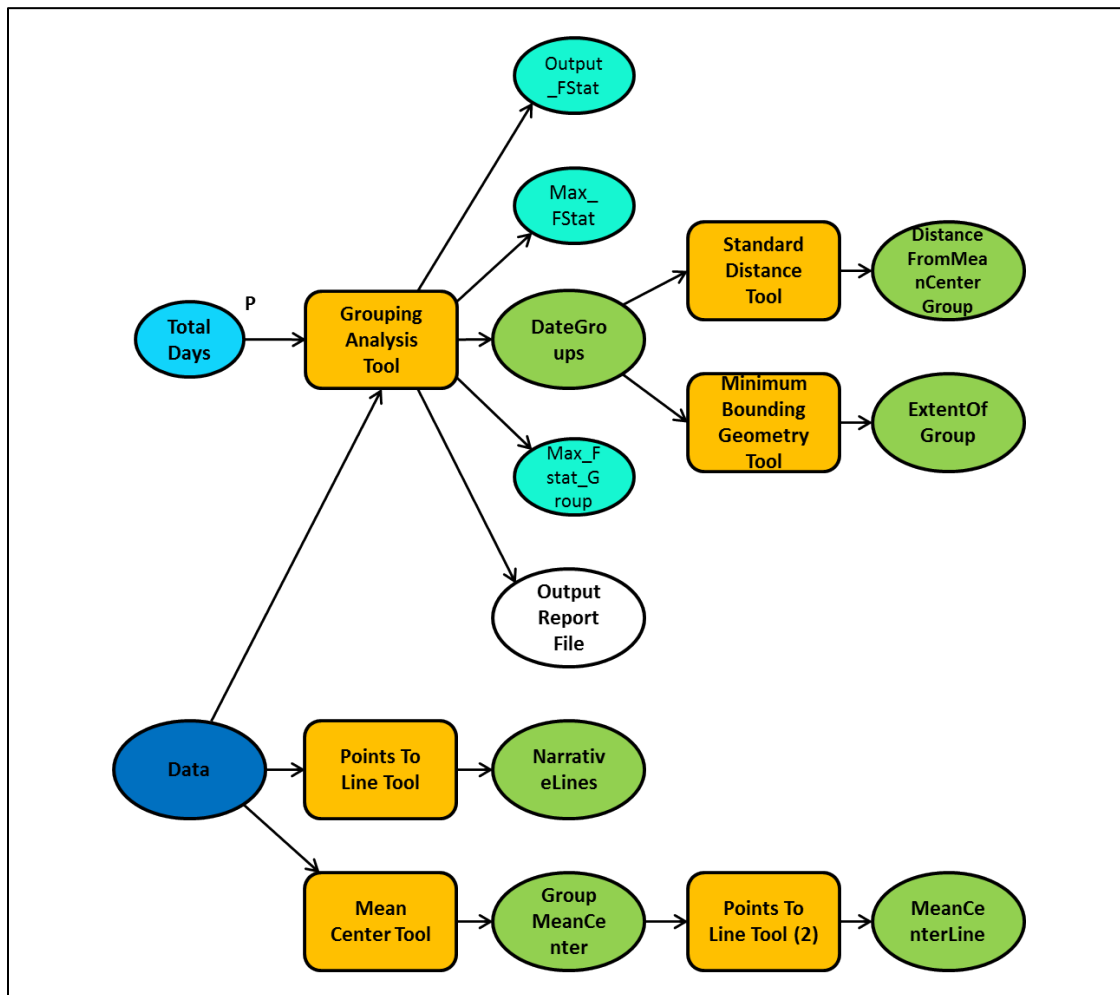


Figure 10. The ArcGIS Narrative Validation Model is used for the validation.

In the case of the Narrative Validation Model, the data is processed by five different tools that perform specific tasks. The first is the Grouping Analysis tool that combines the narratives into groups by date. These groups are then processed by two

additional tools: the Standard Distance tool calculates the distance each event occurred from other events; and the Maximum Bounding Geometry tool draws a polygon around each group of events. In Figure 11, Example A is a depiction of the resulting polygon from the geographic extent of the events in that group/period of time.

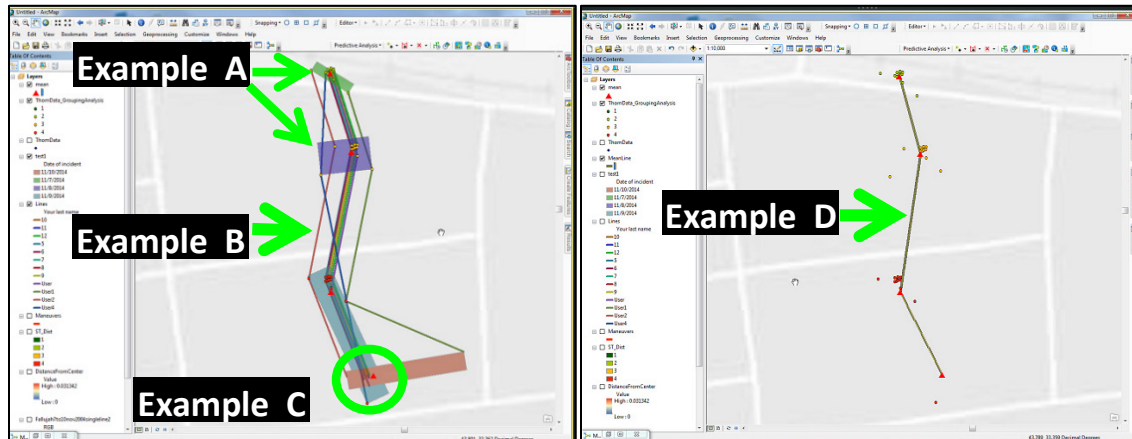


Figure 11. Implementing the Narrative Validation Model: Example A is a resulting polygon from a group of events in the same period of time. Example B is a line showing each individual's chronological account of the battle. Example C is a red triangle, which is the geographic center of a polygon. Example D is a line linking the red triangles, which is the geographic mean path.

