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ARE U.S. BASED 'JIHADI' INSPIRED TERRORISTS TRANSITIONING AWAY FROM PHYSICAL TRAINING CAMPS TO ONLINE TRAINING CAMPS?

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ARE U.S. BASED 'JIHADI' INSPIRED TERRORISTS TRANSITIONING AWAY
FROM PHYSICAL TRAINING CAMPS TO ONLINE TRAINING CAMPS?

A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
National Security Studies

by
Ashleigh Nicole Clayton
March 2018

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Approved by:

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ABSTRACT

This thesis is an examination of the backgrounds of twenty-five individuals who conducted a 'jihad' inspired terrorist attack within the United States between the years of 2001 and 2016 to determine if terrorists use physical training camps or online training camps as the main method of training to prepare for their attacks.

The debate about the existence of online training camps is beneficial to the field of terrorism study. However, the question of what constitutes an online training camp must first be answered before it can be determined if terrorists are using online training camps. This thesis proposes a comprehensive definition for the term 'online training camp;' in an attempt to provide an analytical basis for the examination of U.S. based terrorist training to further the academic discussion.

Additionally, it is suggested from the empirical examination of U.S.-based terrorist training backgrounds that terrorists appear to be engaging in supplemental self-directed online learning in combination with physical training, rather than a complete abandonment of physical training.

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TABLE OF CONTENTS

ABSTRACT	iii
ACKNOWLEDGEMENTS.....	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
CHAPTER ONE: INTRODUCTION	
Background.....	1
Statement of the Problem	2
Purpose of the Study	2
Discussion of Concepts and Theories	3
CHAPTER TWO: LITERATURE REVIEW.....	9
CHAPTER THREE: METHODOLOGY	14
CHAPTER FOUR: ANALYSIS	
Indicators by Perpetrator Explanations	24
Physical Indicator Analysis	31
Physical Indicator Discussion.....	32
Online Indicator Analysis	34
Online Indicator Discussion.....	35
CHAPTER FIVE: FINDINGS	
Physical vs. Online Indicator Disucssion.....	38
Physically Trained	42
Online Trained.....	44
Self-Directed Online Learning Focus or Hybrid With Practice	44

No Training/Undetermined	46
Training Trends	48
Implications.....	49
Why Physical Training Will Always be Relevant.....	49
Areas of Future Research	52
Conclusion	53
APPENDIX A: CORRELATION CHARTS OF INDICATORS.....	56
BIBLIOGRAPHY.....	58

LIST OF TABLES

Table 1. Surface and Deep Processing Characteristics Reproduced from Office et. al.....	7
Table 2. Summarization of Perpetrators.....	17
Table 3. Perpetrator and Indicator Explanations.....	24
Table 4. Occurrences of Physical Indicators.....	31
Table 5. Occurrences of Online Indicators.....	34
Table 6. Correlation Chart of Proof of Training in an Established Training Camp to Other Indicators.....	42
Table 7. Correlation Chart of Military Service to Other Indicators.....	43
Table 8. Correlation Chart of Group Practice to Other Indicators.....	45

LIST OF FIGURES

Figure 1. Physical Training Indicators by Percent.....	32
Figure 2. Online Indicators by Percent	35
Figure 3. Physical Indicators vs. Online Indicators by Percent.....	38
Figure 4. Physical vs. Online Indicators Over Time	38
Figure 5. Bar Graph of Total Expressed Indicators by Perpetrator	41
Figure 6. Perpetrators by Training Category	48

CHAPTER ONE

INTRODUCTION

Background

The United States, since 2001, has maintained what is referred to as a 'global war against terrorism,' in response to the 9/11 attacks on the World Trade Center in New York.¹ Military campaigns that have worked to fight terrorism internationally have commonly targeted the locations where terrorists train. For example, Operation Infinite Reach, which was launched under President Bill Clinton in 1998 by the United States Navy, destroyed several Al Qaeda training camps in Afghanistan.² Strikes against training camps have continued into recent years. In 2015 the US military conducted a raid against Al Qaeda camps in Kandahar, Afghanistan.³ Also, in addition to Al Qaeda, the United States has also undertaken strikes against ISIS. In October of 2017 the US military conducted an airstrike against an ISIS training camp in Yemen.⁴ Attacks against terrorist training camps have disrupted the operation of many camps. As a result some

¹ Lee Kuan Yew, "The United States, Iraq and the War on Terror," *Foreign Affairs* January/February 2007 <https://www.foreignaffairs.com/articles/iraq/2007-01-01/united-states-iraq-and-war-terror>

² Jamie McIntyre and Andrea Koppel, "U.S. missiles pound targets in Afghanistan, Sudan; Clinton: 'Our target was terror,'" *CNN*, August 21, 1998.

³ Thomas Joscelyn and Bill Roggio, "US Military Strikes Large Al Qaeda Training Camps in Southern Afghanistan," *Long War Journal*, October 13, 2015. <https://www.longwarjournal.org/archives/2015/10/us-military-strikes-large-al-qaeda-training-camps-in-southern-afghanistan.php>

⁴ Shawn Snow, "US Strike ISIS in Yemen again, killing 60 Terrorist Targets in Total," *Military Times*, October 26, 2017. <https://www.militarytimes.com/flashpoints/2017/10/26/us-strikes-isis-in-yemen-again-killing-60-terrorist-targets/>

scholars suggest that physical training camps are losing relevance and are becoming an outdated vehicle for terrorist training.⁵

The internet, which has been a recognized mode of self-directed learning and instructor driven training for everyday civilians, presents a new medium for terrorist organizations to use for training their members. Increased use of the internet by terrorists since the 1990s,⁶ has raised the question of the internet functioning as an online training camp, potentially replacing the need for physical training for terrorists.⁷

Statement of the Problem

This thesis surveys the backgrounds of terrorist perpetrators within the United States from 2001 to 2016 to determine if terrorists are replacing attendance at physical training camps with the use of online training camps.

Purpose of the Study

The current argument that the internet is serving as an online training camp for U.S. terrorists, replacing the need to attend a physical training camp is of concern to the United States because it suggests that self-starter terrorist cells will be able plan, organize, train and carry out full-scale terrorist attacks using

⁵ Aidan Kirby, "The London Bombers as "Self-Starters": A Case Study in indigenous Radicalization and the Emergence of Autonomous Cliques," *Studies in Conflict & Terrorism*, 30 (2007):415-428.

⁶ Gabriel Weinmann, *Terror on the Internet: The New Area, The New Challenges*, Washington, DC: United States Institute of Peace, 2006.

⁷ Kirby, "The London Bombers as "Self-Starters"

only the information they locate online, opening up the possibility that terrorism might be increase in frequency.⁸

Discussion of Concepts and Theories

Physical training for the purpose of this discussion is defined as the continuous engagement in physical practice for the purposes of kinetic learning to be able to adaptably perform a task within a changing environment. Physical training requires the use of kinetic learning, which is the physical application of learned theory that has been taught through either formal or informal methods.⁹ Physical training for terrorists can take place in a physical terrorist training camps which often has a similar structure to military training camps. Military camps consist of several different areas such as psychological conditioning, fitness, and technical skill instruction. A large part of physical training revolves around breaking down the individual and rebuilding them mentally in the ideology of the camp.¹⁰ For example, the army lists the following as the structure of their physical training camp: phase one is a reception week, phase two is the start of field exercises and teamwork, phase three is dedicated to marksmanship, rappelling, and confidence building, phase four focuses on weapons training and night infiltration, the final phase is completion of basic training, graduation and

⁸ Kirby, "The London Bombers as "Self-Starters"; David C Benson, "Why the Internet is Not Increasing Terrorism," *Security Studies*, 23 (2014): 295.

⁹ Samuel Glass, "The Uses and Applications of Learning Technologies in the Modern Classroom: Finding a Common Ground Between Kinaesthetic and Theoretical Delivery," *ERIC*, (March, 2013): 1-13, <https://files.eric.ed.gov/fulltext/ED477398.pdf>

¹⁰ Joining the Ranks: The Role of Indoctrination in Transforming Civilians to Service Members.

progression to advanced individual training.¹¹ Physical training camps in general appear to have a technical hands-on focus provided by qualified instructors and can have an additional focus on changing the psychological mindset of the participant to have lasting effects on the individual after they leave the camp. A physical training camp for the purpose of this discussion is defined as the structured face-to-face delivery of educational materials by an instructor for the purposes of engaging in kinetic learning through the practice of physically attending classes, meetings, demonstrations or practice sessions synchronously with the instructor and other program members that allows for interaction between the instructor and participants and encourages demonstration of the physical training skill currently being acquired by participants for evaluation/critique by the instructor.

The purpose of physically training a skill is to know how to perform that skill in a myriad of circumstances; this idea is encapsulated in the theory of perceptual learning. Perceptual learning theory is, "...experience-induced improvements in the pick-up of information."¹² Individuals perceive the world around them and it is through these perceptions that they determine their actions. The human brain attempts to estimate how an object will interact with the environment around it as the object is known to remain consistent within its

¹¹ "Basic Combat Training," Go Army, last updated May 13, 2015.

<https://www.goarmy.com/soldier-life/becoming-a-soldier/basic-combat-training.html>

¹² Patrick Garrigan and Philip J. Kellman, "Perceptual Learning Depends on Perceptual Constancy," *Proceedings of the National Academy of Sciences* 105, no. 6 (2008): 2248.

environment.¹³ Perceptual learning theory applied to motor skills states that new skills are acquired through environmental demand and adapt over time to be executed effortlessly.¹⁴ Essentially, the human brain perceives the world around it and then must practice the learned motor skill repeatedly to perfect the action as the environment changes around the individual. It is through this practice and adaptation that individuals can learn to adapt to different situations and transfer the motor skills they learned into these new situations.¹⁵

Perceptual learning theory is built upon the foundation of muscle memory which is obtained through practice. The term practice is defined as, "...a highly structured domain-specific activity that improves performance, generates no financial or commendation rewards, is costly due to resource access, and is arduous to perform."¹⁶ For example, college athletes have reported practicing up to forty hours a week, amounting to the hours for a standard full time job in the United States.¹⁷ Researchers determined that on average, for most subjects such as sports, music or chess, it took approximately 10,000 hours or 10 years of practice to reach what would be considered expert level.¹⁸

An online training camp for the purpose of this discussion is defined as the structured delivery of digital learning content and instructor interaction through

¹³ *ibid*, 2248.

¹⁴ Simon M. Rosalie and Sean Muller, "A Model for the Transfer of Perceptual-Motor Skill Learning in Human Behaviors," *Research Quarterly for Exercise and Sport* 83, no. 3 (2012): 413.

¹⁵ *Ibid*, 415.

¹⁶ *Ibid*, 415

¹⁷ Peter Jacobs, "Here's the Insane Amount of Time Student-Athletes Spend on Practice," *Business Insider* January 27, 2015. <http://www.businessinsider.com/college-student-athletes-spend-40-hours-a-week-practicing-2015-1>

¹⁸ *Ibid*, 415

the practice of distance education or E-learning by an instructor or instructors outside of the a formal learning environment where there would be physical interaction with the instructor to multiple users either at the same time or different times that encourages participants to reach deep processing levels. Online training for the purpose of this discussion is defined as the consumption of digital learning content through the practice of distance education by a single individual or group of individuals outside of a formal learning environment where there would be physical interaction with the instructor. Online training is different from the concept of self-directed learning because there is still a feedback system between the instructor and the student within online training. Self-Direct learning is the concept of directing one's self in personally prescribed learning exercises that requires the need of self-management and self-monitoring to achieve one's learning goals.¹⁹ The difference between self-directed learning and online training through a medium such as distance education has been differentiated by the United States Department of Education through the office of Federal Student Aid which defines 'distance education as:

Education that uses certain technologies to deliver instruction to students who are separated from the instructor and to support regular and substantive interaction between students and the instructor. The Interaction may be synchronous (student and instructor are in communication at the same time) or asynchronous. The technologies may include the Internet; audio conferencing; or one-way and two-way transmission through open broadcast, closed circuit, cable microwave, broadband lines, fiber optics, satellite, or wireless communications devices. A course taught through video cassettes or discs is also considered a

¹⁹ Mardziah Hayati Abdullah, "Self-Directed Learning," *ERIC Digest*, (December, 2001), <https://files.eric.ed.gov/fulltext/ED459458.pdf>

distance education course but only if one of the three technologies listed is used to support interaction between the students and the instructor.²⁰

Distance education requires the use of Digital Learning Content which is defined by the United States Government as “Learning materials and resources that can be displayed on a digital device and shared electronically with other users. Digital learning content includes both open and or commercial content.”²¹ The purpose of all distance education and online training is to achieve deep processing understanding about a subject. The concepts of surface and deep processing can be understood from the following chart recreated from Offir et. al that summarizes the differences.

Table 1. Surface and Deep Processing Characteristics Reproduced from Offir et. al.²²

Surface Processing	Deep Processing
Repeating the statement of a problem without quotes or interpretation.	Connecting facts, ideas and concepts in order to interpret, propose or judge.
Repeating what was said without adding new elements.	Proposing new elements of information.
Using ideas of concepts that were presented, without adding personal comments or advancing the idea.	Creating new information from information that was collected, using hypotheses and quotes.
Proposing solutions without explanations.	Proposing one or more solutions in terms of judgement.
Judging without justifying.	Assuming advantages and disadvantages for a situation or

²⁰ “Distance Education,” in FSA Handbook 2016-2017, *Office of Federal Student Aid* (June 2016):2-30.

** “Digital Learning Content,” *United States Department of Education*, accessed January 12, 2018, <https://www.ed.gov/race-top/district-competition/definitions>.

