DEVELOPING RESILIENCE THROUGH THE MODERN ARMY COMBATIVES PROGRAM

A Monograph

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14. ABSTRACT

The aim of this monograph is to examine the relationship between training methodology and resilience outcome within the Modern Army Combatives Program. The examination includes three evidence-based sections that qualitatively and quantitatively conclude that traditional martial arts training methodologies are more effective at producing individual resilience.

The first section of the study is a comparison of the Modern Army Combatives Program and Traditional *Judo*. This section highlights the methodology used to determine whether a particular methodology is modern or traditional. It also identifies three key characteristics that may influence resilience outcomes: the rate of progression within the program, integration of values/ethics training, and sustained habituation of training. This section qualitatively concludes that there should be no difference in resilience outcomes between modern and traditional training methodologies. The second section tests the qualitative conclusion through a correlative archival study. This quantitative approach concludes that, based on a review of current research concerning the psychological outcomes of martial arts, traditional training methodologies produce higher individual resilience. The research items reviewed indicate a statistically significant higher mean resilience score for traditional methodologies. This result is significant at the 95% confidence interval. The third section resolves the apparent inconsistency between the qualitative and quantitative results through a case study of the Marine Corps Martial Arts Program. This case study concludes that the Marine Corps program utilizes a more traditional training methodology and at least partially contributes to higher individual resilience when compared to the Army program. It highlights the same three key areas influencing overall resilience outcome as the study of the Army program.

This monograph makes the final recommendation that the Army should modify the Modern Army Combatives Program by changing the current progression system, integrating values/ethics training, and reinforcing the habituation of training within the program. These changes result in a more traditional training methodology and improve individual resilience.

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ABSTRACT

DEVELOPING RESILIENCE THROUGH THE MODERN ARMY COMBATIVES PROGRAM, by MAJ George W. Childs III, ARMY, 44 pages.

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ACRONYMS

CARL	Combined Arms Research Library
CBDRT	Chemical Biological Defense Report
CGSC	U.S. Army Command and General Staff College
MACP	Modern Army Combatives Program
MCMAP	Marine Corps Martial Arts Program
MMAS	Master of Military Art and Science
NATO	North Atlantic Treaty Organization
SAMS	School of Advanced Military Studies

TABLES

INTRODUCTION

After more than a decade fighting the Global War on Terrorism, the United States military finds itself at a cross roads. The war on terrorism is waning and new strategic guidance is pushing our military forces into an increasingly complex future operational environment. The developing environment is likely to continue exposing service members to a number of the same stressors present in the contemporary environment. It is also likely to expose service men and women to a myriad of additional stressors due to the complex nature of the new environment. The services struggle to develop programs that help build resilience within their soldiers, sailors, airmen, and marines as a means to help cope with these stressors, but at what costs? I can summarize the character of the future operating environment in one cliché phrase: "Do more with less." This phrase rings particularly true for the Army. The Army characterizes the future operating environment by a decrease in funding and training time on one hand and an increase in training tasks and deployments on the other. So how is the Army preparing its soldiers to be resilient in the face of the stressors, old and new, resulting from the new environment? Moreover, is the current methodology the best way to develop resilient soldiers?

This monograph seeks to answer that question by first understanding the stressors of the future environment. Using research in the fields of stress and resilience, this monograph applies cognitive stress appraisal theory as a structure for identifying future environmental stressors and individual factors of resilience. Second, after building a working understanding of resilience and stress, this monograph examines the impacts that training methodology has on outcomes by studying the Modern Army Combatives Program. Research presented in this monograph indicates that traditional training methodologies are more effective at developing resilience. Lastly, it provides recommendations for areas within the Modern Army Combatives Program that the Army can change to improve the program's effectiveness.

This monograph supports these recommendations with evidence collected within three avenues of study regarding the effects of modern and traditional martial arts training methodologies. It begins by comparing and contrasting the Modern Army Combatives Program and Traditional *Judo*. The comparison of these two martial arts provides a brief history of each and exposes the differences between modern and traditional training methodologies. The presented discussion qualitatively answers the question, "Is there a difference between the resilience outcomes of each methodology?" Next, this study includes a correlative archival review that relates resilience outcomes to training methodology. The correlative study uses the qualitative results from the comparison and contrast as its null hypothesis to quantitatively test the relationship between the two training methodologies and resilience. Though not readily apparent qualitatively, a positive correlation between traditional training methodology and individual resilience is indicated by this quantitative research. Lastly, this study concludes with a case study of the Marine Corps Martial Arts Program, which examines the differences between the Marine Corps' and Army's programs. It highlights evidence that suggests the Marine Corps Martial Arts Program, which utilizes a traditional methodology, is more effective at developing resilience.