The fourth tool is the Points to Line, which draws a line between the events in one author's narrative. In Figure 11, Example B illustrates the resulting line that shows each individual's chronological account of the battle. The final tool is the Mean Center, which calculates the geographic center of the events grouped together based on time; this results in the red triangles as depicted in Figure 11, Example C. These points are then processed through the Points to Line tool, resulting in a visual representation of the geographic mean path for the events. Figure 11, Example D is a demonstration of the geographic mean path. The next two sections describe how the final two modes of the application use the Narrative Validation Model in order to finalize the validation process.

E. MODE THREE: VALIDATE MODE 1

The *Validate Mode 1* view allows analysts to compare individual narratives with historical records. Initially, this mode presents all the narrative events on the main map. Two drop-down filters allow the analyst to select a specific battle and unit, down to the battalion level. After selecting these two filters, the historical map is displayed over the basemap at a reduced transparency. In the Fallujah case study example, once the user selects the second battle of Fallujah, the analyst is able to choose between the battle's first and second phases; this allows the analyst to conduct a more thorough examination.

An analyst may use *distance* as one comparison technique. The analyst can visually compare an individual narrative to how close or far in distance the narrative event locations are in relation to the historical map. The transparent bold blue lines from the historical map illustrate the generic movements of the various battalions. In Figure 12, all events by a single author comprise a narrative that is linked in sequence by lines. The various authors are differentiated from one another by color. [Note: the lines do not delineate the actual path of the author; the lines are displayed to help the analyst's eye distinguish one author's narrative from another.] While in this mode, if the analyst identifies an event from a narrative that appears to diverge from the historical map, the analyst is able to click on that event and read the story.

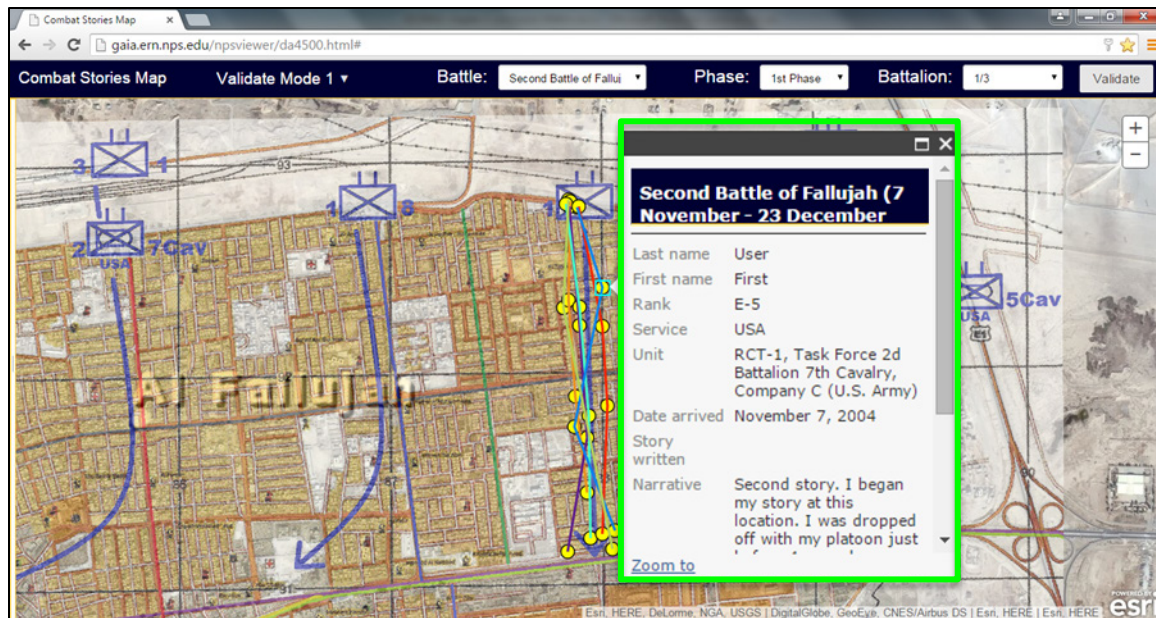


Figure 12. *Validate Mode 1 View*: The yellow circles represent the individual stories and events. The different colored lines differentiate the various authors. The green box depicts how an event can be selected and read.

F. MODE FOUR: VALIDATE MODE 2

The *Validate Mode 2* affords the analyst the opportunity to compare and contrast the narratives from a different visual aspect. In this mode, the analyst uses *time* and *proximity* as comparison techniques. The analyst can compare an event written by one author against the versions of other authors in the same battalion during a similar event time. In this mode, all events are divided into groups based upon the date the event occurred; these groups then have a polygon transposed around their points. Visually, one would expect the events from authors in the same battalion to occur approximately within the same time and location. This mode helps the analyst visualize distance proximity by using a transparent colored polygon to group events associated by time from all the battalion's authors.¹²¹

¹²¹ There might be a potential problem if the service members do not recall the exact dates of their battle experience. In that case, the Narrative Validation Model can be adjusted to include a geographic gathering tool that would group similar events from a battalion's battle based upon location and distance to one another.