²² Baruch Offir, et al., “Surface and deep learning processes in distance education: Synchronous versus asynchronous systems,” *Computers and Education*, 51 (2008): 1172-1183.

	solution
Asking questions about information that is irrelevant to the problem or that do not contribute to its understanding.	Presenting proof for support by examples.
Proposing several solutions and refraining from indicating the most suitable solution.	Judgment supported by justifications.
	Handling a problem in a wider perspective.
	Developing new strategies with a wider framework.

A simplistic definition of surface learning is, “the intention to reproduce information in compliance with externally imposed task demands.”²³ Deep learning can be simplified to, “...an intention to understand...”²⁴

²³ Noel Entwistle and Susan Waterston, “Approaches to Studying and Levels of Processing in University Students,” *British Journal of Educational Psychology* 58, no. 3 (1988):258-259.

²⁴ Ibid.

CHAPTER TWO

LITERATURE REVIEW

Some scholars argue that online training camps are replacing physical training camps for United States-based jihadist inspired terrorists. Kirby proposes that the information found online was once only available through physical training camps, and now that it is online physical camps are not necessary.²⁵ She offers Al Qaeda's publication, *Mu'asker al Battar*, as evidence that there are online training camps in current operation, highlighting the idea that the London 7/7 bombers could have used the *al Battar* magazine for their attack and did not need in outside training.²⁶ Kirby also draws upon the evidence of a dry run performed by the bombers before the attack, and that the type of explosive employed are all features of the *al Battar* instructional publication to illustrate her point.

A study conducted by Gabriel Weinmann during the late 1990s consisted of monitoring terrorist information online. Weinmann focused on the internet being used as an online training camp, and suggests that an online training camp constitutes, "...using the computer-mediated channels to train, teach, direct and co-ordinate terrorists."²⁷ This proposes that online training camps encompass oversight in the planning of and preparation for attacks. He also states later on that, "For al Qaeda, the Internet serves as a virtual training camp...The Internet

²⁵ Kirby, "The London Bombers as "Self-Starters"

²⁶ Ibid, 425

²⁷ Weinmann, *Terror on the Internet: The New Area, The New Challenges*, 6

has become a valuable tool for the terrorist organization, not just to coordinate operations and launch attacks, but also as a virtual training camps, a tool of indoctrination and recruitment.”²⁸

The argument against the internet as an online training camp focuses on the internet as an information repository or ‘digital library.’²⁹ Stenerson states online training camps need to include vetted quality material from known terrorist organizations, specifically with the intent to train members. There should also be an aspect of interaction with a qualified instructor, not just an unidentified online sympathizer.³⁰ Currently, Stenerson feels that these qualifications are not being met by terrorist organizations and, therefore, no online training camp currently exists.³¹

Petter Nesser also stated that it is, “...misleading, or at least premature, to refer to the Internet as a ‘virtual training camp,” and that while there were terrorist cells that downloaded instructional materials while planning attacks, he found no instances where cells could be considered ‘virtual only.’³² Finally, Ramsey believes that even though terrorists are using the Internet, which does not mean they are gaining the upper hand from their use.³³ Terrorists are noted

²⁸ Ibid, 14

²⁹ Anne Stenerson, “The Internet: A Virtual Training Camp?” *Terrorism and Political Violence*, 20 (2008)

³⁰ Ibid

³¹ Ibid

³² Petter Nesser, “How did Europe’s Global Jihadis Obtain Training for their Militant Causes?,” *Terrorism and Political Violence*, 20 (2008):235.

³³ Gilbert Ramsay, “‘Terrorist’ Use of the Internet: An Overblown Issue.” *Middle East- Topic & Arguments*, 6 (2016):89

to be wary of the internet because they recognize that outside groups are monitoring them for evidence of terrorist activities.³⁴

The current debate on the use of online training camps for U.S.-based jihadi inspired terrorists finds itself mired in several intellectual bogs. First, there is a large debate about the existence of online training camps and little about what *constitutes* an online training camp. Wienman makes note of an internet bomb making course established by Hamas' military wing on their website.³⁵ The course is stated to be interactive in nature, allowing for participants to communicate directly with the instructor. However, Weinman does not define this an online training camp, but rather an internet course. Nevertheless, his following paragraph states that al Qaeda uses the internet as an online training camp, citing *Al Battar* as al Qaeda's online training camp.³⁶ Weinmann fails to point out that the publication initially featured a small interactive component where readers were able to communicate with qualified instructors through email.³⁷ This does increase the legitimacy of the publication as an example of a training camp, but it is not an ongoing publication transitioning it into a static document, leaving room to question whether an online training camp must be restricted to interactive content, or if it can encompass the reading of documents from a database of training documents?

³⁴ Ibid,91

³⁵ Weinmann, *Terror on the Internet: The New Area, The New Challenges*, 14-15

³⁶ Ibid

³⁷ Stenerson, "The Internet: A Virtual Training Camp?" *Terrorism and Political Violence*,226

Kirby also draws attention to “sophisticated virtual training camps”³⁸ as an alternative to attending a traditional training camp, fails to offer a definition: “The exchange of this type of instruction [bomb making and attack tradecraft] through monthly magazines, chat forums, and sophisticated *virtual* camps has given rise to the ‘do-it-yourself’ age of jihadist terror much the way the Internet has facilitated online education, business, and countless other hobbies and pursuits.”³⁹ Kirby lists ways to learn, including online training camps, but does not define online training camps.

Stenerson throughout her article provides properties which she attributes to an online training camp: verified and qualified instructors, production of quality materials specifically distributed by an official terrorist organization for the purposes of training members, and an interactive component.⁴⁰ However, Stenerson never build a comprehensive definition.

Stenerson then concluded that, “In order to talk about the Internet as a “virtual training camp,” we have to establish whether al Qaeda is, in fact, making an organized effort to train their followers online. A review of the jihadi training manuals and interactive forums that exist on the Internet today shows that this is not the case.”⁴¹ She also suggests the *Al Battar* publication as the best example of an attempt by al Qaeda to train its members online, given that it once had an

³⁸ Kirby, “The London Bombers as “Self-Starters””:425.

³⁹ Ibid

⁴⁰ Stenerson, “The Internet: A Virtual Training Camp?” *Terrorism and Political Violence*, 230

⁴¹ Ibid

interactive component. The weakness in Stenerson's theory lies in the section focused on interactivity,

It seems clear that in order to call the Internet a "virtual training camp," it has to represent more than just a place for storing and distributing training material. As this study is only concerned with publically available websites, the answer to this question will be only partial. There are a lot of other channels in which training and exchange of information may take place, such as chatrooms, PalTalk and private e-mail, in addition to forums with more restricted membership that requires personal references or other screening processes.⁴²

It appears that Stenerson's conclusion that al-Qaeda is not making an organized effort to train their members online seems a premature diagnosis, since she notes that she does not have access to all possible hosting platforms. What the debate does highlight is the lack of a comprehensive definition for what constitutes an online training camp, and a need to determine how U.S.-based terrorists are actually training.

⁴² Ibid, 228

CHAPTER THREE

METHODOLOGY

This thesis examines the background of twenty-four perpetrators who conducted 'jihadi' inspired terrorist attacks within the United States between the years of post- 9/11 2001 and 2016. The study is restricted to the United States to determine if there is a reliable pattern of indicators that can be established, which could be applied to further research in other countries. The date range of post- 9/11 2001-2016 was selected because cases newer than 2016 are unreliable in indicators as they are often still being investigated and not all material about the perpetrators has been released. Additionally, as a large component of this study involves the internet and social media, this study does not look at cases older than pre-9/11 2001. Social media platforms such as Facebook and Twitter were not invented until the mid-2000s.^{43 44} Also, computers were only present in 8.2% of all American households in 1984.⁴⁵ In 1997, only 18% of American households had internet access.⁴⁶ It was not until the year 2001 that 56.3% of households owned a computer and 50.4% of households had internet access.⁴⁷ Furthermore,

⁴³ Carolyn Abrams, "Our First 100 Million," *Facebook*, August 26, 2008, <https://www.facebook.com/notes/facebook/our-first-100-million/28111272130/>

⁴⁴ Twitter Inc, "Twitter Turns Six," *Twitter*, March 21, 2012, https://blog.twitter.com/official/en_us/a/2012/twitter-turns-six.html.

⁴⁵ "Households with Computers and Year of Purchase, by Presence of Children, Family Income and Age of Householder: October 1984," United States Census Bureau, accessed January 12, 2018, <https://www2.census.gov/programs-surveys/demo/tables/computer-internet/1984/p23-155/tab01.pdf>

⁴⁶ "Households With a Computer and Internet Use: 1984 to 2009," United States Census Bureau, accessed January 12, 2018, <https://www.census.gov/data/tables/time-series/demo/computer-internet/computer-use-1984-2009.html>

⁴⁷ Ibid

the sample excludes cases where the perpetrators that the START database attributed to Jihadi inspired terrorism but actually was not.

All cases were compiled from the National Consortium for the Study of Terrorism and Response to Terrorism (START) global terrorism database. Using the advanced search options, a database search was performed using the following parameters: United States, post 9/11 2001-2016. From the search list cases were recorded that listed the perpetrator group as either Jihad-inspired extremists, Muslim extremists or a known terrorist organization such as ISIS or al-Qaeda. This search yielded a total of thirty unique perpetrators. After compiling a list of perpetrators, open source media was searched through the LexisNexis Academic database for information on each of the perpetrators. The following six perpetrators were excluded from the analysis: Preston Lit, Justin Najan Sullivan, and Rasheed Abdul Aziz.

Richard Reid, the would-be shoe bomber who attempted to detonate a bomb on American Airlines Flight 63 from Charles-de-Gaul airport to Miami, is listed in the START database as an attack in France. It has been included in this case selection because the flight falls under Special Aircraft Jurisdiction of the United States pursuant to 18 U.S.C. 32(a) for the offense of attempted destruction of the aircraft. The Special Aircraft Jurisdiction of the United States is relevant to all United States registered flights and those international flights that

have a destination within the United States and are considered “in flight”⁴⁸ on which a crime is being committed.⁴⁹

Preston Lit admitted to planting fake bombs around the city of Philadelphia, however, he was determined to be mentally unstable and was off of his prescribed medications when the incidents occurred. Lit had a previous history of delusional behavior.⁵⁰ Lit attached messages about ‘freeing Palestine’ to his fake incendiary devices which cause authorities to first approach the case as possible terrorism.⁵¹ He was not charged with terrorism but rather arson and the threat to use a weapon of mass destruction.⁵² It does not appear the Lit’s actions were one of a jihad inspired terrorist, so he has been excluded from the research.

Justin Najan Sullivan shot and killed John Bailey Clark Jr. in a robbery. He wanted the money to carry out an ISIS inspired attack;⁵³ this does not constitute

⁴⁸ “An aircraft is ‘in flight’ from the moment when all external doors are closed and following embarkation until the moment when one such door is opened for disembarkation, or in the case of a forced landing, until competent authorities take responsibility for the aircraft.” 49 U.S.C. 45501(1)

⁴⁹ Office of the United States Attorneys. 1405. Special Aircraft Jurisdiction of the United States. Criminal Resource Manual <https://www.justice.gov/usam/criminal-resource-manual-1405-special-aircraft-jurisdiction-us>

⁵⁰ Liz Spikol, “Lit Fuse: Preston Lit was an average guy—union electrician, homeowner, loving son and brother. So how did he become the mentally ill fugitive no one can help?” *Philadelphia Weekly*, last modified March 17, 2004, http://www.philadelphiaweekly.com/news/lit-fuse/article_e5f289c0-4310-5196-9a9c-589838a72108.html

⁵¹ Jeanne Meserve and John King, “Mental Evaluation Ordered for Philly Bomb Suspect,” *CNN*, May 16, 2002. <http://www.cnn.com/2002/US/05/16/philadelphia.bomb/index.html>

⁵² DuBois, J. “United States of America V. Preston Lit.” June 12, 2007. Available from <https://www.paed.uscourts.gov/documents/opinions/07D0704P.pdf>

⁵³ Jessica Finn, “North Carolina ISIS supporter gets SECOND life sentence after pleading guilty to killing his neighbor, 74, and stealing his money to fund a terror plot on US soil that could have killed up to 1,000 people,” *MailOnline*, July 17, 2017.

a terrorist attack attempt. The purpose of the murder was funding to commit acts of terror, but the murder itself was not a jihadi-inspired terrorist attack.

Rasheed Abdul Aziz went to the Corinth Missionary Baptist Church with the intent to kill the patrons of the church, but he was talked down by the pastor John Johnson.⁵⁴ Aziz left the church without attacking anyone, and was subsequently arrested for illegal possession of a weapon as he had a prior record that prevented him from owning a weapon.⁵⁵ He was not arrested on charges of terrorism as he did not follow through with the attack, excluding this incident as a jihadi-inspired terrorist attack or attempt.

The rest of the cases were analyzed for evidence of online training or physical 'face-to-face' training.

Table 2. Summarization of Perpetrators

Date	Perpetrator	Details
11/26/2016	Abdul Razak Ali Artan	Attack on the Ohio State campus in Columbus, Ohio by driving a car into a crowd; after which Artan proceeded to exit the vehicle and attempt to stab bystanders with a knife. ⁵⁶
9/1/2016	Ahmad Khan Rahami	Series of bombings that occurred between the dates of September 17 th and 19 th , 2016

⁵⁴ Emily Guevara, "Pastor calms man during church threat," *Tyler Paper*, September 15, 2015, https://tylerpaper.com/news/local/pastor-calms-man-during-church-threat/article_925f934b-ac87-5811-8172-47dfbddae99.html.

⁵⁵ "UPDATED: Suspect in church threat says instructed by God to 'slay infidels'," *Jacksonville Daily Progress* (Texas), September 14, 2015.