COGNITIVE STRESS APPRAISAL AND RESILIENCE

The first discussion concerns cognitive stress appraisal and describes how an individual perceives and reacts to a stressful event. Because this monograph examines resilience within the context of an operational environment, I have chosen to apply the revised cognitive stress appraisal model, developed by Dr. Richard S. Lazarus and Dr. Susan Folkman, as a structure for framing the problem.[1] This model identifies environmental and personal factors that influence individual responses to stress.[2] Using strategic communications from the President of the United

[1]Richard S. Lazarus, *Stress and Emotion: A New Synthesis* (New York: Springer Pub. Co., 1999), 200.

[2]Ibid.

States, Congressional Offices, the Department of Defense, the Chairman of the Joint Chiefs of Staff, and the Chief of Staff of the Army in conjunction with this model helps create an environmental framework that allows analysis of the type of soldier required to operate in the future environment. This construct also links resilience as defined by the Army, "the mental, physical, emotional, and behavioral ability to face and cope with adversity, adapt to change, recover, learn and grow from setbacks," to the stress appraisal and coping processes.[3] Together, these ideas inform future discussion regarding martial arts training methodologies and their effects on resilience.

The cognitive stress appraisal model contributes to the context of this monograph in three ways. First, it provides the fundamental theoretical basis for this work. Understanding stress and the factors that influence it are key concepts needed for further analysis. Second, the structure of the model facilitates an in-depth examination of the influence of resilience on an individual's response to stress. Developing resilience has effects within each of the three appraisals contained in the model. Lastly, the model provides a convenient device for identifying the various inputs and outputs that provide context for this monograph's central argument. As a transactional model, understanding context (or in the case of this monograph, the environment) allows application of contemporary information to predict what traits soldiers will need most in the future.

The cognitive stress appraisal model consists of two antecedents (the environment and the person) and three appraisals (primary, secondary, and reappraisal).[4] The antecedents collectively shape the context of a stressful event within an individual's perspective. They determine how individuals interpret events with respect to the environmental factors of novelty,

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[3]Department of the Army, "Army.Mil Features," Department of the Army, http://www.army.mil/readyandresilient, (accessed February 15, 2014).

[4]Richard S. Lazarus and Susan Folkman, *Stress, Appraisal, and Coping* (New York: Springer Pub. Co., 1984), 31, 34, 37, 55, 82–83.

predictability, event and temporal uncertainty, imminence, duration, ambiguity, and timing, as well as these factors' relationships to the person factors of commitments and beliefs.[5] Appraisals are cognitive actions a person takes when assessing stressful situations; they include determinations about the threat posed by events and the resources needed to deal with them, and judgment after the fact regarding the effectiveness of the actions taken.[6] This model provides a transactional relationship to resilience, where resilience is both an individual input and an output.

Resilience is a widely used term in the field of psychology; there is no single accepted definition within the field, however. Although the Army settled on a definition to help anchor its Ready and Resilient campaign, one study identified 122 different definitions.[7] Reconciling the characteristics of the various definitions concludes that resilience takes the form of positive adaptation as a result of experiencing a stressful event.[8] This is consistent with the Army's definition, and implies an adaptive response to stress. This supports the use of the cognitive stress appraisal model to frame my discussion. This monograph uses the resilience model, developed by Dr. Lisa S. Meredith and her team, which identifies and defines seven factors contributing to individual resilience. The factors are positive coping, positive affect, positive thinking, self-control, realism, altruism, and physical fitness.[9] Dr. Meredith and her team also identify factors that impact resilience at the unit, community, and family levels; they are beyond the scope of this

[5]Ibid., 55, 83.

[6]Ibid., 31, 34–35.

[7]Lisa S. Meredith, United States Department of Defense, Office of the Secretary of Defense and Rand Corporation, *Promoting Psychological Resilience in the U.S. Military*, Kindle ed. (Santa Monica, CA: Rand Corporation, 2011), Location 760.

[8]Deniz Fikretoglu and D. R. McCreary, *Psychological Resilience: A Brief Review of Definitions, and Key Theoretical, Conceptual, and Methodological Issues* (Toronto, Ontario, Canada: Defence Research and Development Canada, 2012), 12, 15–17.