Figure 13, Example A depicts how a typical time polygon appears. A small polygon means that the events were close in distance to one another and in the same relative timeframe. On the other hand, if one author's event varies drastically in time or location compared to the other authors', the polygon will depict more variance in size as demonstrated in Figure 13, Example B. The shape of the polygon can also give an indication of the type of variance that is occurring. Since the analyst knows the intended movement of the battalion, he or she knows the direction in which events should progress over time. For example, the events depicted in Figure 13 should proceed in a southwardly direction. An elongated polygon to the south will show that some events occurred ahead of the rest, depicting either an error or an advanced unit possibly performing reconnaissance.

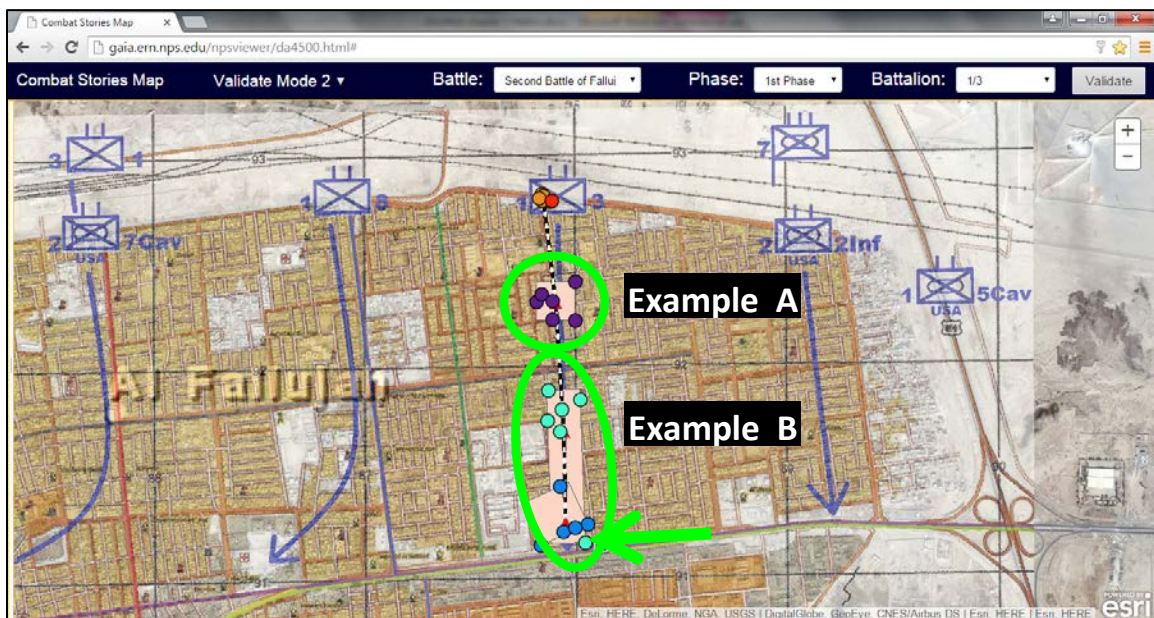


Figure 13. *Validate Mode 2 View*: Example A is a polygon with low variance among stories; Example B is a polygon with high variance. The green arrow depicts the “outlier” story as compared to the other teal-colored grouped stories, which causes the elongated polygon.

Validate Mode 2 also has a second feature. This mode combines all the battalion's narratives from a specific battle into a single visual display. The application takes the aggregated mean of the grouped events and pinpoints that location on the map with a

small red triangle icon. To help the analyst visually see the progression of the aggregated mean locations, black and white dotted lines link the points; the lines do not actually indicate the aggregated mean path. In Figure 14, the four red triangles represent the contrived narratives from 1st Battalion, 3d Marines' authors over 24-hour time segments; these points are overlaid on top of the historical map from the first phase of the battle of Fallujah. In this contrived scenario, the comprehensive narratives' mean locations compare very closely to the historical account.