⁵⁶ Alex Wellman, "FBI reveal Ohio State University attacker "may have been inspired by ISIS" to commit car and machete rampage; Abdul Razak Ali Artan slammed his car into a group of people before leaping out and hacking at innocent passer-by with a butcher's knife," *Trinity Mirror*, November 30, 2016.

		in New Jersey and New York.
6/12/2016	Omar Mateen	An attack on the Pulse Nightclub in Orlando, Florida and opened fire on the crowd.
1/7/2016	Edward Archer	Archer fired thirteen shots at a police officer after flagging down the patrol car, hitting the officer three times.
12/2/2015	Tashfeen Malik Syed Rizwan Farook	Attack on the Inland Regional Center social services agency in San Bernardino, California and opened fire on his own co-workers at an office Christmas Party.
11/4/2015	Faisal Mohammad	An attack on a group on students on the University of California- Merced campus, stabbing four individuals before being interrupted by a construction worker and fleeing the scene. ⁵⁷
7/16/2015	Mohammad Youssuf Abdulazeez	Attack on two separate military recruitment centers in Chattanooga, Tennessee. Abdulazeez first fired at the Lee Highway recruiting center and then with the police chasing him he drove to the Amnicola Highway recruitment center crashing through the security gate in front of the facility and then proceeded to fire into the buildings. ⁵⁸⁵⁹
5/3/2015	Elton Simpson Nadir Soofi	Attack on the Curtis Culwel Center in Garland, Texas

⁵⁷ Ramona Giwargis et al, "UC Merced: Manifesto detailed Faisal Mohammad's revenge plot," *Contra Costa Times*, (California), November 6, 2015.

⁵⁸ Amanda Holpuch, "Officials Say service members attempted to fight off Chattanooga gunman; at press conference, law enforcement officials give previously undisclosed details on Mohammad Youssuf Abdulazeez's July attack on recruitment center," *Guardian*, (New York), July 22,2015.

⁵⁹ Amanda Holpuch and Alan Yuhas, "Mohammad Youssuf Abdulazeez; everything we know about the Chattanooga gunman; The Gunman, 24, who died in an attack on a military recruitment center after allegedly killing four US marines, is believed to have been born in Kuwait," *Guardian*, (New York), July 17,2015.

		during a 'draw prophet Muhammad contest'. Simpson and Soofi opened fire outside the Center at the end of the contest, initially targeting a police car that was in front of the center before being killed.
04/27/2014 06/01/2014 06/25/2014	Ali Muhammad Brown	Brown murdered three individuals across two states. He killed Brendan Tevlin in West Orange, New Jersey by shooting him at a traffic light. He also shot Leroy Henderson, Ahmed Said and Dwone Anderson-Young in Skyway and Seattle, Washington.
10/23/2014	Zale Thompson	Thompson attacked several police officers standing on the street in New York City with a hatchet. ⁶⁰
4/1/2013	Tamerlan Tsavnaev Dzhorkhov Tsavnaev	The Tsavnaev brothers detonated multiple homemade bombs around the finish line of the Boston Marathon. ⁶¹
11/30/2012	Abdulatif Ali Aldosary	Aldosary detonated a homemade explosive device outside of the Social Security Office in Casa Grande, Arizona. Aldosary is also said to be responsible for the shooting of a man on November 27, 2012. ⁶²

⁶⁰ Rachel Flint, "Shocked relative of New York terror cop says his cousin's life was saved by helmet; Kenneth Healey, 25, had only been serving in the force for three months when he was attacked by 32-year-old Zale Thompson," *Trinity Mirror*, October 29, 2014.

⁶¹ Christopher Bucktin, "Boston Marathon bomber sentenced to death penalty for killing three and injuring 264 in blast; Dzhokhar Tsarnaev, 21, and his brother Tamerlan carried out the atrocity at the race on April 19, 2013," *Daily Record*, May 16, 2015.

⁶² "Iraqi man pleads not guilty in Casa Grande bombing," *Associated Press*, (Florence, Arizona), March 15, 2014.

10/2010	Yonathan Melaku	Melaku fired upon several military facilities and the Pentagon. ⁶³
05/01/2010	Faisal Shahzad	Shahzad attempted to detonate a car bomb in Times Square, New York. He lit the bomb but it did not explode; only creating smoke and attracting the attention of passersby who alerted the police. Causing any further attempt to detonate the bomb to be interrupted.
12/25/2009	Umar Farouk Abdulmutallab	Abdulmutallab boarded a Northwest Airlines flight from Amsterdam to Detroit, shortly before landing in Detroit Abdulmutallab attempted to detonate an explosive device that was sewn into his underwear. ⁶⁴
11/5/2009	Nidal Malik Hasan	Hasan, an army psychiatrist opened fired on the Fort Hood army base in Texas. ⁶⁵
6/1/2009	Abdulkakim Muhammad	Muhammad opened fire on an Army-Navy recruiting center in Little Rock, Arkansas. ⁶⁶
3/8/2006	Mohammed Reza Taheri-azar	Taheri-azar rented a Jeep and drove it through a crowd on the University of North Carolina at Chapel Hill campus.
1/5/2002	Charles Bishop	Bishop stole a plane from a local airfield where he was taking flying lessons and crashed it into a Bank of America building in Tampa,

⁶³ Justin Jouvenal, "Man Who fired at Pentagon, other sites gets 25 years," *Washington Post*, January 12, 2013.

⁶⁴ Warren Richey, "Underwear Bomber trial: Will shed light on American cleric killed in Yemen? The trial of the accused underwear bomber Umar Farouk Abdulmutallab is set to begin Tuesday. Will testimony support Obama's contention that slain cleric Anwar al-Awkai 'directed' the failed plot?," *Christian Science Monitor*, October 10, 2011.

⁶⁵ "A look at attacks on military bases in the US," *Associated Press*, July 16, 2015.

⁶⁶ Ibid.

		Florida.
3/31/2003	Eid Elwirelwir	Elwirelwir crashed his car through the security gate at March Airforce Base in Riverside, California.
12/22/2001	Richard Reid	Reid boarded an American Airlines flight in Paris that was destined for Miami. His shoes contained an explosive device, while attempting to detonate the device he was apprehended by fellow passengers.

Each case was then examined using the following list of indicators to determine the *main* source of training for each perpetrator. A strong indicator of online training is private internet communication with known terrorists. Weak indicators of online training include download of manuals, watching videos of attacks, and visiting extremist websites. Strong indicators of physical ‘face-to-face’ training are proof of training in an established terrorist training camp and military enlistment. A weak indicator of physical ‘face-to-face’ training is known organized group practice (firearms or other). A very weak indicator is overseas travel to locations with known operational terrorist training camps. This last indicator is included because overseas travel to areas with known terrorist training camps often brings in the speculation by officials that it is possible for the suspect to have traveled to the camp to receive training but that there is no physical proof of them actually attending the camp.

Private internet communication with known terrorists is a strong indicator though it is not always disclosed what the private conversations were about.

However, it is one of the most direct ways to receive terrorist training instruction over the internet. Weak indicators for online training are still useful, because they show the attempt to gain training online. The downloading of training manuals is considered a weak indicator of online training because as specially-designed learning materials, they provide detailed instruction for users. However, not every individual will be able to understand the directions though they are often geared towards those without formal training. For example, the al-Qaeda magazine *Inspire* is known for including explosives recipes that focus on building bombs from household items,⁶⁷ making it possible for those without true explosive training to attempt to create explosive devices. Watching attacks online may help individuals carry out an attack by demonstrating what the perpetrator should do or not do to carry out a successful attack. Visiting extremist websites can provide individuals with access to other training materials that were not reported in the open source media.

Proof of training in an established terrorist training camp is the strongest indicator of physical 'face-to-face' training. Proof is either a photograph or video of the suspect inside a known terrorist camp, a statement by the suspect that they attended a training camp. The other strong indicator for physical training is military enlistment. Military enlistment is considered a physical training indicator because all new service members are subjected to basic training that provides

⁶⁷ Claire Wiskind, "Lone Wolf Terrorism and Open Source Jihad: An Explanation and Assessment," *International Institute for Counter-Terrorism*, (Summer 2016):1-53, <https://www.ict.org.il/UserFiles/ict-lone-wolf-osint-jihad-wiskind.pdf>

them with some rudimentary physical and firearms training.⁶⁸ The military enlistment indicator category also includes individuals who fought with unofficial military forces in other countries. Organized group practice is considered a weak indicator because, although a necessary step to weapons mastery, the lack of an instructor makes it self-directed learning. Practice for the context of this thesis mostly involves organized visits to firing ranges with friends or relatives. The last weak indicator for physical training is overseas travel.⁶⁹ Many details of these trips are not fully released to the media, leading to speculation about whether the individual attended a terrorist training camp, or came into contact with other individuals that trained them face-to-face in some manner but there is no actual concrete proof that the traveler attended a physical training camp.

⁶⁸ Military service also includes occasions of practice and further development, as continuing maintenance of skills is typically required.

CHAPTER FOUR

ANALYSIS

The following is an analysis of the indicators for physical or online training expressed by each individual perpetrator as divulged by open source media.⁷⁰

Indicators by Perpetrator Explanations

Table 3. Perpetrator and Indicator Explanations

Perpetrator	Abdul Razak Ali Artan
Physical Training Indicators	Abdul Razak Ali asylum with his family in Pakistan after fleeing Somalia due to “Militia and Al-Shabbah” persecution. ⁷¹ It is noted in Artan’s case that this indicator is particularly weak because he did not travel outside the U.S. after arrival, but spent possibly seven years in Pakistan during his teenage years. ⁷²
Online Training Indicators	N/A
Perpetrator	Ahmad Khan Rahami
Physical Training Indicators	Rahami exhibited the indicators for overseas travel and training in an established training camp. Investigators have stated they believe the explosive devices he constructed indicate Rahami had training beyond reading online manuals. ⁷³ Rahami traveled to Afghanistan and Pakistan during the years of 2011 and 2014. ⁷⁴

⁷⁰ A complete spreadsheet of the perpetrators and indicators can be found in the Appendix section.

⁷¹ Matt Zapposky, “Ohio State attacker, a refugee, should have been more thoroughly vetted, Senate Judiciary chair alleges; U.S. Sen. Charles E. Grassley says his office obtained records that show U.S. officials should have done more questioning of Abdul Razak Ali Artan, a Somali refugee,” *Washington Post*, December 15, 2016.

⁷² “Attacker Abdul Razak Ali Artan,” *Yerepouni Daily News*, November 29, 2016.

⁷³ Marc Santora, Pir Zubair Shah, Joseph Goldstein and Adam Goldman, “Keep an Eye on Him, Ahmad Khan Rahami’s Father Says He Told F.B.I.,” *The New York Times*, September 22, 2016.

⁷⁴ “Ahmad Khan Rahami: the bombing suspect,” *Shenzhen Daily*, September 23, 2016.

Online Training Indicators	His father reported to the FBI that Rahami watched explosions online and visited websites belonging to al Qaeda and the Taliban. ⁷⁵
Perpetrator	Omar Mateen
Physical Training Indicators	Mateen exhibited the indicator for overseas travel. He traveled to Saudi Arabia in 2011 and 2012. ⁷⁶
Online Training Indicators	Mateen exhibited the indicators for watching attacks online and visiting extremist sites. His wife has stated that he watched jihadist videos and it was disclosed by the FBI that Mateen's computer was used to visit extremist websites. ⁷⁷⁷⁸
Perpetrator	Edward Archer
Physical Training Indicators	Archer, exhibited the indicator of overseas travel. Archer traveled to Saudi Arabia and Egypt during the years 2011 and 2012. ⁷⁹
Online Training Indicators	N/A
Perpetrator	Syed Rizwan Farook
Physical Training Indicators	Farook exhibited the physical indicators of overseas travel and group practice. He traveled to Saudi Arabia and Pakistan multiple times between the years 2011 and 2014. ⁸⁰ Farook was also known for visiting firing ranges as a hobby, alone and with his wife. ⁸¹
Online Training Indicators	Farook exhibited the indicators for manual download, visiting extremist websites and private messages with known terror organizations. He downloaded Al Qaeda <i>Inspire</i> , to follow the bomb making instructions. ⁸² Farook

⁷⁵ Marc Santora, et al., " 'Keep an Eye on Him' Ahmad Khan Rahami's Father Says He Told F.B.I.," *New York Times*, (New York), September 22, 2016.

⁷⁶ Natasha Bertrand, "Orlando Shooter Reportedly Traveled to Saudi Arabia Twice for a Religious Pilgrimage," *Business Insider*, June 13, 2016, <http://www.businessinsider.com/omar-mateen-saudi-uae-umrah-2016-6?r=UK&IR=T>

⁷⁷ Del Quentin Wilber, "The FBI investigated the Orlando mass shooter for 10 months – and found nothing. Here's why," *Los Angeles Times*, July 14, 2016.

⁷⁸ Adam Goldman, "Orlando Gunman's Wife Breaks Silence: 'I Was Unaware'," *New York Times*, November 1, 2016.

⁷⁹ "Islamic State's Growing gang of terrorists: Faces of global terror," *Indian Express*, February 8, 2016.

⁸⁰ "Syed Rizwan Farook," *San Bernardino Sun*, (San Bernardino, California), December 6, 2015.

⁸¹ Saeed Ahmed, "Who were Syed Rizwan Farook and Tashfeen Malik?," *CNN*, December 4, 2015, <http://www.cnn.com/2015/12/03/us/syed-farook-tashfeen-malik-mass-shooting-profile/index.html>.