[9]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Locations 168–183.

research, however, and are not included.[10]

Under Dr. Meredith's resilience model, situational and individual differences interact to predict resilience in stressful situations.[11] These predictors align nicely with the situation and person antecedents of Lazarus' cognitive assessment model. The relationship between these interdependent factors highlights the applicability of resilience within the model. Dr. Robert R. Sinclair and Dr. Thomas W. Britt suggest that a supportive environment may foster resilience in non-resilient individuals while, conversely, highly resilient individuals may influence the supportive nature of their environment.[12] Within the context of Lazarus' model, these factors are generally equivalent to variables in a function that produces assessments or choices. This generalization, though possibly over-simplified, becomes a useful tool for hypothesis formulation but only if one of the variables and the results can be fixed.

Predicting the future operational environment, setting it as the "environment" and general resilience as the desired result within the transactional model, allows closer examination of the personal factors and individual resilience. At the strategic level, the Defense Strategic Guidance of 2012 states, "The global security environment presents an increasingly complex set of challenges and opportunities to which all elements of U.S. national power must be applied."[13] This guidance also directs ten missions for the Joint Force, five of which involve cooperation and/or interaction with local populations.[14] One of the intentions behind regional alignment is to provide combatant commanders with forces that can open a theater of operations and conduct

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[10]Ibid., Locations 183–198.

[11]Robert R. Sinclair and Thomas W. Britt, *Building Psychological Resilience in Military Personnel: Theory and Practice* (Washington, DC: American Psychological Association, 2013), 78.

[12]Ibid., 79.

[13]Department of Defense, *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense* (Washington DC: The Office of the Secretary of Defense, 2012), 1.

[14]Ibid., 4–6.

missions until follow-on forces arrive.[15] Current budget and temporal constraints limit the number of units available to train and the time those units will have to train.[16] The result is an austere operational environment consisting of small unit deployments with variable deployment cycles and durations.[17] As a micro-level example, the line of American effort identified by President Obama in 2012 signaled a change in mission for the U.S. military.[18] Soldiers trained for war are finding their numbers reduced and their missions injected with additional levels of complexity as they conduct counterterrorism operations and support NATO missions.[19] Named Operation Resolute Support, the enduring NATO presence in Afghanistan is still a nebulous proposition with no definitive end date established.[20] The proposed mission exposes deployed soldiers to stressors relating to varying strengths of insurgent forces, nebulous reliability of ANSF forces, and local/regional infighting.[21] In terms of Lazarus' model, the future environment results in an elevated baseline of stress with negative impacts in all eight situational factors. Maintaining operational readiness in this environment requires the development of significant individual soldier resilience to mitigate the impact of these stressors. Unit, family, and community resilience are also extremely important, and Dr. Meredith's team addresses these domains in addition to the individual domain, but they are beyond the scope of this monograph.[22] This environment also

[15]Kimberly Field, James Learmont, and Jason Charland, "Regionally Aligned Forces: Business Not as Usual," *Parameters* 43, no. 3 (2013): 56.

[16]Ibid., 60.

[17]Ibid., 61.

[18]Richard W. Weitz, "Transition in Afghanistan," *Parameters* 43, no. 3 (2013): 29.

[19]Ibid.

[20]Jim Garamone, *Resolute Support Planning Continues, Options Still Open* (Washington, DC: American Forces Press Service, 2014).

[21]Weitz, "Transition in Afghanistan," 37.

[22]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Locations 183–201.

emphasizes the development of new, comprehensive, and cost-effective programs that build resilience.

Having applied context to the equation, the environment variable is fixed. This enables further examination of the person variable by substituting Meredith's individual resilience factors for Lazarus' person factors. I can now determine how the individual resilience factors manifest themselves within an individual and whether they effectively balance, or completely counter, the effects of the environmental stressors. Transformation of the equation facilitates analysis of training methodologies and their effectiveness. It is now useful to quickly review the impact of resilience on unit readiness before analyzing the effectiveness of training methodologies. Doing so completes the analysis of the environment and links the need for resilience to capabilities generation.