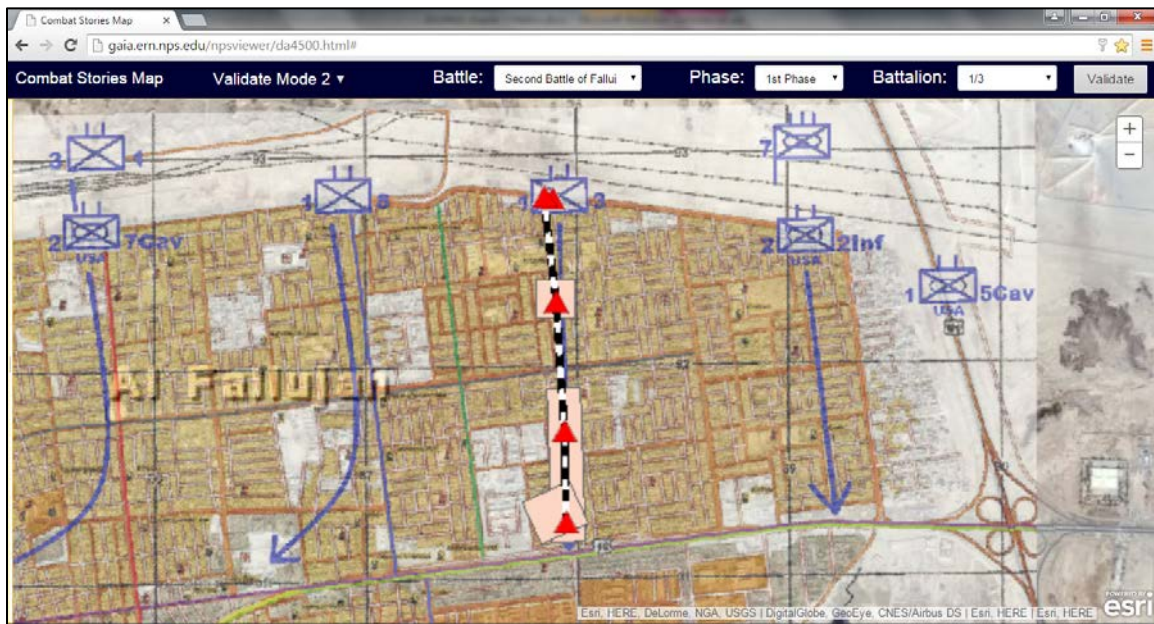


Figure 14. *Validate Mode 2* illustrates a battalion's comprehensive narrative. The red triangles indicate the aggregated mean center of the grouped stories, while the black-and-white dotted lines link the triangles according to chronology.

G. IMPLICATIONS FROM THE VALIDATION

If soldier and Marine storytelling is validated by the processes previously described, there are several positive implications: (1) future researchers can conduct original investigations, (2) current military leaders can obtain better lessons learned, and (3) the geodatabase can act as a repository of knowledge.

1. Future researchers on a particular battle can conduct original investigations: First-person perspectives from a particular battle are only available as long as the survivors are still living. Once all the veterans from a battle have passed, future researchers will have to rely on already written accounts from past researchers and historians, who had the opportunity to record the first-person perspective. Future research then becomes based on second and third person perspectives, which have already conducted a level of synthesizing. This application is a means to use the database as a repository of first-person narratives for future research.

2. Current military leaders can garner lessons learned from a broader range of perspectives: In today's U.S. military, after a combat patrol or battle has occurred, the senior person is responsible for informally submitting an after-action report that captures the main details of what occurred. While effort is taken to depict all perspectives from those involved, ultimately the after-action report reflects the senior person's perspective. If there is a discrepancy between multiple perspectives on certain events within the battle, the majority's view endures or the perspective of the senior person present. This application gives every person involved in a battle the opportunity to record his or her perspective for future leaders to glean lessons learned.

3. The geodatabase can act as a repository of knowledge: The geodatabase can help give insight into topics such as measuring the level of skill among individuals and units by using first-person narratives. Professor, author, and historian Stephen Biddle is one person that has identified the need to conduct further study on the distribution of skill among units. In 1996, Stephen Biddle made an argument that there "are important discrepancies between the historical record and the existing explanation of the Coalition's low loss rate" in the Gulf War.¹²² After research and analysis, Biddle systematically defends that the two leading theories are wrong. Biddle proposes "a synergistic

¹²² Stephen Biddle, "Victory Misunderstood: What the Gulf War Tells Us about the Future of Conflict," *International Security* 21, no. 2 (Fall 1996): 173. During the 1991 Gulf War, 795,000 Coalition troops shattered hundreds of thousands of Iraqi army soldiers in less than six weeks. The amazing part was not the small amount of time taken, but rather the extremely low number of friendly losses for such a kinetic war, only 240. Due to the low loss rate, the leading theory for the outcome of the war proposed it was due to the Coalition's advanced technology. The second leading theory proposed that the result of the war was due to Iraqi deficiencies such as lower number of troops, poor training, or frail morale. Biddle, "Victory Misunderstood," 142

interaction between a major skill imbalance and new technology caused the radical outcome of 1991.”¹²³ Specifically, Biddle’s reference to *skill imbalance* alludes to the Coalition’s *offensive skill* and the Iraqi’s *defensive error*. Biddle heavily drew his evidence for this theory from the 73 Easting Project.¹²⁴

During the 73 Easting Project, extensive effort was taken to replicate the most accurate computer generated reenactment of the armored battle during the Gulf War along the 73 Easting by obtaining first-person stories from the battle. Biddle used the computer simulation program and the data from the 73 Easting Project to tweak certain parameters to prove his argument. While his theory is extremely convincing and accurate, there is an even greater lesson from his analysis that one might pass over without focusing on it. Biddle clearly highlights that

The *skills* of national military organizations have not heretofore been the subject of systematic study. While anecdotal evaluations of individual armies have been compiled for generations, there have been few attempts to harness rigorous social scientific methods for the developments of a deeper or more general understanding of the causes or distribution of such skills.¹²⁵

Biddle was not only able to influence future force planning models focused on the *revolution in military affairs*; he was also able draw a direct correlation of a ‘nonlinear synergistic model’ between skill imbalance and new technology that caused the outcome. Biddle was able to do this based upon data from individual stories gathered during the 73 Easting Project. This capstone application could be the foundation of a database that

¹²³ Biddle, “Victory Misunderstood,” 140.

¹²⁴ The 73 Easting Project is a study done by the Institute for Defense Analysis, the Defense Advanced Research Projects Agency, and the U.S. Army in order to collect data with the “purpose of creating an after-action battle replication.” The project chose a battle between three troops from the 2nd U.S. Army Cavalry Regiment and the Iraqi Republican Guard 18th Armored Brigade along the North-South running longitude, 73 Easting, over a six hour period on 26 February 1991. The American forces consisted of 28 M-1A1 tanks and 37 Bradley Fighting Vehicles, while the Iraqi equipment consisted of 55 T-72 tanks, 33 BMP-1 Armored Personnel Carriers, and 3 T-55 tanks. Even though the Iraqis had 41% more armored vehicles than the Americans, the heaviest fighting lasted 90 minutes and the results were definitive: the three American troops lost only two M2 Bradley Fighting Vehicles (one due to friendly fire), while the Iraqi Brigade lost 57 tanks and 28 BMPs. W.M. Christenson and Robert A. Zirkle, *73 Easting Battle Replication*, IDA P-2770 (Alexandria, VA: Institute for Defense Analysis, 1992), A-8, 2, and 11.