⁸² Alan Yuhus and Amanda Holpuch, "San Bernardino shooters' friend charged with 'conspiring to commit terrorism'; Enrique Marquez, a friend of Syed Farook and Tashfeen Malik, has also been charged with violating firearms laws over four guns used during 2 December attack," *Guardian*, December 18, 2015.

	is known to have communicated online with Nusra Front and al-Shabab members on social media. ⁸³ He also spent time visiting extremist websites. ⁸⁴
Perpetrator	Tashfeen Malik
Physical Training Indicators	Malik exhibited the indicators as well for group practice. Since she lived overseas for most of her life, her time spent there is not analyzed as part of this study. Malik is known to have attended practice at gun ranges with her husband. ⁸⁵
Online Training Indicators	Malik exhibited the indicators for visiting extremist sites. She viewed extremist material online along with her husband. ⁸⁶
Perpetrator	Faisal Mohammad
Physical Training Indicators	N/A
Online Training Indicators	Mohammad exhibited the indicator for visiting extremist sites. The FBI released that Mohammad's computer browser history was full of visits to extremist sites. ⁸⁷
Perpetrator	Mohammad Youssuf Abdulazeez
Physical Training Indicators	Abdulazeez exhibited the indicators for overseas travel and group practice. He visited Jordan in 2014. ⁸⁸ He also practiced shooting regularly since his childhood, starting with BB guns and Paintball guns before moving on to assault rifles after returning from Jordan.
Online Training Indicators	N/A
Perpetrator	Elton Simpson
Physical Training Indicators	Simpson both has indicators for group practice as he were shown by a friend, Abdul Kareem, how to fire the

⁸³ Richard Wheatstone, "San Bernardino terrorist housewife 'led the charge' as tragic employees gunned down around Christmas tree; Husband and wife Tashfeen malik and Syed Rizwan Farook killed 14 people in a gun rampage at a Christmas party for local government workers in California," *Trinity Mirror*, December 7, 2015.

⁸⁴ Yuhas, "San Bernardino Shooters' friend charged"

⁸⁵ James Rufus Koren and Kim Puzanghera, "Online loan to shooter opens debate; Funds borrowed by Syed Rizwan Farook raise questions about need for regulation," *Los Angeles Times*, (California), December 12, 2015.

⁸⁶ Chis Pleasance, "Father of San Bernardino shooter Tashfeen Malik condemns his daughter's attack and says he is 'in such pain I cannot describe it'," *Daily Mail*, December 10, 2015.

⁸⁷ Sam Levin, "Attack on California university campus was Isis-inspired, FBI says; Faisal Mohammad was carrying a photocopy of an Isis flag when he was shot and killed by police after stabbing a fellow student at UC Merced," *Guardian*, (San Francisco, California), June 3, 2016.

⁸⁸ Reuters, "Chattanooga shooter sent text message declaring war; Mohammad Youssuf Abdulazeez texted his close friend a link to a long Islamic verse," *Telegraph*, July 18, 2015.

	weapons that were to be used in the attack and practiced firing with them. ⁸⁹
Online Training Indicators	Simpson exhibited the indicators for watching attacks online and private messages with known terror organizations. He was using the encrypted application Surespot to talk to Mohammed Miski, an ISIS recruiter, who messaged Simpson to carry out the attack. ⁹⁰ He also watched online jihadist videos. ⁹¹
Perpetrator	Nadir Soofi
Physical Training Indicators	Soofi exhibited the indicators for group practice, he was shown how to fire the weapons used in the attack by a friend, Abdul Kareem, and together with Elton Simpson the group practiced shooting together.
Online Training Indicators	Soofi exhibited the indicator for watching attacks online. Soofi along with Simpson watched online jihadist videos. ⁹²
Perpetrator	Ali Muhammad Brown
Physical Training Indicators	N/A
Online Training Indicators	N/A
Perpetrator	Zale Thompson
Physical Training Indicators	Thompson exhibited the indicator of military service. He enlisted in the U.S. Navy in 2001, was deployed in March 2003, and discharged in August 2003 for misconduct. ⁹³
Online Training Indicators	Thompson exhibited the indicators for watching attacks online and visiting extremist sites. He is known to have viewed information about beheadings and terrorist organizations. ⁹⁴
Perpetrator	Tamerlan Tsvnaev
Physical Training	Tamerlan exhibited the indicators for overseas travel and

⁸⁹ Jacques Billeaud, "Man convicted of helping plot Texas attack files appeal," *Associated Press*, (Phoenix, Arizona), December 21, 2017.

⁹⁰ Pamela Geller, "CBS 60 Minutes on Garland Attack: The FBI Wanted US Dead," *Atlas Shrugs*, March 27, 2017.

⁹¹ Billeaud, "Man convicted of helping plot Texas attack files appeal."

⁹² Ibid.

⁹³ Peter Foster, "New York axe attacker: Navy veteran who converted to Islam; Zale Thompson injured two NYC police officers in a 'lone wolf' attack after praising jihad and writing with a 'hyper-racial' focus online," *Telegraph*, October 24, 2014.

⁹⁴ Ray Sanchez, et al., "ISIS goes global: 126 attacks in 23 countries have killed over 1,730," *CNN*, July 6, 2016.

Indicators	group practice. He traveled to Dagestan, a republic within Russia, in 2011 and 2012. ⁹⁵ ⁹⁶ Tamerlan also is on video visiting a gun range with his brother. ⁹⁷
Online Training Indicators	Tamerlan exhibited the indicators for manual download, watching attacks online, visiting extremist sites and private messages with known Jihadists. The Al Qaeda <i>Inspire</i> magazine was found on his hard drive, his YouTube account contained multiple militant videos, other jihadist materials were on his laptop from various extremist sites and has been linked at least online to William Plotnikov, a Canadian Boxer who was in Daegstan fighting with known terrorist forces. ⁹⁸
Perpetrator	Dhzokhar Tsavnaev
Physical Training Indicators	Dhzokhar exhibited the indicator for group practice. Video was taken of Dhzokhar and his brother at a gun range. ⁹⁹
Online Training Indicators	Dhzokhar has indicators for manual download, watching attacks online, and visiting extremist sites. The material found on Tamerlan's computer was also found on Dhzokhar's as Tamerlan shared all the material with his brother.
Perpetrator	Abdulatif Ali Aldosary
Physical Training Indicators	Aldosary exhibited the indicators for military service. He fought with anti-government forces in Iraq during the 1991 attempt to overthrow Saddam Hussein. ¹⁰⁰
Online Training Indicators	Aldosary exhibited the indicator for manual download. Bomb making instructions were found in his residence. ¹⁰¹
Perpetrator	Yonathan Melaku
Physical Training Indicators	Melaku exhibited the indicator for military service. He served in the Marine Corps and was a Marine Corps Reservist at the time of the attack. ¹⁰²

⁹⁵ Susan Candiotti and Ross Levitt, "Boston bombings suspect Tamerlan Tsarnaev sought out a different name," *CNN*, April 10, 2014.

⁹⁶ Simon Shuster, "Older Boston Suspect Made Two Trips to Dagestan, Visited Radical Mosque, Officials Say," *World Time*, April 22, 2013.

⁹⁷ Evan Bleier, "Video shows Dzhokhar and Tamerlan Tsarnaev visiting gun range shortly before Boston Marathon Bombing," *Daily Mail*, March 25, 2015.

⁹⁸ Candiotti, "Boston bombing suspect Tamerland Tsarnaev sought out a different name."

⁹⁹ Bleier, "Video shows Dzhokhar and Tamerlan Tsarnaev visiting gun range shortly before Boston Marathon Bombing"

¹⁰⁰ Associated Press, "Iraqi Man pleads not guilty in Casa Grande bombing."

¹⁰¹ Pamela Geller, "Arizona Muslim Murderer who set of bomb in Social Security office gets five years prison dawah," *Atlas Shrugs*, February 26, 2014.

¹⁰² Julia Ledoux, "Court documents: Yonathan Melaku videotaped Marine Corps museum shooting," *Manassa Journal Messenger*, (Virginia), June 23, 2011.

Online Training Indicators	Melaku exhibited the indicator for manual download. He downloaded manuals for bomb making and explosives. ¹⁰³
Perpetrator	Faisal Shahzad
Physical Training Indicators	Shahzad exhibited the indicators for proof of training and overseas travel His last listed visit to Pakistan was in 2010. ¹⁰⁴ Shahzad has stated that he trained in a Taliban training camp in 2009 during his time in Pakistan.. ¹⁰⁵¹⁰⁶
Online Training Indicators	N/A
Perpetrator	Umar Farouk Abdulmutallab
Physical Training Indicators	Abdulmutallab exhibited the indicators for proof of training. Al Qaeda released a video of Abdulmutallab training with Anwar al-Awlaki in 2009 at one of the training camps. ¹⁰⁷
Online Training Indicators	N/A
Perpetrator	Nidal Malik Hasan
Physical Training Indicators	Hasan exhibited the indicators for military service. He was a psychiatrist with the Army at the time of the attack and had been serving since 1988. ^{108 109}
Online Training Indicators	Hasan exhibited the indicators for visiting extremist sites and private messages with known terror organizations. He communicated through email with Anwar al-Awlaki in 2008. ¹¹⁰ Hasan's computers also showed that he visited jihadist websites. ¹¹¹

¹⁰³ Anna Mulrine, "Navy Yard Shooting: What to do about attacks on US military at home?: Monday's horrific Washington Navy Yard shooting, which killed 12, is the third attack in four years on US military installations at home. Active-duty or former military men were behind all three cases," *Christian Science Monitor*, September 16, 2013.

¹⁰⁴ "Times Square Suspect had Explosives Training, Documents Say," *CNN*, May 5, 2010.,<http://edition.cnn.com/2010/CRIME/05/04/new.york.car.bomb/index.html?>

¹⁰⁵ "Faisal Shahzad Kept Low Profile in U.S.," *CBS News*, May 4, 2010.

¹⁰⁶ Department of Justice, "Faisal Shahzad Indicted for Attempted Car Bombing in Times Square," *Department of Justice Office of Public Affairs News*, June 17, 2010, <https://www.justice.gov/opa/pr/faisal-shahzad-indicted-attempted-car-bombing-times-square>.

¹⁰⁷ Richard Spencer, "How al-Qaeda cleric Anwar al-Awlaki told the 'underpants bomber' to pray; Video released by al-Qaeda in the Arabian Peninsula showing radical cleric sending Umar Farouk Abdulmutallab off on his mission," *Telegraph*, December 9, 2015.

¹⁰⁸ The Week Staff, "Who is Nidal Hasan?" *Week*, November 6, 2009, <http://theweek.com/articles/499970/who-nidal-hasan>.

¹⁰⁹ Molly Hennessy-Fiske, "Ft Hood families describe agony; Relatives take the stand as jurors weigh sentencing for shooter Nidal Malik Hasan," *Los Angeles Times*, August 27, 2013.

¹¹⁰ "I am the shooter' Army psychiatrist Nidal Malik Hasan tells jurors," *Independent*, August 6, 2013.

Perpetrator	Abdulkhikim Muhammad
Physical Training Indicators	Muhammad exhibited the indicator for overseas travel and group practice; he traveled to Yemen in 2007. ¹¹² Muhammad purchased weapons and practiced firing at empty construction sites. ¹¹³
Online Training Indicators	N/A
Perpetrator	Mohammed Reza Taheri-azar
Physical Training Indicators	N/A
Online Training Indicators	N/A
Perpetrator	Charles Bishop
Physical Training Indicators	N/A
Online Training Indicators	N/A
Perpetrator	Eid Elwirelwir
Physical Training Indicators	N/A
Online Training Indicators	N/A
Perpetrator	Richard Reid
Physical Training Indicators	Reid exhibited the indicators for proof of training and overseas travel. He was also identified by another extremist and an instructor at one of the Afghanistan camps as having received training in the camps during his time overseas between 1999 and 2001. ¹¹⁴
Online Training Indicators	Reid exhibited the indicators for private messages with known terror organizations. ¹¹⁵ French authorities

¹¹¹ Spencer S. Hsu and Carrie Johnson, "Links to imam followed in Fort Hood investigation," *Star Tribune*, November 8, 2009. [http:// archive.li/P5iEO](http://archive.li/P5iEO).

¹¹² "The Making of an American Jihadist: Abdulkhikim Mujahid Muhammad," *Investigative Project on Terrorism*, April 15, 2011.

¹¹³ Ibid.

¹¹⁴ Michael Elliot, "The Shoe Bomber's World," *Time*, February 16, 2002, <http://content.time.com/time/world/article/0,8599,203478-3,00.html>.

¹¹⁵ Reid at one point stated that he worked alone and used an internet recipe to make the explosives. This was disproven by the FBI; they discovered forensic evidence on the device that proves Reid had assistance with the device.

"Shoe bomb suspect 'did not act alone'," *BBC News*, January 25, 2002, <http://news.bbc.co.uk/2/hi/americas/1783237.stm>.

	discovered that Reid was receiving instruction from Al Qaeda in Pakistan through email. ¹¹⁶
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Physical Indicator Analysis

The following charts summarize the data by indicators and by perpetrator.

The physical indicators are skewed towards the weaker indicators.

Table 4. Occurrences of Physical Indicators

Perpetrator	Proof of Training In Established Training camp	Military Service	Group Practice	Overseas Travel
Abdul Razak Ali Artan	0	0	0	1
Ahmad Khan Rahami	1	0	0	1
Omar Mateen	0	0	0	1
Edward Archer	0	0	0	1
Syed Rizwan Farook	0	0	1	1
Tashfeen Malik	0	0	1	1
Faisal Mohammad	0	0	0	0
Mohammad Youssuf Abdulazeez	0	0	1	1
Elton Simpson	0	0	1	0
Nadir Soofi	0	0	1	0
Ali Muhammad Brown	0	0	0	0
Zale Thompson	0	1	0	0
Tamerlan Tsavnaev	0	0	1	1
Dhzokhar Tsavnaev	0	0	1	0
Abdulatif Ali Aldosary	0	0	1	0
Yonathan Melaku	0	1	0	0
Faisal Shahzad	1	0	0	1
Umar Farouk Abdulmutallab	1	0	0	1
Nidal Malik Hasan	0	1	0	0
Abdulkhakim Muhammad	0	0	1	1
Mohammed Reza Taheri-azar	0	0	0	0
Charles Bishop	0	0	0	0

¹¹⁶ Elliot, "The Shoe Bomber's World."