UNIT READINESS AND RESILIENCE

The Army measures unit readiness in relation to both the core and assigned missions of a unit. These assessments are the C-level and A-level, respectively. Commanders determine their C-level by measuring four areas: Personnel (P-level), Equipment and Supplies on-hand/available (S-level), Equipment readiness/serviceability (R-level), and Unit training level proficiency (T-level). The C-level is a quantitative assessment that measures the integration of personnel with equipment and training, in order to produce an intended capability as designated by the unit's Modified Table of Organization and Equipment. Commanders determine their A-level for any assigned mission. This assessment includes qualitative and quantitative measurements. In the absence of any specifically assigned missions, units measure equipment and supplies (CBDRT S-level) and training (CBDRT T-level).[23] While in some cases the C-level and A-level may

[23]Department of the Army, Army Regulation 220-1, *Unit Status Reporting and Force Registration-Consolidated Policies* (Washington, DC: Government Printing Office, 2010), 12.

coincide, my research focuses on the C-level.[24] I discard the S-level and R-level because my purpose is to examine the impact of a chosen training methodology. My examination specifically focuses on the P-level and T-level.

Commanders determine P-level through three metrics: required strength, assigned strength, and available strength. Required strength derives from the unit's manning document and assigned strength through the personnel assignment system. The discussion requires soldiers to be present before they can be trained; therefore, I will only focus on available strength for my discussion. Available strength is the unit's total strength, including attachments, available for employment in order to accomplish its mission.[25] Commanders are solely responsible for preserving their available strength, by ensuring their soldiers' training, health, and welfare and shielding them from distractors. Following the last decade or so of repeated deployments, mental health issues have been a significant detractor from available strength totals.[26] Resilience is the single factor that helps mitigate the mental stresses that come with military life and directly contributes to the preservation of a unit's available strength.[27]

Commanders determine T-level based on their assigned Mission Essential Task List. These tasks prepare units for employment. Multiple deployments expose soldiers to significant combat and non-combat stressors.[28] Their ability to overcome these stressors and resist the development of mental health issues speaks to the very definition of resilience. Better training

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[24]Ibid., 14.

[25]Department of the Army, Army Regulation 220-1, 42.

[26]Office of the Surgeon, Multinational Force-Iraq and Office of the Surgeon General, *Mental Health Advisory Team (MHAT-III): Operation Iraqi Freedom 04-06 Report* (Falls Church, VA: Office of the Surgeon General, 2006), 9.

[27]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Location 482.

[28]The following study documents the effectiveness of Stress Inoculation Training and provides insight into the links between training and stress appraisal. Edna B. Foa et al., "A Comparison of Exposure Therapy, Stress Inoculation Training, and Their Combination for Reducing Posttraumatic Stress Disorder in Female Assault Victims," *Journal of Consulting and Clinical Psychology* 67, no. 2 (1999).

methods allow commanders to safely expose soldiers to stressors that may represent a mismatch between what soldiers are being asked to do versus what those soldiers think they can do.[29] Building on the earlier use of the cognitive stress appraisal model, the manner in which training is conducted may negatively or positively impact the soldier's primary appraisal during training events.[30] Positive coping is a key factor of both individual resilience and the transactional model.[31] As a soldier encounters a training situation, that soldier instinctively assesses his/her perceived ability to complete the training. If the task appears too difficult, the soldier focuses on making it through the training session rather than learning the desired skill. As resilience increases, a soldier is more likely to perceive that he/she is capable of mastering the skills of increasingly demanding training events. The result is a decrease in the time required to train a skill to proficiency. The impact on T-level is direct. Resilience improves T-level by decreasing the time it takes to train and increasing the soldier's ability to retain the trained skills.

I have now presented a sufficient base of knowledge to examine and determine which training methodology is most effective at developing individual resilience.

MODERN ARMY COMBATIVES VERSUS JUDO

Every continent has representation in the pantheon of martial arts. Every great civilization from the Greeks to the Zulus to the Native Americans has some record of a culturally unique martial art. The most notable martial arts, however, originated in China and Japan. Because martial arts are truly a social tool, there are striking similarities between martial arts originating within interacting cultures.[32] In their two-volume collection of martial arts histories,

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[29]Megan M. Thompson and Donald R. McCreary, *Enhancing Mental Readiness in Military Personnel* (DTIC Document, 2006), Conference Paper, 4–7.

[30]Ibid.

[31]Ibid., 31–34.

[32]Thomas A. Green and Joseph R. Svinth, *Martial Arts in the Modern World* (Westport, CT: Praeger, 2003), xi.