¹²⁵ Biddle, “Victory Misunderstood,” 178.

provides support for analyzing the distribution of skill and knowledge within a unit. Ultimately, this project could be a repository of under-explored data and knowledge.

THIS PAGE INTENTIONALLY LEFT BLANK

IV. CONCLUSION

A. SUMMARY

This capstone project creates a proof-of-concept, web-based geospatial interactive interface to record first-person written combat narratives from U.S. military service members in a story map format. The application accomplishes the original three goals: recording multiple narratives; portraying the multiple narratives into a comprehensive map; and allowing an analyst to compare and contrast the narratives with historical documentation. This capstone explains the importance of storytelling and the historical context that led to the second battle of Fallujah, this report's case study.

The application has four modes: the first two modes allow the user to enter a narrative with multiple events and stories, as well as view and read all the narratives, while the last two modes allow the analyst to compare and contrast the narratives with the historical maps. Using contrived stories from artificial authors, the application's multiple narratives achieved geographic parity to the historical maps from the battle of Fallujah; this similarity validated the importance of service members' storytelling. The following two sections list six recommendations for further development of this application and suggestions for the second phase of the capstone project.

B. RECOMMENDATIONS FOR FURTHER DEVELOPMENT

The following six sections highlight recommendations to implement before the application operationalizes beyond the proof-of-concept stage. The current application is functioning as designed; conducting the second phase is not contingent on these additional recommended developments. The following recommendations will enhance the application and the user's experience:

1. Security / Access to the Application

In order to access the application, the Naval Postgraduate School's access manager to the ESRI site must first grant a user or analyst a username and password.

Figure 15 depicts how the user is automatically taken to a sign-in page, which requires a username and password, after the user types in the Internet address for the application.¹²⁶

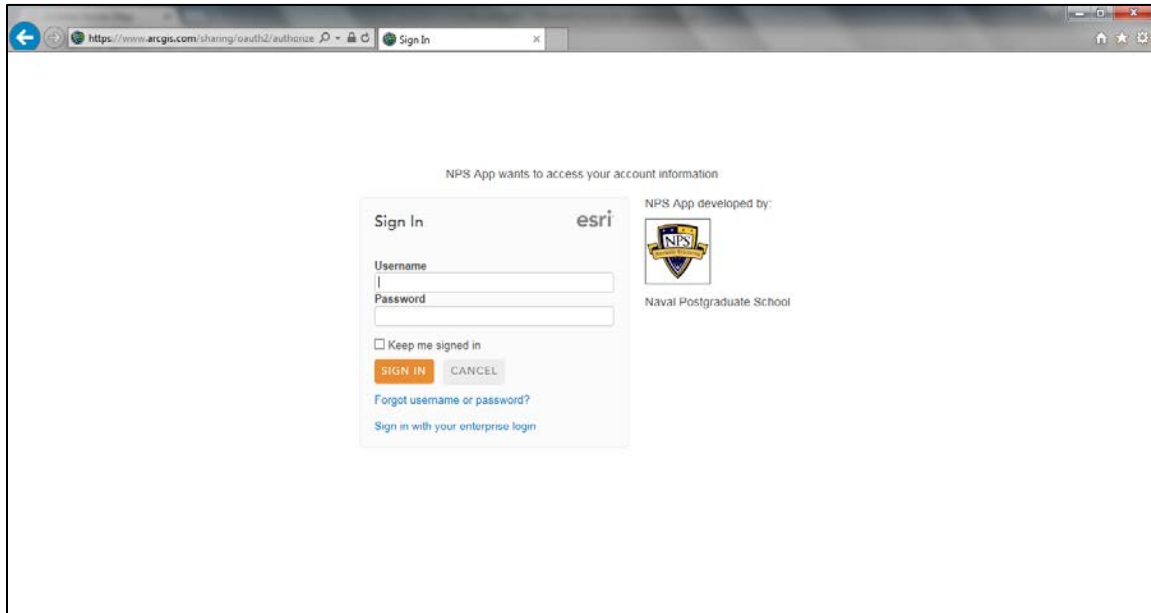


Figure 15. Sign-in page to access the Combat Stories application.

The application was built under the context of a proof-of-concept, so a limited number of people have access to the application. In order to improve the security and launch the application beyond a proof-of-concept stage, it is recommended the application be modified to require access using the Department of Defense (DOD) Common Access Card (CAC). There are three benefits to this; first, the Naval Postgraduate School access manager for ESRI would not have to preapprove usernames and passwords. This would lessen the management requirement for the application, as well as speed up the processing time a user needs to wait to be granted access to the site. Second, the application could be modified on the *Tell Your Story* mode to auto-populate certain fields such as name, service, and point of contact information. Benefits of streamlining the gathering of this data would lessen the time a user has to spend filling in biographical information. Third, the accuracy and accountability of each narrative reported would increase. When a user logs-on to the application via the DOD CAC, the

¹²⁶ This website is located at <http://gaia.ern.nps.edu/npsviewer/da4500.html#>.

user would be more likely to ensure his or her story is accurate since there is minimal chance of associating that narrative under a false identity.