Eid Elwirlwir	0	0	0	0
Richard Reid	1	0	0	1
Total	4	4	8	12

Out of the total twenty-four perpetrators there were four who trained in an established terrorist training camp. Eight perpetrators participated in a group training exercise. While only four perpetrators were enlisted with a United States Military branch or fought with an international military unit. Finally, twelve of the twenty-four perpetrators traveled overseas for personal reasons.

Physical Indicator Discussion

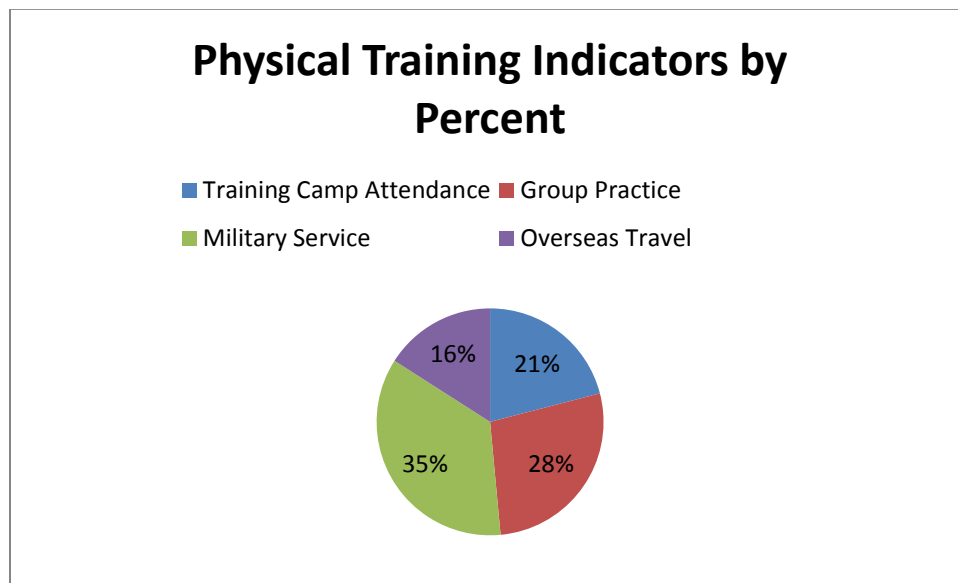


Figure 1. Physical Training Indicators by Percent

The weakest indicator, overseas travel, yielded the highest indicator value. However, when this is contrasted with the indicator for proof of training in an established terrorist training camp it shows how weak of an indicator it really is. Only four of the twelve individuals, Ahmad Khan Rahami, Fraaisal Shahzad, Umar Farouk Abdulmutallab and Richard Reid, who went overseas trained expressed

the indicator for training within an established terrorist training camp, which gives rise to the idea that perhaps while the media loves to speculate about what the perpetrators are doing while they are overseas that it is just that, speculation. This study provided no indication that personal overseas travel to countries with known terrorist training camps indicates that individuals received training in a terrorist training camp. The four who traveled overseas to a known terrorist training camp did not exhibit any other physical training indicators except overseas travel.

The second most frequent indicator was group practice, with eight of the twenty-four perpetrators, Syed Rizwan Farook, Tashfeen Malik, Mohammad Youssuf Abdulazeez, Elton Simpson, Nadir Soofi, Tamerlan Tsavnaev, Dzhokhar Tsavnaev, and Abdulhakim Muhammad, participating in some type of group practice with friends or family. This could mean that when attendance at a terrorist training camp is not possible, individuals will seek out alternative methods of physical training such as informal group practice. The real importance of this indicator rests in the idea that physical training; even in an informal environment is still important to those wishing to perpetrate terrorist attacks. Interestingly, the four who did have formal training in a terrorist training camp did not have the indicator for practice.

Lastly, only four individuals had prior military service training: Zale Thompson, Abdulatif Ali Aldosary, Yonathan Melku and Nidal Malik Hasan. Those with military service exhibited some of the same patterns of indicators as

those who trained in a physical training camp. None of them practiced outside what was required for their military service but they did not travel overseas for personal reasons.

Online Indicator Analysis

The following charts summarize the data by indicators and by perpetrator.

The online indicators show a large portion of individuals exhibiting online indicators visited extremist websites while only a few actually downloaded manuals from the sites.¹¹⁷

Table 5. Occurrences of Online Indicators

Perpetrator	Private Internet Communication with Known Terrorists	Manual Download	Watching Attacks	Visiting Extremist Sites
Abdul Razak Ali Artan	0	0	0	0
Ahmad Khan Rahami	0	0	1	1
Omar Mateen	0	0	1	1
Edward Archer	0	0	0	0
Syed Rizwan Farook	1	1	0	1
Tashfeen Malik	0	0	0	1
Faisal Mohammad	0	0	0	1
Mohammad Youssuf Abdulazeez	0	0	0	0
Elton Simpson	1	0	1	0

¹¹⁷ It is recognized by the author that online indicators in particular may be underreported by the media due to law enforcement and other authorities not releasing the entirety of a perpetrator's online activities for various reasons, including the necessity to maintain in place undercover monitoring of other terrorists or sympathizers that may have come into contact with a perpetrator for prevention of future attacks.

Nadir Soofi	0	0	1	0
Ali Muhammad Brown	0	0	0	0
Zale Thompson	0	0	1	1
Tamerlan Tsavnaev	1	1	1	1
Dhzokhar Tsavnaev	0	1	1	1
Abdulatif Ali Aldosary	0	1	0	0
Yonathan Melaku	0	1	0	0
Faisal Shahzad	0	0	0	0
Umar Farouk Abdulmutallab	0	0	0	0
Nidal Malik Hasan	1	0	0	1
Abdulahakim Muhammad	0	0	0	0
Mohammed Reza Taheri-azar	0	0	0	0
Charles Bishop	0	0	0	0
Eid Elwirelwir	0	0	0	0
Richard Reid	0	0	0	0
Totals	5	5	7	9

The strongest indicator, private messages with known terrorists was only exhibited by four of the total twenty-four perpetrators. Manuals were downloaded by five perpetrators, while seven watched attacks online. The highest occurring indicator was the weakest, with nine perpetrators visiting extremist sites online.

Online Indicator Discussion

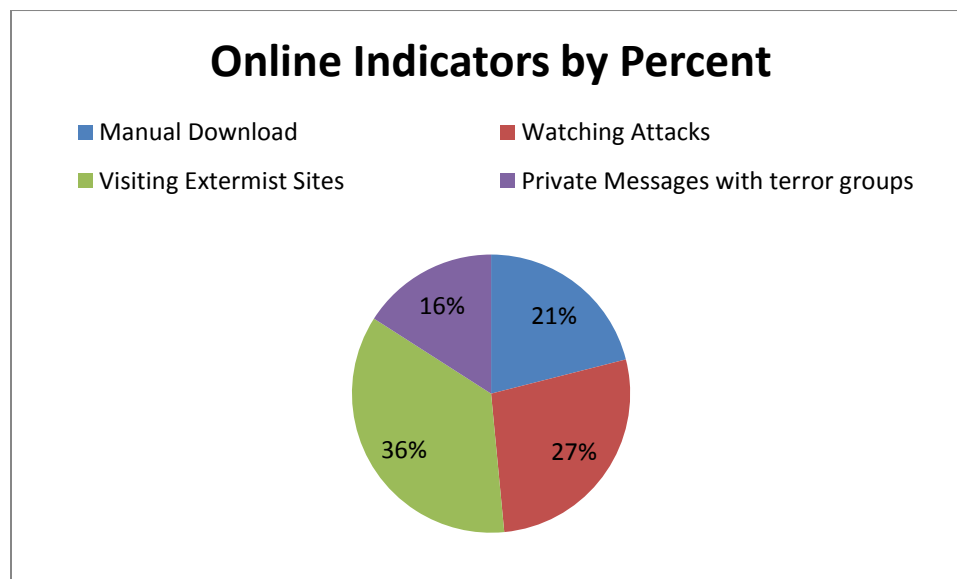


Figure 2. Online Indicators by Percent

Out of the twenty- four perpetrators, only four of them were known to have communicated with known terrorists through private messages: Syed Rizwan Farook, Elton Simpson, Tamerlan Tsavnaev and Nidal Malik Hasan. It is unknown what Farook discussed with his Al Nusra and al-Shabbab contacts¹¹⁸ and Hasan is said to have exchanged emails about religion with Anwar al-Awlaki about¹¹⁹ but it is unknown what Tamerlan discussed with William Plotnikov.¹²⁰ Simpson received instruction for the Garland attack through private messages.¹²¹ Overall, it appears that while it is a viable concept for instruction to be received directly from terrorist organizations but it may not occur as frequently as speculated by the media. However, it is possible that not all connections to known terror organizations have been revealed in open source media.

The second strongest indicator, manual download occurred only five times which was marginally lower than anticipated. With the ease of access to the internet and the abundance of information to be found on the web it was expected that nearly all of the perpetrators would have expressed this indicator however, only Syed Rizwan Farook, Tamerlan Tsavnaev and Dzhokhar Tsavnaev were in possession of the Al Qaeda *Inspire* magazine. The other two individuals, Abdulatif Ali Aldosary and Yonathan Melaku were in possession of unspecified bomb making instructions. However, watching attacks online was the

¹¹⁸ "San Bernardino terrorist housewife"

¹¹⁹ "I am the shooter."

¹²⁰ Candiotti, "Boston bombings suspect Tamerlan Tsarnaev sought out a different name."

¹²¹ "Attack in Garland," interview by Anderson Cooper, *60 Minutes*, CBS News, August 20, 2017, Transcript.

second most represented indicator with seven total occurrences. The consumption of violent videos online appears to be a more recent aspiration for those who wish to commit terrorist attacks.

Lastly, nine of the twenty-four perpetrators visited extremist sites. This indicator is unfortunately weak because it is not known what information the perpetrators were accessing but it does show an eagerness to seek out and read information pertaining to personal interests in terrorism.

CHAPTER FIVE

FINDINGS

Physical vs. Online Indicator Discussion

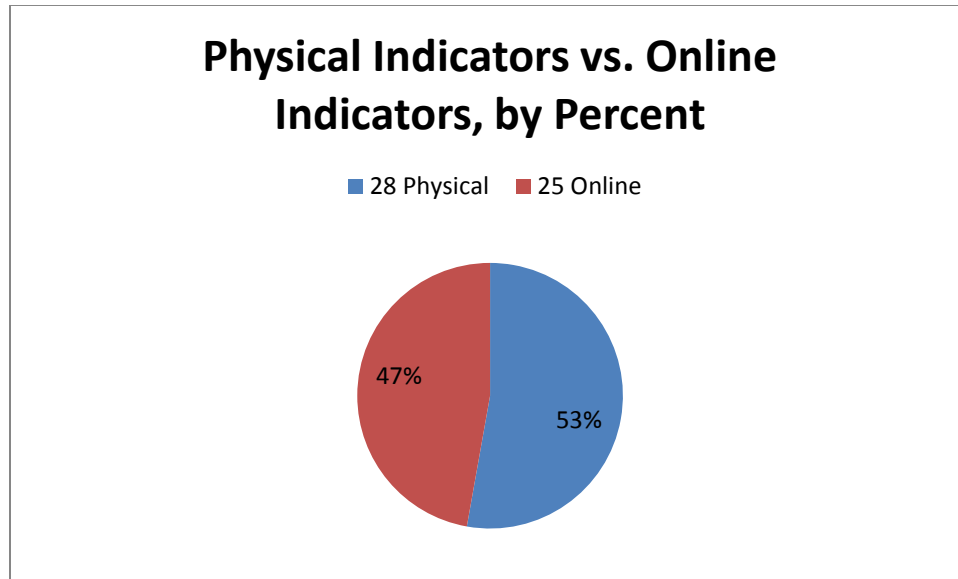


Figure 3. Physical Indicators vs. Online Indicators, by Percent

In total the physical indicators outweigh the online indicators by only 6%. Though it is recognized that each specific case must be examined to determine what the *main* source of training is for each individual. One of the main hypotheses in recent years is that the internet is removing the need/desire for physical training in favor of training that may be safer and easier to access online.¹²² Looking at the data from the twenty-four perpetrators included in this study should establish some basis for determining the validity of this idea.

¹²² Kirby, "The London Bombers as "Self-Starters".

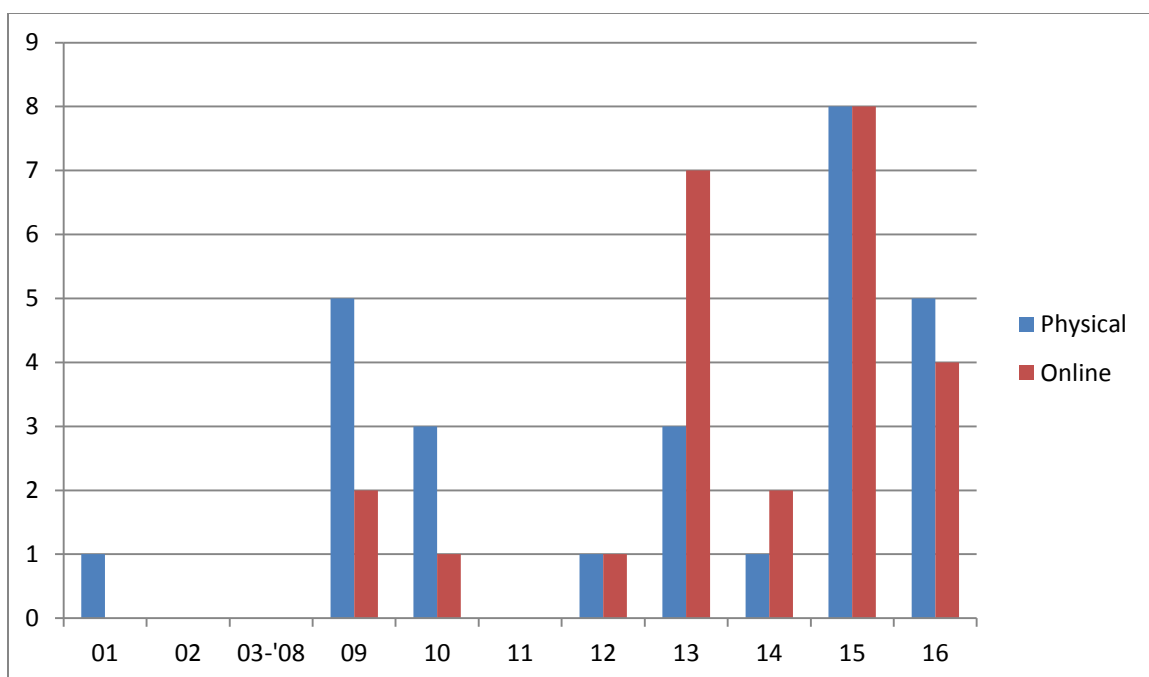


Figure 4. Physical vs. Online Indicators Over Time

There is an obvious gap in the timeline for indicators, between the years of post-9/11 2001 and 2008 there were only three cases of jihadist terrorism within the United States: Eid Elwirelwir, Preston Lit and Mohammed Reza Taheri-azar. Preston Lit was excluded and the other two cases did not express any indicators for any category.