Martial Arts of the World: An Encyclopedia of History and Innovation, Dr. Thomas A. Green and Dr. Joseph R. Svinth catalog and describe the individual martial arts from major regions of the world and link them to social usages or intents.[33] These types of academic works are rare in the martial arts world, but help narrow the list of candidates for representative martial arts. They provide a breadth of information, and the selection allows for greater depth. Examining a style's foundational documents and/or those of any existing governing body provides the depth of information required to make a qualitative comparison between two martial arts. Because the Modern Army Combatives Program is the focus of this monograph, I will start my examination there.

The Modern Army Combatives Program traces its lineage back to the mid-1990s and the adoption of Gracie *Jiujitsu* by the 75th Ranger Regiment. The program adopted by the Rangers had to be cheap, easy to teach and learn, and structured for internal administration.[34] With Gracie *Jiujitsu* as its core, the chosen system began to adapt to the unique requirements of a military application. As a result, the evolving system adopted techniques and strategies from several martial arts including sport *Judo*, *Muy Thai*, and *Kali*.[35] The Army codified the new combatives system with the publication of Field Manual (FM) 3-25.150: *Combatives* in 2002. This document stated that the result of combatives training should be, "the culmination of a successful physical fitness program, enhancing individual and unit strength, flexibility, balance, and cardiorespiratory fitness and build[ing] personal courage, self-confidence, self-discipline, and esprit de corps."[36] The new combatives system saw its first applications in combat following deployments in

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[33]Thomas A. Green and Joseph R. Svinth, *Martial Arts of the World: An Encyclopedia of History and Innovation*, 2 vols. (Santa Barbara, CA: ABC-CLIO, 2010).

[34]Green and Svinth, *Martial Arts in the Modern World*, 266.

[35]Ibid., 5.

[36]Department of the Army, Field Manual 3-25.150 (FM 21-150), *Combatives* (Washington, DC: Government Printing Office, 2002), 1-1.

response to the September 11, 2001 attacks. The original course of instruction only included two levels, but experiences in Afghanistan pushed the need for unit-level training and qualified trainers.[37] This need resulted in the development of the level III and level IV courses. Continued experiences in combat further developed the program. The four levels of instruction changed to functionally designated courses in 2009 when the Army revised and republished FM 3-25.150 with updated content.[38] With these revisions codified in doctrine, the current Modern Army Combatives Program was born. How does the current program compare to a traditional martial art?

This section compares and contrasts the Modern Army Combatives Program against *Judo*, as originally presented by its creator Jigoro Kano. I selected *Judo* due to personal familiarity with the martial art and its similarity to Modern Army Combatives Program technical content. While this may seem arbitrary, the selection only serves to facilitate analysis of the Modern Army Combatives Program by means of comparison; any other martial art could be substituted with similar effect. To make this comparison, I look at the purpose, content, and progression/certification systems of each style. After establishing a foundational base of knowledge, I can apply the four classification criteria and determine the nature of the training methodology that best conveys the ideas of the style and identify biases towards one methodology or the other based on the characteristics of the style. This allows me to apply research data from modern studies regarding the impacts that each training methodology may have on the trainee. I begin my comparisons with the purpose of each style.

Purpose

The stated purpose of the MACP has both physical and mental components. Physically,

[37]United States Army Combatives School, *The History of Combatives* (Fort Benning, GA: United States Army Maneuver Center of Excellence, 2012), 6.

[38]Department of the Army, Field Manual 3-25.150, *Combatives*, i.

the intent of training is, "the culmination of a successful, physical fitness program, enhancing individual and unit strength, flexibility, balance, and cardiorespiratory fitness."[39] Mentally, the Modern Army Combatives Program builds, "personal courage, self-confidence, self-discipline, and esprit de corps."[40] The Army has integrated the program into basic soldier training. It is task number 19 of the 40 Level 1 Warrior Skills.[41] Army Regulation 350-1, *Army Training and Leader Development*, also requires combative training at the unit level.[42] Consistent with the principles of Unified Land Operations, the primary goal of the Modern Army Combatives Program is the development of a level of lethality in all soldiers at the individual level.[43]

Judo, like the Modern Army Combatives Program, also espouses physical and mental components in its purpose.[44] Kano states that *Judo*'s aim is, "…making the body strong, useful, and healthy while building character through mental and moral discipline."[45] The clear distinction between the two is the inclusion of moral discipline. "Through *Judo*," Kano explains, "persons individually and collectively attain their highest spiritual state while at the same time developing their bodies and learning the art of attack and defense."[46] This final statement indicates a subtle but important difference in the overall aim of *Judo* versus that of the MACP. Judo seeks to build an individual that is physically and mentally able to act morally within his/her environment. The

[39]Department of the Army, Field Manual 3-25.150 (FM 21-150), *Combatives*, 1-1.