2. Narrative Review before Publishing on the Internet

The application is designed as a proof-of-concept so all stories are automatically added to the geodatabase and immediately published on the application for other users to see and read. A mechanism needs to be put in place so stories are reviewed before they are published for all users to read. There should be oversight of any improper language and content of the stories. If the application is on an UNCLASSIFIED network, then the stories should not divulge any CLASSIFIED information. During the oversight management process, if a story is identified as breaching the security classification, the story would be flagged and dealt with appropriately before being published.

3. Instruction Video Tutorial

In order to clarify any possible questions a new user may have about creating a story map, it is recommended an instruction video tutorial be created and added to the splash screen. During the testing phase of the application, it is recommended a person knowledgeable about the application be physically present at the locations where users are inputting their narratives in order to answer any questions about how to create the story map or to use the application. Beyond the proof-of-concept stage, a user should be able to access the application from any computer that has access to the Internet. While the intent of the application design is for the application to be naturally intuitive for the author to use, the application can help explain to the user how to add his or her combat story by having a short video tutorial demonstrate an example.

4. View Stories Mode Changes: Narrative Clustering

On the *View Stories* mode, the starting points for all narratives are represented by yellow squares. At zoomed out elevations, multiple narratives in one location are displayed by a single yellow square, which does not allow the user to know if there is more than one narrative at that location. In order to accurately represent the data on the *View Stories* mode, the application should apply clustering, which “simplifies your data

visualization by consolidating data that are nearby each other on the map in an aggregate form.”¹²⁷ Figure 16 is a graphic illustration of a map before clustering, and Figure 18 is a graphic illustration after clustering is applied.¹²⁸

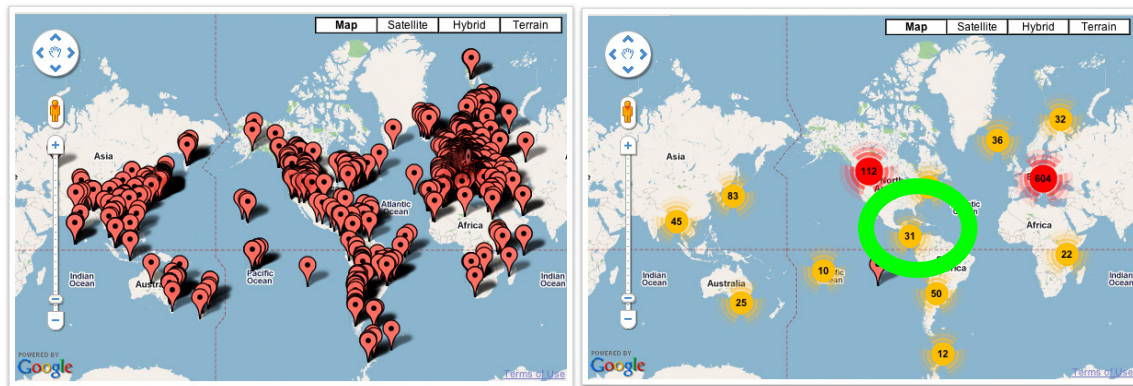


Figure 16. The image on the left is a map before clustering is applied, while the image on the right is a map after clustering is applied. The green circle depicts 31 authors in the Central American region.

By applying clustering, the application portrays the narratives contained in the interface more accurately. Clustering is applied when two or more data points are within a certain distance of each other. If the user zooms into a lower elevation where the two points fall outside the distance parameters, then the clustering disappears and the individual points reappear. For example, in Figure 17, the clustered number 31 indicates that thirty one authors have written narratives in the Central American region. After zooming into a certain geographic location, the clustering of authors’ narratives disappears, and the individual narratives are indicated by single pin-drops.

5. *Tell Your Narrative Mode Improvements*

Five minor changes on the *Tell Your Narrative* mode will make the application more user friendly. First, after the author selects his or her service, the units available to

¹²⁷ Luke Mahe and Chris Broadfoot, Google Geo APIs Team, “Too Many Markers!” Google, December 2010, <https://developers.google.com/maps/articles/toomanymarkers>.

¹²⁸ Mahe and Broadfoot, “Too Many Markers!” <https://developers.google.com/maps/articles/toomanymarkers>.

select from should be narrowed down to only that respective service.¹²⁹ Second, after the author selects a certain battle, the default “Date you arrived / departed the battle” should be the actual dates pertaining to the battle in order to ease the author’s requirements. For example, after a user selects the Second Battle of Fallujah, when the user clicks on “Date you arrived at the battle,” the calendar should be set to *November 5, 2004* instead of the current date; this makes it simpler for the user to choose the date. Third, the author should have the ability to edit a story after submission. Fourth, there should be required fields to fill out, so unless those certain fields are entered, the application will not allow the narrative to be submitted. Fifth, after the author selects a certain battle, the map should zoom into that region of the world so the user can select the first event more quickly.

6. Validation Mode Change

Validation Mode 1 and *Validation Mode 2* conduct the analysis down to the battalion level. In order to achieve a more refined analysis, the application could be improved by conducting the analysis down to the company level. If the battalion level analysis is an accurate representation of the historical maps, the application could be used to separate the battalion size analysis down to a company level in order to illustrate an in-depth graphic depiction of the battle, which could be used as an historical resource.

C. SUGGESTIONS FOR PHASE TWO / IMPLEMENTATION PLAN

The Combat Stories application is currently ready for the second phase. There are three main goals to this phase: gathering actual narratives from the second battle of Fallujah, using the Combat Stories application, and then conducting the analysis of the narratives. In order to gather actual narratives, it is recommended a few different venues with specific dates and locations be arranged.¹³⁰ The venues should be concentrated on

¹²⁹ If the application has the DOD CAC recommendation implemented as previously described, then certain information can be automatically filled in, such as an active duty member’s service and unit.