Only in two years, 2013 and 2014, did online indicators surpass physical indicators. The case from 2013 is that of the Boston Marathon Bombers, who appear to have for the most part used the *Inspire* magazine which included plans for the detonator types the Tsavnaev brothers used in their pressure cooker bombs. The two cases in 2014 were Zale Thompson and Ali Muhammad Brown. Thompson expressed two online indicators, watching attacks online and visiting

extremist websites. His physical indicator was military enlistment. Brown did not exhibit indicators for either category.

The pattern that appears to be emerging starting in 2015 is the combination of researching materials online and self-directed practice. There were five cases of practice in 2015 alone and all of the cases also had the indicators for watching attacks online or visiting extremist websites. It is possible that online research is being used to supplement physical training rather than replace it entirely. There was a surge of online indicators between the years of 2013 and 2014 that could have represented a shift in the direction of online training replacing physical training; however the trend reversed in 2015. Due to the small N size of the study and the fact that some cases from 2016 are not represented due to the lack of indicators, it is possible repeat of this study in a few years would yield a more complete picture. However, at this time it appears that supplementation rather than replacement is what is occurring in relation to how terrorists are receiving training.

Individual examination of indicators for each perpetrator reveals four categories that a person can fall into for the *main* source of training: Physically Trained, Online Trained, Self-Directed Online Learning Focus or Hybrid with Practice, and No Training/Undetermined.

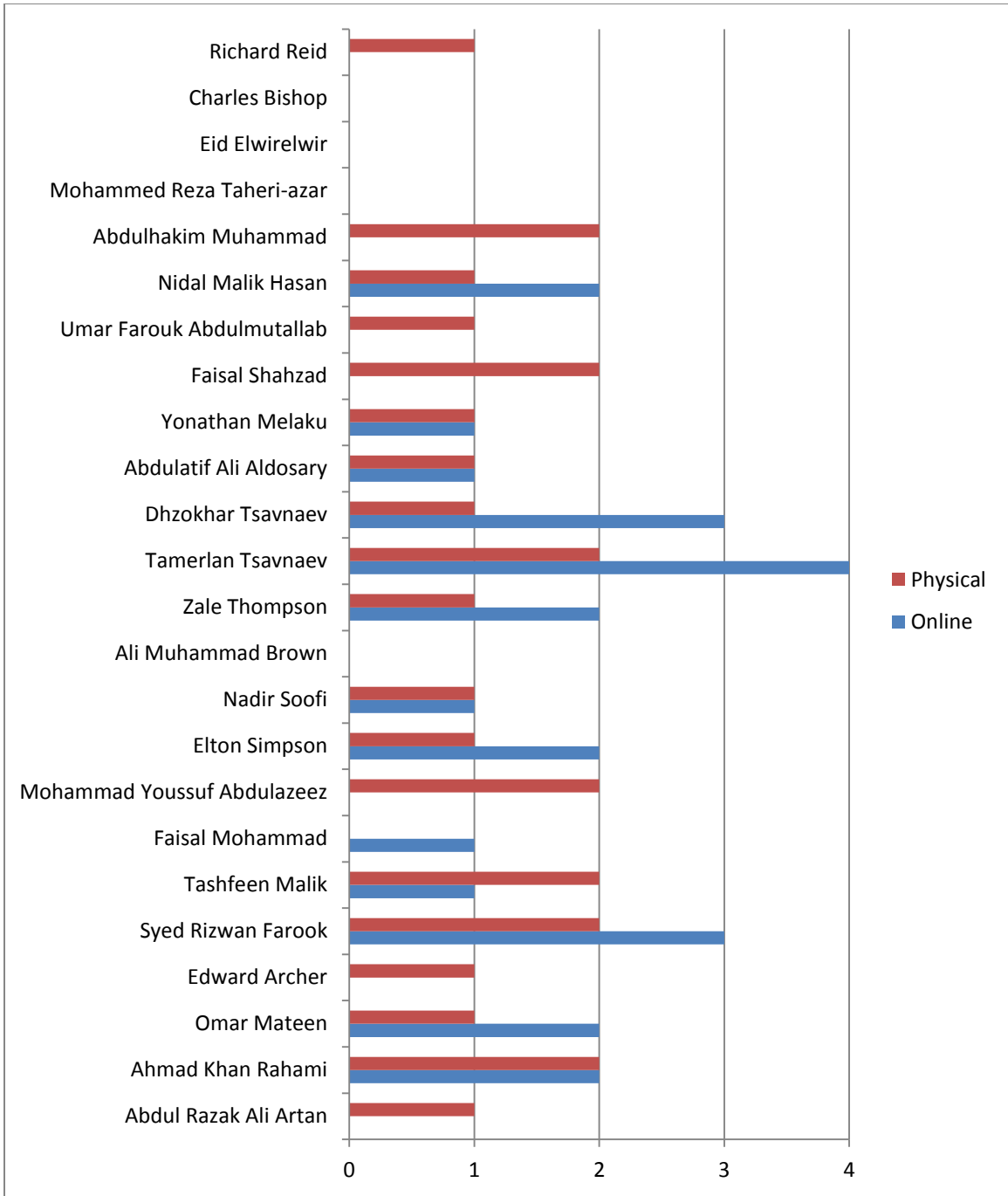


Figure 5. Bar Graph of Total Expressed Indicators by Perpetrator

Physically Trained

There are eight perpetrators, Richard Reid, Umar Farouk Abdulmutallab, Faisal Shahzad, Ahmad Khan Rahami, Nidal Malik Hasan, Yonathan Melaku, Abdulatif Ali Aldosary and Zale Thompson, who present with physical training as their main source of training. Reid, Abdulmutallab, Shahzad and Rahami were all training inside an established terrorist training camp. Hasan, Melaku, and Thompson all served with a branch of the United States Military and Aldosary fought with anti-government forces overseas. Both groups exhibited many of the same patterns of indicators, physical training with no or very little online activity. The following charts summarize the pattern of how the indicators occur together.

Table 6. Correlation Chart of Proof of Training in an Established Training Camp to Other Indicators

	Manual Download	Watching Attacks	Visiting Extremist Sites	Private Communication with Known Terrorists	Group Practice	Military Service	Overseas Travel
Proof of Training in an Established Terrorist Training Camp (4)	0	1	1	0	0	0	4
	0%	25%	25%	0%	0%	0%	100%

Of the four perpetrators who trained in an established terrorist training camp only Rahami spent a great deal of time watching online attacks, going on extremist websites and listening to Jihadist lectures according to his father.¹²³ This suggests that the instruction received at the training camps is superior to any information that would be found online, in Rahami's case it appears that his internet activity is linked more closely to radicalization rather than training.

Table 7. Correlation Chart of Military Service to Other Indicators

	Manual Download	Watching Attacks	Visiting Extremist Sites	Private Communication with Known Terrorists	Proof of Training in an Established Terrorist Training Camp	Group Practice	Overseas Travel
Military Service (4)	2	1	2	1	0	0	0
	50%	25%	50%	25%	0%	0%	0%

For those with military service, it was found that they did not practice or go overseas for personal reasons but they did spend slightly more time online. Melaku and Aldosary downloaded manuals, while Hasan visited extremist sites and communicated with known terrorist Anwar al-Awlaki. Thompson visited sites and watched attacks online. This group, while they had enough physical training that they did not feel the need to practice, still sought out more information about conducting attacks. This could be because the physical skills gained through

¹²³ Santora, "Keep an eye on him."

military service are not entirely adequate in comparison to the training received in established terrorist training camps for conducting terrorist attacks.

Online Trained

Tamerlan and Dzhokhar Tsarnaev represent the only two perpetrators that clearly received most of their instruction from the Internet. Dzhokhar testified that they built the bombs based on the Al Qaeda *Inspire* magazine. It was debated that Tamerlan may have had contact with Chechen rebels during his time in Russia, but a direct link to a terrorist training camp was never established. Additionally, the brothers visited a gun range to practice their shooting, but guns were not the main weapon of choice for their attack. As practice is not commonly associated with explosives creation as there is no good way to practice¹²⁴ this in the United States without detection, the gun range practice is considered secondary to the download of explosive manuals.

Self-Directed Online Learning Focus or Hybrid With Practice

Seven of the perpetrators, Omar Mateen, Nadir Soofi, Elton Simpson, Mohammad Youssuf Abdulazeez, Tashfeen Malik, Syed Rizwan Farook, and Abdulhakim Muhammad, showed signs of looking online for instructions or inspiration and then combining this with practice in an attempt to learn the skills necessary for their attack.

¹²⁴ It is recognized that it is possible to practice constructing the explosives, but to test if they actually work is difficult to do without detection. Therefore, they would have had no way to test their devices to determine what improvements would need to be made to their technique.

Table 8. Correlation Chart of Group Practice to Other Indicators

	Manual Download	Watching Attacks	Visiting Extremist Sites	Private Communication with Known Terrorists	Proof of Training in an Established Terrorist Training Camp	Military Service	Overseas Travel
Group Practice(8)	3	4	4	3	0	0	5
	37.5%	50%	50%	37.5%	0%	0%	62.50%

None of the perpetrators in this group visited a terrorist training camp or had military service but they exhibited a wide variety cyber and physical indicators. Both Soofi and Simpson practiced with the firearms they used in the attack, but did not have much online activity, though they were directed by known terrorist over the internet. Abdulazeez used a gun for his attacks and was known to have practiced shooting with various instruments, including BB and Paintball guns, while growing up. It does not appear he ever took any formal shooting classes, and no links to terror camps were established for his trip to Jordan. However, Abdulazeez did not have any online indicators making him almost entirely self-directed practice focused. Malik and Farook both went to firing ranges to practice and while they had explosives for their attack they did not detonate. Farook’s longtime friend admitted the two looked at *Inspire* and it is not thought that Farook or Malik attended a training camp while traveling abroad. It appears the two participated in practice and self-directed online learning. Finally, Abdulhakim Muhammad purchased weapons and practiced firing with them.

While he traveled overseas there were never links that officially tied him to a training camp and it appears that he participated in self-directed learning.

No Training/Undetermined

There were several cases where there were no strong indicators to support what type of training the perpetrator might have had or they appeared to not have any training at all. The cases of Abdul Razak Ali Artan, Edward Archer, Faisal Mohammad, Ali Muhammad Brown, Mohammed Reza Taheri-azar, Charles Bishop and Eid Elwirelwir all present this dilemma.

Abdul Razak Ali Artan spent a large part of his childhood in Pakistan after fleeing Somalia due to terrorist persecution, it does not appear that he was trained formally by terrorists but it is unknown how close of contact he had with the terror groups. His father was reportedly kidnapped by them leaving the question on if the family had been involved with one of the organizations.¹²⁵

Edward Archer has not had many details released about his online activity, even though he did spend time overseas his attack consisted of firing a stolen gun at a police car. Out of thirteen shots Archer fired only three of them hit the officer¹²⁶ and this was after Archer reached through the window, it does not appear that Archer had much, if any, firearms training.

Faisal Mohammad spent time on extremist sites and while he had a detailed plan about how he was going to carry out his attack, Mohammad was

¹²⁵ Zapotosky, "Ohio State attacker."

¹²⁶ Amanda Holpuch, "Police investigate Philadelphia shooting suspect's computers and finances; Edward Archer, 33, visited Saudi Arabia and Egypt, says FBI Investigators downplay suggested Isis link to attack on officer," *Guardian*, January 9, 2016.

thwarted when he had a chair thrown at him. Instead of adapting to the new situation or showing any level of skill in self-defense and hand to hand combat he fled. It is unlikely that Mohammad had any sort of physical or online training.

Ali Muhammad Brown murdered three individuals with a firearm, but there was no statements made about his online habits or if he spent time at firing ranges practicing.

Mohammed Reza Taheri-azar drove an SUV into a crowd but did not kill anyone and then turned himself in. Very little has been released about his background or online habits.

Charles Bishop flew a small plane into a building, leaving a suicide note that expressed support for Osama Bin Laden. Bishop was learning to fly at the airfield where he stole the plane from. Nothing was released about his internet habits or if he had spent any time out of the country.

Lastly, Eid Elwirelwir drove a car through the security gate at March Airforce Base but no connection could be made to official terrorist organizations and his online habits were not divulged in open source media.