[40]Ibid.

[41]Department of the Army, Soldier Training Publication 21-1-SMCT, *Soldier's Manual of Common Tasks Warrior Skills Level 1* (Washington, DC: Government Printing Office, 2009), 4–8.

[42]Department of the Army, Army Regulation 350-1, *Army Training and Leader Development* (Washington, DC: Government Printing Office, 2001), 13.

[43]Department of the Army, Army Doctrine Reference Publication 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, 2013), 2–13.

[44]Jigorō Kanō and Kōdōkan (Tokyo Japan), *Kodokan Judo*, 1st ed. (New York: Kodansha International, 1986), 20–24.

[45]Ibid., 20.

[46]Ibid., 25.

martial aspect of *Judo* is only one mechanism that allows this. Accepting that MACP teaches soldiers on the battlefield how to deal with hand-to-hand confrontations, this difference is not unusual. Soldiers must be able to survive in combat, but the lack of a stated moral purpose also drives differences in the content of each style. These differences ultimately affect the methodology.

Content

The Modern Army Combatives Program was heavily influenced by Gracie *Jiujitsu*.[47] The bulk of content within the Modern Army Combatives Program involves unarmed grappling that typically begins from a standing position and ends on the ground. Since 1994, when the 2nd Ranger Regiment began developing the foundational techniques of the Modern Army Combatives Program, the program has also incorporated a significant number of techniques using and defending against weapons.[48] The program divides techniques into basic, intermediate, and advanced grappling, and contact weapons.[49] Instructors evaluate techniques, taught using drills and repetition, using clear performance standards at each skill level.[50] The Modern Army Combatives Program also permits and encourages competition as a means of training sustainment.[51]

Judo techniques have changed over time. Many people are familiar with *Judo* as an Olympic sport, but sport *Judo* is subject to a modern set of competition rules. The rules limit the type of techniques a competitor can use in competition. There are no striking techniques allowed in sport *Judo* competitions. *Judo*, as originally developed by Jigoro Kano, included the full range

[47]Green and Svinth, *Martial Arts in the Modern World*, 266.

[48]Army, Field Manual 3-25.150, *Combatives*, 6-1.

[49]Ibid., 3–1, 4–3, 5–1, 6–1.

[50]Ibid., 2–13.

[51]Army, Field Manual 3-25.150, *Combatives*, 2–13.

of techniques from several styles of *Jiujitsu*.[52] These techniques included throwing, grappling, and striking.[53] In addition to repetitive drill work, *Judo* also incorporates kata, or form work.[54] Kata provides a safe means to practice basic striking and weapons skills. Many of the techniques are absent in competition today; they are still currently present in all but one of the seven katas in present day *Judo*.[55] If kata provides a controlled practice environment, then *randori* or free practice provides a semi-realistic unpredictable practice environment. Like the Modern Army Combatives Program, competition supports this style of practice and many current *Judo* programs encourage competition and even reward it during evaluation for advancement.[56] *Judo* training also incorporates meditative practice in the pursuit of mental development.[57] The absence of *kata* and meditation within the Modern Army Combatives Program directly prevents their instruction. These exclusions become natural biases that drive the Modern Army Combatives Program to a modern training methodology.

Progression System

The Modern Army Combatives Program consists of four levels, with each level above the first essentially serving as instructors or trainers for the levels below it and certifiers two levels

[52]Jigorō Kanō and Japan Kokusai Kankōkyoku, *Judo (Jujutsu)*, Tourist Library: 16 (Tokyo,: Maruzen Company, 1937), 49–51.

[53]Ibid.

[54]Kanō and Kōdōkan, *Kodokan Judo*, 21.

[55]Kanō and Kōdōkan, *Kodokan Judo*, 145.

[56]United States Judo Federation, "Handbook Section VI: Rank Requirements," in *United States Judo Federation Inc. Official Hand Book* (Ontario, OR: United States Judo Federation Inc., 2005), 3, http://www.usjf.com/public/rank_requirement.pdf (accessed February 15, 2014); United States Judo Association, "USJA Promotion Points," United States Judo Association http://www.usja-judo.org/promotion-points/ (accessed February 15, 2014).