¹³⁰ A recommended way to broadcast information about the venues is to set up a website explaining the goal of the application testing, and then advertise that site through media sources such as the Army, Navy, and Marine Corps Times and the Army and Marine Corps Facebook websites.

the home stations of the ground units involved in the assault operations.¹³¹ The venues will require computers with Internet access. Every attempt should be made to identify the individuals participating in the narrative collection ahead of time so Naval Postgraduate School's ESRI site manager can create usernames and passwords.

The venues should include the physical presence of an individual knowledgeable on the application, such as a future thesis student. While the application is designed to be intuitive, the thesis student will be accessible to users in order to answer questions about how to make a story map and to record any issues with the application identified by the users.

Once the narratives have been collected, analysis can be conducted. As demonstrated in the first phase with constructed stories, the individual narratives accurately portrayed the historical maps' illustrations, which in turn validated the importance of service member storytelling. During the second phase, if the real narratives compare accurately with the historical maps, this capstone project will confirm the validation of the storytelling method.

¹³¹ Refer to footnote 104 in Chapter 2 for a list of the ground units involved in the assault. One recommended venue should be 1st Marine Division at Camp Pendleton, CA. Not only was 1st Marine Division responsible for the ground units involved in the battle, but on November 7, 2014, 1st Marine Division held a ceremony to commemorate the 10th anniversary of the second battle of Fallujah. Jennifer Hlad, "On 10th Anniversary of 2nd Battle of Fallujah, Veterans Remember," *Stars and Stripes*, November 7, 2014, <http://www.stripes.com/news/on-10th-anniversary-of-2nd-battle-of-fallujah-veterans-remember-1.312940>.

LIST OF REFERENCES

- Alaszewski, Andy. *Using Diaries for Social Research*. London: Sage Publications, 2006.
- Al Zarqawi, Abu Mus'ab. "February 2004 Coalition Provisional Authority English translation of terrorist Musab al Zarqawi letter obtained by United States Government in Iraq." U.S. Department of State, February 2004, accessed November 21, 2014, <http://2001-2009.state.gov/p/nea/rls/31694.htm>.
- Ardolino, Bill. *Fallujah Awakens: Marines, Sheikhs, and the Battle Against Al Qaeda*. Annapolis, MD Naval Institute Press, 2013.
- Biddle, Stephen. "Victory Misunderstood: What the Gulf War Tells Us about the Future of Conflict." *International Security* 21, no. 2 (Fall 1996): 139–179.
- Brisard, Jean-Charles., and Damien Martinez. *Zarqawi: The New Face of Al-Qaeda*. New York: Other Press, 2005.
- Bowie, Jr., Thomas G. "An I for an Eye: Personal Narrative and the Great War." PhD dissertation, Brown University, 1989.
- Buttler, Tanja and Stephan Lukosch. "On the Implications of Lessons Learned Use for Lessons Learned Content," *Proceedings of the 13th International Conference on Knowledge Management and Knowledge Technologies*. (September 4–6, 2013, Graz, Austria), 1–8.
- Camp, Dick. *Operation Phantom Fury: The Assault and Capture of Fallujah, Iraq*. Minneapolis, MN: Zenith Press, 2009.
- Carr, David. *Time, Narrative, and History*. Bloomington, IN: Indiana University Press, 1986.
- Chang, Iris. *The Rape of Nanking: The Forgotten Holocaust of World War II*. New York: Basic Books, 1997.
- Christenson, W. M., and Robert A. Zirkle. *73 Easting Battle Replication: A Janus Combat Simulation*. IDA P-2770. Alexandria, VA: Institute for Defense Analysis, 1992.
- Damrosch, David. *The Buried Book: The Loss and Recovery of the Great Epic of Gilgamesh*. New York: Henry Holt, 2007.
- Environmental Systems Research Institute, "ESRI History," accessed September 3, 2014, <http://www.esri.com/about-esri/history>.

- Environmental Systems Research Institute, "What is a Story Map?" April 14, 2015, <http://storymaps.arcgis.com/en/articles/what-is-a-story-map/>.
- Estes, Kenneth W. *Into the Fray: U.S. Marines in Iraq, 2004–2005: U.S. Marines in the Global War on Terrorism*. Washington, DC: U.S. Marine Corps Historical Division, 2011.
- Fisher, Walter R. "Narration as a Human Communication Paradigm: The Case of Public Moral Argument." *Communication Monographs* 51 (March 1984): 1–22.
- Fisher, Walter R. "Toward a Logic of Good Reasons." *Quarterly Journal of Speech* 64, no. 4 (December 1978): 376–384.
- Flanagan, David. *JavaScript: The Definitive Guide*. 5th ed. Boston, MA: O'Reilly Media, 2006.
- Foulk, Vincent L. *The Battle for Fallujah: Occupation, Resistance and Stalemate in the War in Iraq*. Jefferson, NC: McFarland, 2007.
- Foreign Policy. "The List: the Future of the Insurgency." *Foreign Policy*. June 16, 2006, http://www.foreignpolicy.com/articles/2006/06/18/the_list_the_future_of_the_insurgency.
- Hashim, Ahmed S. *Insurgency and Counter-Insurgency in Iraq*. Ithaca, NY: Cornell University Press, 2006.
- Hegghammer, Thomas. "Abdallah Azzam, the Imam of Jihad." In *Al Qaeda in its Own Words*, edited by Gilles Kepel and Jean-Pierre Milelli, 81–146. Cambridge, MA: Belknap Press of Harvard University Press, 2008.
- Hlad, Jennifer. "On 10th Anniversary of 2nd Battle of Fallujah, Veterans Remember." *Stars and Stripes*. November 7, 2014. <http://www.stripes.com/news/on-10th-anniversary-of-2nd-battle-of-fallujah-veterans-remember-1.312940>.
- Hynes, Samuel. *The Soldiers' Tale: Bearing Witness to Modern War*. New York: Penguin Books, 1997.
- Jastrow, Morris, and Albert T. Clay. *The Epic of Gilgamesh: An Old Babylonian Version*. New Haven, CT: Yale University Press, 1920.
- Johnson, Jeff. *Designing with the Mind in Mind: Simple Guide to Understanding User Interface Design Rules*. Boston, MA: Morgan Kaufmann, 2010.
- Kenyon, Gary M. and William L. Randall. *Restoring Our Lives: Personal Growth Through Autobiographical Reflection*. Westport, CT: Praeger, 1997.