Training Trends

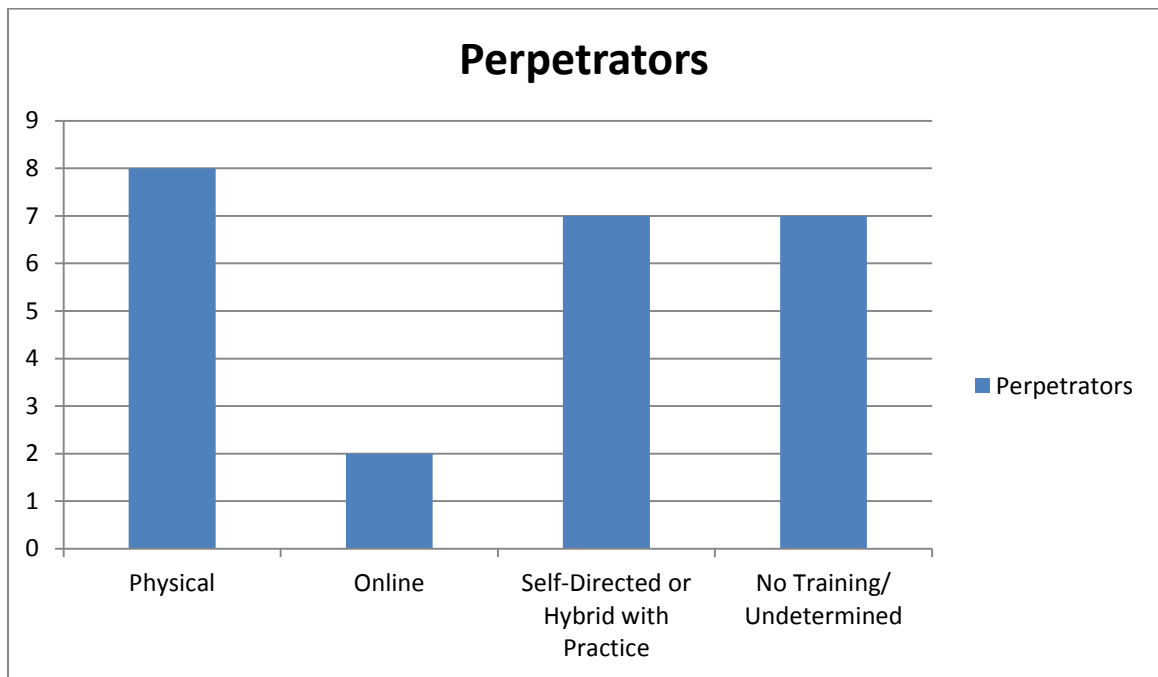


Figure 6. Perpetrators by Training Category

The largest group is physically trained with Self-Directed Learning or Hybrid with Practice following closely behind, though it should be noted that out of those physically trained only four of them received training at an established terrorist training camp. This suggests that while it is becoming rarer to train at an actual established terrorist training camp, that some form of physical training remains important to terrorist perpetrators. The No Training/Undetermined category is the same as the Self-Directed Online Learning or Hybrid with Practice category, some of this is unfortunately due to a lack of information on perpetrators. In the future it may be possible to reevaluate the background of selected perpetrators to see if any new information has been released that could determine how they trained.

Implications

Why Physical Training Will Always be Relevant

Benson has previously drawn attention to the fact that information online is not necessarily understandable enough to be made actionable by most individuals.¹²⁷ What is lacking from the current discussion is an examination as to why physical training remains relevant. Exploration of how the human mind learns and encodes information is necessary to understand this phenomenon. Perceptual learning theory in relation to the acquisition of motor skills, explains why the self-guided learning through use of the internet will never be capable of fully replacing physical training camps.

Perceptual learning theory as applied to motor skill acquisition states that new skills are acquired through environmental demand and adapt over time to be executed effortlessly.¹²⁸ To successfully execute the skill, "...depends on the ability to adapt and respond to opportunities and threats in the immediate environment."¹²⁹ If an individual has only shot a specific firearm in a controlled environment, in a straight line without moving then that is what their brain knows how to do. The individual possesses the shallow knowledge of how to execute a task in one manner to achieve the required result. Their brain knows how to look down the sight of that particular weapon at a specific target. This is a much different situation than would likely be encountered by the individual during an

¹²⁷ Benson, "Why the Internet is Not Increasing Terrorism," 299.

¹²⁸ Rosalie, "A Model for the Transfer of Perceptual-Motor Skill Learning in Human Behaviors," 413.

¹²⁹ Ibid, 416

attack. Targets will likely be moving and interacting with the environment around them. For example, Faisal Mohammad who attacked the University of California, Merced college campus, carried a very detailed plan in his pocket of how he was going to execute his attack. He planned to stab students, take hostages and grease the floor with petroleum jelly so that responding police officers would slip and fall, allowing Mohammad to take their guns to continue his attack.¹³⁰

Mohammad found his attack cut short after only stabbing four victims because a construction worker interrupted him by throwing a chair at him.¹³¹ Though he stabbed the construction worker, Mohammad fled the scene and failed to carry out the rest of his planned attack. What appeared viable on paper was not possible to execute in a dynamic environment without proper training.

Mohammad lacked the in-depth training that would have allowed for him to understand the different situations that he might need to respond to during his attack. Essentially, he had no contingency plan for if the attack did not go exactly how he had planned it on paper, highlighting that physical training is required beyond self-directed E-learning to establish deep learning.

An experiment that supports the theory that some physical training is required to establish deep learning was conducted by Itai Noick and Eilon Vaadi. Participants of the experiment were required to clasp a robotic arm handle while seated at a workstation, while a cursor and target stimuli were projected onto a mirror in front of them. They then had to move a cursor controlled by the robotic

¹³⁰ Levin, "Attack on California university campus was Isis-inspired."

¹³¹ Giwargis, "UC Merced: Manifesto detailed Faisal Mohammad's revenge plot."

arm into the target zone without being able to see the robotic arm or their hand.¹³² The experiment required participants to learn how to hit a target and then were presented with a secondary target that used a similar hand motion to hit. The study discovered several things; it appears that participants were using an adaptive learning technique to hit the test target after the learned target rather than just learning the hand motion. Additionally, participants often made more initial errors when presented with test targets and not learned targets possibly due to participants attempting to calculate the required hand motion to the test target based on the learned target. Participants were inferring the learned hand motion to adapt to the new situation. Lastly, it took participants roughly 20 trials to learn to hit a new target.¹³³

These experiments help to establish a balance between the 10,000 hours required for expert level performance mentioned above, and no practice at all. It appears that physical practice in multiple situations is required to learn a motor skill. As demonstrated in the Novick and Vaadia experiments, learning a motor-skill in a particular manner can interfere with an individual's ability to adapt it to a new situation. The internet, with as much information as it can provide even using a variety of platforms, without instructor input or sufficient guided practice with instructor assessment the material cannot be interactive enough for self-directed learners to master technical skills. Individuals can learn a theory online,

¹³² Itai Novick and Eilon Vaadia, "Just Do it: Action-Dependent Learning Allows Sensory Prediction," *PLoS One* 6, no. 10, (October 2011):1 DOI: 10.1371/journal.pone.0026020.

¹³³ *Ibid*, 5.

but they do not necessarily know how to put it into practice. Training camps and informal small group instruction with a qualified instructor, offers the proper environment to learn a new motor skill and therefore physical training retains its relevance to terrorist training even with hybridization with online material.

Areas of Future Research

Since the United States provided such a small N number for the study, it would be interesting to repeat the study on perpetrators within different countries to see if the conclusion remains the same; physical training is still relevant but is being supplemented with online materials when qualified instructors are scarce or travel is difficult. By performing the study on several different countries and then bringing all the data together for analysis it may be possible to determine if there is indeed a new pattern emerging for terrorism without having to wait several years for more data to become available within the United States. Additionally, it is possible to compare the attacks within this study now that the main source of training has been determined for each perpetrator to determine a rate of effectiveness for online vs. physical training, do perpetrators with online or physical training cause more casualties and injuries with their attacks.

Conclusion

At this time, it does not appear that terrorists within the United States are moving away from physical training in favor of online training. Instead, a pattern of self-directed online and physical hybrid training appears to be emerging; physical training is still an important factor to terrorist training, but is now being supplemented with self-directed online learning and group practice instead of attendance at an established terrorist training camp. Perceptual learning theory as applied to motor skill acquisition provides a suggestion as to why physical training remains important to terrorists. Muscle memory is vital to being able to perform a physical skill under a myriad of situations and muscle memory cannot be established from online training or distance education alone. A physical component, such as practice remains necessary.

It was also found that physical training in an established terrorist training camp likely provided superior instruction for those who were able to attend in comparison to those who received physical training from another source such as military enlistment. Those who attended an established terrorist training camp, for the most part, did not go online for additional information or practice suggesting that they were able to absorb enough of the information at the camps to develop some level of muscle memory that made it unnecessary to practice before their attack once they returned to the United States. While those with military enlistment also did not practice, they were slightly more likely to search online for terrorist material online.

This thesis has also demonstrated that the argument of the existence of an online training camp is important, what the argument really does is highlight the need for better definitions of what constitutes an online terrorist training camp and physical training camp within the field of terrorism studies. Through operationalizing the concepts of physical terrorist training camps and online training camp to better analyze the actual type of training terrorist perpetrators are engaging in the argument becomes slightly more focused and relevant. It is the hope of the author that the definitions provided in the methodology section can be used as a springboard to help define some of the abstract concepts involved in the argument.

APPENDIX A
CORRELATION CHARTS OF INDICATORS

	Watching Attacks	Visiting Extremist Sites	Private Communication with Known Terrorists	Proof of Training in an Established Terrorist Training Camp	Group Practice	Military Service	Overseas Travel
Manual Download (5)	2	3	2	0	3	2	2
	40%	60%	40%	0%	60%	40%	40%

	Watching Attacks	Visiting Extremist Sites	Private Communication with Known Terrorists	Proof of Training in an Established Terrorist Training Camp	Group Practice	Military Service	Overseas Travel
Watching Attacks(7)	2	5	2	1	4	1	3
	28.57%	71.43%	28.58%	14.29%	57.14%	14.29%	42.86%

	Manual Download	Watching Attacks	Private Communication with Known Terrorists	Proof of Training in an Established Terrorist Training Camp	Group Practice	Military Service	Overseas Travel
Visiting Extremist Sites (9)	3	5	3	1	3	2	4
	33.33%	55.56%	33.33%	11.11%	33.33%	22.22%	44.44%

	Manual Download	Watching Attacks	Visiting Extremist Sites	Proof of Training in an Established Terrorist Training Camp	Group Practice	Military Service	Overseas Travel
Private Communication with Known Terrorists (4)	2	2	3	0	4	1	2
	50%	50%	75%	0%	100%	25%	50%

	Manual Download	Watching Attacks	Visiting Extremist Sites	Private Communication with Known Terrorists	Group Practice	Military Service	Overseas Travel
Proof of Training in an Established Terrorist Training Camp(4)	0	1	1	0	0	0	4
	0%	25%	25%	0%	0%	0%	100%

	Manual Download	Watching Attacks	Visiting Extremist Sites	Private Communication with Known Terrorists	Proof of Training in an Established Terrorist Training Camp	Military Service	Overseas Travel
Group Practice(8)	3	4	4	3	0	0	5
	37.5%	50%	50%	37.5%	0%	0%	62.50%

	Manual Download	Watching Attacks	Visiting Extremist Sites	Private Communication with Known Terrorists	Proof of Training in an Established Terrorist Training Camp	Group Practice	Overseas Travel
Military Service (4)	2	1	2	1	0	0	0
	50%	25%	50%	25%	0%	0%	0%

	Manual Download	Watching Attacks	Visiting Extremist Sites	Private Communication with Known Terrorists	Proof of Training in an Established Terrorist Training Camp	Group Practice	Military Service
Overseas Travel (12)	2	3	5	2	4	5	0
	16.67%	25%	41.67%	16.67%	33.33%	41.67%	0%

BIBLIOGRAPHY

- “A look at attacks on military bases in the US.” *Associated Press*. July 16, 2015.
“Ahmad Khan Rahami: the bombing suspect.” *Shenzhen Daily*. September 23, 2016.
- Abdullah, Mardziah Hayati. “Self-Directed Learning.” *ERIC Digest*. December, 2001. <https://files.eric.ed.gov/fulltext/ED459458.pdf>
- Abrams, Carolyn “Our First 100 Million,” *Facebook*, August 26, 2008, <https://www.facebook.com/notes/facebook/our-first-100-million/28111272130/>
- Ahmed, Saeed. “Who were Syed Rizwan Farook and Tashfeen Malik?” *CNN*. December 4, 2015. <http://www.cnn.com/2015/12/03/us/syed-farook-tashfeen-malik-mass-shooting-profile/index.html>.
- “Attack in Garland.” interview by Anderson Cooper. *60 Minutes*. CBS News. August 20, 2017. Transcript.
- “Attacker Abdul Razak Ali Artan.” *Yerepouni Daily News*. November 29, 2016.
- “Basic Combat Training,” Go Army, last updated May 13, 2015. <https://www.goarmy.com/soldier-life/becoming-a-soldier/basic-combat-training.html>
- Benson, David C. “Why the Internet is Not Increasing Terrorism.” *Security Studies*, 23 (2014): 293-328. DOI: 10.1080/09636412.2014.905353.
- Bernstein, Philip A. and Umeshwar Dayal. “An Overview of Repository Technology.” *Very Large Data Base Endowment*. (September, 1994): 705-713. <http://www.vldb.org/conf/1994/P705.PDF>.
- Bertrand, Natasha. “Orlando Shooter Reportedly Traveled to Saudi Arabia Twice for a Religious Pilgrimage.” *Business Insider*. June 13, 2016. <http://www.businessinsider.com/omar-mateen-saudi-uae-umrah-2016-6?r=UK&IR=T>.
- Billeaud, Jacques. “Man convicted of helping plot Texas attack files appeal.” *Associated Press*. (Phoenix, Arizona) December 21, 2017.
- Bleier, Evan. “Video shows Dzhokhar and Tamerlan Tsarnaev visiting gun range shortly before Boston Marathon Bombing.” *Daily Mail*. March 25, 2015.