[57]Ron Rogers, "An Encyclopedia of Judo," ed. Ron Rogers (Unpublished: 2014).

below it. Each level corresponds to one of four courses.[58] The basic combatives course provides foundational training and consists of five days of instruction, at the end of which the participant is evaluated on ten tasks out of twenty-seven, and must take a written test.[59] Soldiers must pass a total of eight of the ten tasks.[60] As the name suggests, the basic course provides the basic level of training that is required per AR 350-1. The vast majority of soldiers only ever train to this level and are considered capable of instructing other soldiers on basic tasks. The tactical combative course provides intermediate-level training and consists of ten days of instruction, following which the soldier tests on basic competition rules, combatives history, and ten additional techniques.[61] Soldiers that complete the Tactical Combatives Course receive certification to supervise basic combatives course instructors and serve as referees in standard competitions.[62] The basic combatives instructor course provides high-intermediate level training and is a twenty day program.[63] Graduates of this course must pass an intermediate rules exam and a

[58]United States Army Combatives School, "Official Home of Modern Army Combatives," United States Army Maneuver Center of Excellence http://www.benning.army.mil/infantry/197th/combatives/ (accessed February 15, 2014).

[59]Timothy Farris, *Basic Combatives Course (Level I) Graduation Requirements* (Fort Benning, GA: United States Army Combatives School, 2011).

[60]United States Army Combatives School, *Modern Army Combatives Program Basic Combatives Course (Level I) Technical Evaluation* (Fort Benning, GA: United States Army Combatives School, 2011), 1.

[61]United States Army Combatives School, *Tactical Combatives Timeline* (Fort Benning, GA: United States Army Combatives School, 2011); United States Army Combatives School, *Standard Competition Test* (Fort Benning, GA: United States Army Combatives School, 2011); United States Army Combatives School, *Tactical Combatives Exam* (Fort Benning, GA: United States Army Combatives School, 2011); United States Army Combatives School, *Tactical Combatives Course (Level II) Performance Test* (Fort Benning, GA: United States Army Combatives School, 2011).

[62]United States Army Combatives School, *Modern Army Combatives Program Duties and Responsibilities* (Fort Benning, GA: United States Army Combatives School, 2011), 5–7.

[63]United States Army Combatives School, *Basic Combatives Course Level III Timeline* (Fort Benning, GA: United States Army Combatives School, 2011).

comprehensive written exam.[64] Upon graduation, personnel are certified to teach advanced combatives techniques, conduct scenario-based training events, referee intermediate-level competitions, and certify basic combatives course instructors.[65] The tactical combatives instructor course is a twenty-day course that produces installation-level trainers who may referee advanced competitions and certify tactical combatives course instructors.[66] Graduates must pass a comprehensive exam that covers material from each of the four courses.[67] There are no time-in-grade requirements and, while unlikely, a soldier can progress through all four courses in fifty-five days with back-to-back courses.[68]

Progression through *Judo* does not follow such a schedule. While there are several governing bodies, each club is free to establish its own promotion criteria, so long as it conforms to the requirements of its governing body. According to the United States Judo Association, there are seven grades of student ranks with corresponding belt colors from white (the lowest) to brown (the highest) before attaining a black belt.[69] There are ten grades of master ranks, which all may wear a black belt.[70] Testing includes vocabulary, general information and history, and technical

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[64]United States Army Combatives School, *Intermediate Rules Test* (Fort Benning, GA: United States Army Combatives School, 2011); United States Army Combatives School, *BCIC Comprehensive Exam* (Fort Benning, GA: United States Army Combatives School, 2011).

[65]United States Army Combatives School, *Modern Army Combatives Program Duties and Responsibilities* (Fort Benning, GA: United States Army Combatives School, 2011), 8–11.

[66]United States Army Combatives School, *Tactical Combatives Instructor's Course (Level IV) Timeline* (Fort Benning, GA: United States Army Combatives School, 2011), 1–16; United States Army Combatives School, *Modern Army Combatives Program Duties and Responsibilities* (Fort Benning, GA: United States Army Combatives School, 2011), 12–15.

[67]United States Army Combatives School, *Level IV Comprehensive End of Course Test* (Fort Benning, GA: United States Army Combatives School, 2011), 1–4.

[68]United States Army Combatives School, *Tactical Army Combatives Instructor Course (Level IV) Program of Instruction* (Fort Benning, GA: United States Army Combatives School, 2011), 2–1.