- Kirkwood, William G. "Storytelling and Self-Confrontation: Parables as Communication Strategies." *Quarterly Journal of Speech* 69, no. 1 (February 1983): 58–74.
- Law, Michael and Amy Collins. *Getting to Know ArcGIS for Desktop*. 3rd ed. Redlands, CA: Esri Press, 2013.
- MacIntyre, Alasdair. *After Virtue: A Study in Moral Theory*. Notre Dame, IN: University of Notre Dame Press, 1981.
- Mahe, Luke, and Chris Broadfoot, Google Geo APIs Team. "Too Many Markers!" Google. December 2010.
<https://developers.google.com/maps/articles/toomanymarkers>.
- Martin, Wallace. *Recent Theories of Narrative*. Ithaca, NY: Cornell University Press, 1986.
- McWilliams, Timothy S. with Nicholas J. Schlosser, *U.S. Marines in Battle: Fallujah, November – December 2004*. Washington, DC: U.S. Marine Corps History Division, 2011.
- Mello, Robin A. "Collocation Analysis: A Method for Conceptualizing and Understanding Narrative Data." *Qualitative Research* 2, no. 2 (August 2002): 231–243. doi: 10.1177/146879410200200206.
- Milelli, Jean-Pierre. "Abu Musab Al-Zarqawi, Jihad in 'Mesopotamia.'" In *Al Qaeda in its Own Words*, edited by Gilles Kepel and Jean-Pierre Milelli, 237–267. Cambridge, MA: Belknap Press of Harvard University Press, 2008.
- Napoleoni, Loretta. *Insurgent Iraq: Al Zarqawi and the New Generation*. New York: Seven Stories Press, 2005.
- Newman, Maria. "Video Appears to Show Beheading of American Civilian." *New York Times*. May 11, 2004.
<http://www.nytimes.com/2004/05/11/international/middleeast/11CND-BEHE.html>.
- Northwestern University Knight Lab. "StoryMap." Accessed September 4, 2014.
<http://storymap.knightlab.com/>.
- Petty, Mikel D. "Verification and Validation." In *Principles of Modeling and Simulation: A Multidisciplinary Approach*, edited by John A. Sokolowski and Catherine M. Banks, 121–152. Hoboken, NJ: John Wiley & Sons, 2009.
- Riches, John. *The Bible: A Very Short Introduction*. Oxford: Oxford University Press, 2000.

- Sanchez, Ricardo S. with Donald T. Phillips. *Wiser in Battle*. New York: HarperCollins, 2008.
- Sargent, Robert G. "Verification and Validation of Simulation Models." Paper presented at 2007 Winter Simulation Conference, Washington, DC, December 2007.
- Sattler, John F. and Daniel H. Wilson. "Operation AL FAJR: The Battle of Fallujah-Part II." *Marine Corps Gazette* 89, no. 7 (July 2005): 12–24, <http://search.proquest.com/docview/221457465?accountid=12702> .
- Snowden, David. "Story Telling: An Old Skill in a New Context." *Business Information Review* 16, no. 1 (March 1999): 30–37. doi: 10.1177/0266382994237045.
- Terkel, Studs. *The Good War": An Oral History of World War II*. New York: Pantheon Books, 1984.
- Texas Capitol Vietnam Veterans Monument. "Interactive Map of Veterans Stories." Accessed September 4, 2014. <http://tcvvm.org/living-monument/interactive-map/>.
- Under Secretary of Defense (AT&L). *DOD Modeling and Simulation Verification, Validation, and Accreditation*. DOD Instruction 5000.61. Washington, DC: Under Secretary of Defense (AT&L), December 9, 2009.
- Vidal-Naquet, Pierre. *The World of Homer*. Paris: Perrin, 2000.
- War Stories. "Authors' Stories Library." Accessed September 4, 2014. <http://www.war-stories.com/warstory-5-author-title-az.htm>.
- Web Map Solutions. "Helping Returning Veterans." Accessed September 4, 2014. <http://www.webmapsolutions.com/military-recognition-banners#more->'.
- West, Bing. *No True Glory: A Frontline Account of the Battle for Fallujah*. New York: Bantam Books, 2005.
- Women in Military Service for America Memorial Foundation, Inc. "Uncover 'Her' story." Accessed September 4, 2014. <http://www.womensmemorial.org/Membership/RegStateMap.html>.
- Yale Graduate School of Arts and Sciences, "Photogrammar Project Earns Support from NEH," September 4, 2014, <http://www.yale.edu/graduateschool/publications/news/201111/photogrammar-image-database.html>.
- Yale University. "Photogrammar." Accessed September 4, 2014. <http://photogrammar.yale.edu/>.

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California