- Boyle, Darren. "ISIS supporter accused of murder spree across two states killing four people in a protest against US foreign policy 'was on a federal terrorism watch list'." *Daily Mail*. January 21, 2016.
- Bucktin, Christopher. "Boston Marathon bomber sentenced to death penalty for killing three and injuring 264 in blast; Dzhokhar Tsarnaev, 21, and his brother Tamerlan carried out the atrocity at the race on April 19, 2013." *Daily Record*. May 16, 2015.
- Candiotti, Susan and Ross Levitt. "Boston bombings suspect Tamerlan Tsarnaev sought out a different name." *CNN*. April 10, 2014.
- Department of Justice. "Faisal Shahzad Indicted for Attempted Car Bombing in Times Square." *Department of Justice Office of Public Affairs News*. June 17, 2010. <https://www.justice.gov/opa/pr/faisal-shahzad-indicted-attempted-car-bombing-times-square>.
- "Digital Learning Content." *United States Department of Education*. Accessed January 12, 2018. <https://www.ed.gov/race-top/district-competition/definitions>.
- "Distance Education." in FSA Handbook 2016-2017. *Office of Federal Student Aid* (June 2016):2-30.
- Eaglin, Adam. "Taheri-azar charged for U. North Carolina attack." *The Chronicle*. (Durham, North Carolina). March 7, 2006.
- Elliot, Michael. "The Shoe Bomber's World." *Time*. February 16, 2002. <http://content.time.com/time/world/article/0,8599,203478-3,00.html>.
- "Faisal Shahzad Kept Low Profile in U.S." *CBS News*. May 4, 2010.
- Finn, Jessica. "North Carolina ISIS supporter gets SECOND life sentence after pleading guilty to killing his neighbor, 74, and stealing his money to fund a terror plot on US soil that could have killed up to 1,000 people." *MailOnline*. July 17, 2017 Monday 11:25 PM GMT. Date Accessed: 2018/01/12.
- Flint, Rachel. "Shocked relative of New York terror cop says his cousin's life was saved by helmet; Kenneth Healey, 25, had only been serving in the force for three months when he was attacked by 32-year-old Zale Thompson." *Trinity Mirror*. October 29, 2014.

- Foster, Peter. "New York axe attacker: Navy veteran who converted to Islam; Zale Thompson injured two NYC police officers in a 'lone wolf' attack after praising jihad and writing with a 'hyper-racial' focus online." *Telegraph*. October 24, 2014.
- Garrigan, Patrick and Philip J. Kellman. "Perceptual Learning Depends on Perceptual Constancy." *Proceedings of the National Academy of Sciences* 105, no.6, 2008. DOI: 10.1073/pnas.0711878105.
- Geller, Pamela. "Arizona Muslim Murderer who set of bomb in Social Security office gets five years prison dawah." *Atlas Shrugs*. February 26, 2014.
- Geller, Pamela. "CBS 60 Minutes on Garland Attack: The FBI Wanted US Dead." *Atlas Shrugs*. March 27, 2017.
- Giwargis, Ramona, Katie Nelson, Mark Gomez and Robert Salonga. "UC Merced: Manifesto detailed Faisal Mohammad's revenge plot." *Contra Costa Times*. (California). November 6, 2015.
- Glass, Samuel. "The Uses and Applications of Learning Technologies in the Modern Classroom: Finding a Common Ground Between Kinaesthetic and Theoretical Delivery." *ERIC*. (March, 2013): 1-13.
<https://files.eric.ed.gov/fulltext/ED477398.pdf>
- Goldman, Adam "Orlando Gunman's Wife Breaks Silence: 'I Was Unaware'." *New York Times*. November 1, 2016.
- Guevara, Emily. "Pastor calms man during church threat." *Tyler Paper*. September 15, 2015. https://tylerpaper.com/news/local/pastor-calms-man-during-church-threat/article_925f934b-ac87-5811-8172-47dfbdddade99.html.
- Hennessey-Fiske, Molly. "Ft Hood families describe agony; Relatives take the stand as jurors weigh sentencing for shooter Nidal Malik Hasan." *Los Angeles Times*. August 27, 2013.
- Holpuch, Amanda and Alan Yuhas. "Mohammad Youssuf Abdulazeez; everything we know about the Chattanooga gunman; The Gunman, 24, who died in an attack on a military recruitment center after allegedly killing four US marines, is believed to have been born in Kuwait." *Guardian*. (New York). July 17, 2015.
- Holpuch, Amanda. "Officials Say service members attempted to fight off Chattanooga gunman; at press conference, law enforcement officials give

previously undisclosed details on Mohammad Youssuf Abdulazeez's July attack on recruitment center." *Guardian*. (New York). July 22, 2015.

Holpuch, Amanda. "Police investigate Philadelphia shooting suspect's computers and finances; Edward Archer, 33, visited Saudi Arabia and Egypt, says FBI Investigators downplay suggested Isis link to attack on officer." *Guardian*. January 9, 2016.

Holsapple, W. Clyde and Anita Lee-Post, "Defining, Assessing, and Promoting E-Learning Success: An Information Systems Perspective." *Decision Sciences Journal of Innovative Education* 4, no. 1 (January 2006):68.

Hsu, Spencer S. and Carrie Johnson. "Links to imam followed in Fort Hood investigation." *Star Tribune*. November 8, 2009. <http://archive.li/P5iEO>.

"'I am the shooter' Army psychiatrist Nidal Malik Hasan tells jurors." *Independent*. August 6, 2013.

"Iraqi man pleads not guilty in Casa Grande bombing." *Associated Press*. (Florence, Arizona). March 15, 2014.

"Islamic State's Growing gang of terrorists: Faces of global terror." *Indian Express*. February 8, 2016.

Jouvenal, Justin "Man Who fired at Pentagon, other sites gets 25 years." *Washington Post*. January 12, 2013.

"Julie Bishop and Karen Johnson discuss Charles Bishop's apparent suicide flying a plane into Tampa office building in January." interview by Katie Couric. *NBC News*. April 16, 2002.

Kirby, Aidan, "The London Bombers as "Self-Starters": A Case Study in indigenous Radicalization and the Emergence of Autonomous Cliques," *Studies in Conflict & Terrorism*, 30 (2007):415-428.

Koren, James Rufus and Kim Puzanghera. "Online loan to shooter opens debate; Funds borrowed by Syed Rizwan Farook raise questions about need for regulation." *Los Angeles Times*. (California) December 12, 2015.

"Learn More," Endurance Films Training Institute, accessed January 14, 2018, <https://endurancefilms.com/Get-Started/>

- Ledoux, Julia. "Court documents: Yonathan Melaku videotaped Marine Corps museum shooting." *Manassa Journal Messenger*. (Virginia) June 23, 2011.
- Levin, Sam. "Attack on California university campus was Isis-inspired, FBI says; Faisal Mohammad was carrying a photocopy of an Isis flag when he was shot and killed by police after stabbing a fellow student at UC Merced." *Guardian*. (San Francisco, California) June 3, 2016.
- McIntyre, Jaime and Andrea Koppel. "U.S. missiles pound targets in Afghanistan, Sudan; Clinton: 'Our target was terror.'" *CNN*. August 21, 1998.
- Mulrine, Anna. "Navy Yard Shooting: What to do about attacks on US military at home?: Monday's horrific Washington Navy Yard shooting, which killed 12, is the third attack in four years on US military installations at home. Active-duty or former military men were behind all three cases." *Christian Science Monitor*. September 16, 2013.
- Nesser, Petter. "How did Europe's Global Jihadis Obtain Training for their Militant Causes?" *Terrorism and Political Violence*, 20 (2008): 234-256. DOI: 10.1080/09546550801920758.
- Offir, Baruch, Yossi Lev and Rachel Bezalel. "Surface and deep learning processes in distance education: Synchronous versus asynchronous systems." *Computers and Education*. 51 (2008): 1172-1183.
- Pleasance, Chris. "Father of San Bernardino shooter Tashfeen Malik condemns his daughter's attack and says he is 'in such pain I cannot describe it'." *Daily Mail*. December 10, 2015.
- Ramsay, Gilbert. "'Terrorist' Use of the Internet: An Overblown Issue." *Middle East- Topic & Arguments*, 6 (2016): 88-96.
- Reuters. "Chattanooga shooter sent text message declaring war; Mohammad Youssuf Abdulazeez texted his close friend a link to a long Islamic verse." *Telegraph*. July 18, 2015.
- Richey, Warren. "Underwear Bomber trial: Will it shed light on American cleric killed in Yemen? The trial of the accused underwear bomber Umar Farouk Abdulmutallab is set to begin Tuesday. Will testimony support Obama's contention that slain cleric Anwar al-Awlaki 'directed' the failed plot?" *Christian Science Monitor*. October 10, 2011.

- Roaslie, Simon M and Sean Muller. "A Model for the Transfer of Perceptual-Motor Skill Learning in Human Behaviors." *Research Quarterly for Exercise and Sport* 83, no. 3 (2012):413-421
- Sahagun, Louis. "WAR WITH IRAQ; Incident at Base Brings an Arrest." *Los Angeles Times*. California. April 4, 2003.
- Sanchez, Ray, Tim Lister, Mark Bixler, Sean O'Key, Michael Hogenmiller and Mohammed Tawfeeq. "ISIS goes global: 126 attacks in 23 countries have killed over 1,730." *CNN*. July 6, 2016.
- Santora, Marc, Pir Zubair Shah, Joseph Goldstein and Adam Goldman. "'Keep an Eye on Him' Ahmad Khan Rahami's Father Says He Told F.B.I." *New York Times*. (New York) September 22, 2016.
- "Services," Team Mpi, accessed January 14, 2018, <http://www.teammpi.com/page/services/>
- "Shoe bomb suspect 'did not act alone'." *BBC News*. January 25, 2002. <http://news.bbc.co.uk/2/hi/americas/1783237.stm>.
- "Syed Rizwan Farook," *San Bernardino Sun*. (San Bernardino, California) December 6, 2015.
- Shuster, Simon. "Older Boston Suspect Made Two Trips to Dagestan, Visited Radical Mosque, Officials Say." *World Time*. April 22, 2013.
- Speckhard Anne, "The Boston Marathon Bombers: the Lethal Cocktail that Turned Troubled Youth to Terrorism, *Perspectives on Terrorism, Volume 7, Issue 3*
- Spencer, Richard. "How al-Qaeda cleric Anwar al-Awlaki told the 'underpants bomber' to pray; Video released by al-Qaeda in the Arabian Peninsula showing radical cleric sending Umar Farouk Abdulmutallab off on his mission." *Telegraph*. December 9, 2015.
- Spikol, Liz. "Lit Fuse: Preston Lit was an average guy—union electrician, homeowner, loving son and brother. So how did he become the mentally ill fugitive no one can help?" *Philadelphia Weekly* last modified March 17, 2004. http://www.philadelphiaweekly.com/news/lit-fuse/article_e5f289c0-4310-5196-9a9c-589838a72108.html
- Stenerson, Anne. "The Internet: A Virtual Training Camp?" *Terrorism and Political Violence*, 20 (2008): 215-233. DOI: 10.1080/9546550801920790.

- “Times Square Suspect had Explosives Training, Documents Say.” *CNN*. May 5, 2010. <http://edition.cnn.com/2010/CRIME/05/04/new.york.car.bomb/index.html?>
- “The Making of an American Jihadist: Abdulhakim Mujahid Muhammad.” *Investigative Project on Terrorism*. April 15, 2011.
- The Week Staff. “Who is Nidal Hasan?” *Week*. November 6, 2009. <http://theweek.com/articles/499970/who-nidal-hasan>.
- Twitter Inc, “Twitter Turns Six,” *Twitter*, March 21, 2012, https://blog.twitter.com/official/en_us/a/2012/twitter-turns-six.html.
- "UPDATED: Suspect in church threat says instructed by God to 'slay infidels'." *Jacksonville Daily Progress* (Texas). September 14, 2015.
- Weinmann, Gabriel. *Terror on the Internet: The New Area, The New Challenges*. Washington, DC: United States Institute of Peace, 2006.
- Wellman, Alex. “FBI reveal Ohio State University attacker “may have been inspired by ISIS” to commit car and machete rampage; Abdul Razak Ali Artan slammed his car into a group of people before leaping out and hacking at innocent passer-by with a butcher’s knife.” *Trinity Mirror*. November 30, 2016.
- Wheatstone, Richard. “San Bernardino terrorist housewife ‘led the charge’ as tragic employees gunned down around Christmas tree; Husband and wife Tashfeen malik and Syed Rizwan Farook killed 14 people in a gun rampage at a Christmas party for local government workers in California.” *Trinity Mirror*. December 7, 2015.
- Wilber, Del Quentin “The FBI investigated the Orlando mass shooter for 10 months – and found nothing. Here’s why.” *Los Angeles Times*. July 14, 2016.
- Wiskind, Claire. “Lone Wolf Terrorism and Open Source Jihad: An Explanation and Assessment,” *International Institute for Counter-Terrorism*. (Summer 2016):1-53. <https://www.ict.org.il/UserFiles/ict-lone-wolf-osint-jihad-wiskind.pdf>
- Yuhas, Alan and Amanda Holpuch. “San Bernardino shooters’ friend charged with ‘conspiring to commit terrorism’; Enrique Marquez, a friend of Syed Farook and Tashfeen Malik, has also been charged with violating firearms

laws over four guns used during 2 December attack.” *Guardian*.
December 18, 2015.

Zapotosky, Matt. “Ohio State attacker, a refu-gee, should have been more thoroughly vetted, Senate Judiciary chair alleges; U.S. Sen. Charles E. Grassley says his office obtained records that show U.S. officials should have done more questioning of Abdul Razak Ali Artan, a Somali refugee.” *Washington Post*. December 15,2016.