[69]United States Judo Association, "USJA Rank System," United States Judo Association http://www.usja-judo.org/promotion-requirements/ (accessed February 15, 2014).

[70]Ibid.

demonstration. Unlike the Modern Army Combatives Program, there are time-in-grade requirements at each grade before consideration for promotion, and students must apply for promotion.[71] The largest difference in the progression and certification systems is the requirement for continued practice. At each level within *Judo*, participants must demonstrate proficiency in all previous levels, in addition to passing the new skills required for promotion to the rank for which they are applying.[72] This process is exhaustive and ensures the maintenance of proficiency throughout a participant's training. This also includes continued demonstration of proper conduct and adherence to the United States Judo Association Code of Ethics.[73] The first rank that conducts promotions is *shodan* (1st degree black belt) and attaining this rank requires a minimum of three years of practice.[74] Additional certifications, such as coaching and refereeing, require additional training and are not included in normal progression, though they may be required for promotions higher than *yodan* (4th degree black belt).[75]

Classification

Comparing modern and traditional martial arts forces a classification into one category or the other. This monograph makes that classification based on training methodology and not the temporal positioning of the martial art. Among the numerous studies regarding the psychological, behavioral, and physical effects of martial arts training, only one study, conducted by Dr. T. A. Nosanchuk and Dr. Catherine MacNeil, offers an objective model to determine whether the

[71]Ibid.

[72]United States Judo Association, "Exam for All Senior Judo Ranks" (Online: United States Judo Association, 2012), 9–16, http://www.usja-judo.org/forms/Docs/srpromo.pdf (accessed February 15, 2014).

[73]United States Judo Association, "USJA Code of Ethics" (Tarpon Springs, FL: United States Judo Association).

[74]United States Judo Federation Inc., "Handbook Section VI: Rank Requirements," 6.

[75]Ibid., 16.

methodology used is modern or traditional.[76] This study establishes four criteria for classifying martial arts instruction as modern or traditional. The first criterion is "the relative importance of *kata*, as compared to technical instruction, drill, and *kumite*, a type of sparring."[77] Methodologies that incorporate *kata* over technical drill and *kumite* tend to be more traditional. The second criterion is "the degree to which contact to the head and other vital areas during *kumite* was negatively sanctioned."[78] Heavy sanctioning or the outright prohibition of these types of strikes is indicative of traditional methodologies. The third criterion is "measures of respect to the *sensei*, *dojo*, and fellow students and to the uniform (the *gi*)."[79] Higher degrees of respect within the training hall indicate traditional styles of instruction. The fourth and final criterion is, "the importance of meditation and philosophy in the training program," with a higher importance on these subjects being traditional in nature.[80] Within this construct, content is only important when a component (such as *kata* or meditation) is not present, cannot be taught, and as a result, may skew categorization. With that in mind, this assessment reinforces the goal of avoiding debates about technical effectiveness.

Examining the Modern Army Combatives Program and *Judo* using the first classification criterion clearly shows that MACP uses a modern approach while *Judo* uses a traditional approach. *Judo's* content reinforces its traditional aspect while the Modern Army Combatives Program has no *kata* component to its technical content. Applying the second criteria, both the Modern Army Combatives Program and *Judo* stress safety when performing these techniques.

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[76]T. A. Nosanchuk and M. L. Catherine MacNeil, "Examination of the Effects of Traditional and Modern Martial Arts Training on Aggressiveness," *Aggressive Behavior* 15, no. 2 (April 1989): 153–159. *Academic Search Complete*, EBSCO*host* (accessed February 15, 2014).

[77]Nosanchuk and MacNeil, "Examination of the Effects," 153–159.

[78]Ibid.

[79]Ibid.

[80]Ibid.

The Modern Army Combatives Program limits striking in competition to intermediate-level competitions and stresses safety at each level of certification.[81] *Judo* restricts these techniques to *kata*.[82] Both arts are almost equal, but the Modern Army Combatives Program still leans towards the modern methodology because it does not exclude striking from competitions. The third criterion also highlights the traditional nature of *Judo*. Etiquette and respect are part of day-to-day practice for a *Judo* practitioner and are part of the testing requirements for promotion, whereas they are absent in the Modern Army Combatives Program promotion requirements. The fourth criterion, "the importance of meditation and philosophy in the training program," highlights the modern nature of the Modern Army Combatives Program, which does not have any aspect of meditation or philosophy in its program. Given this assessment, clearly the Modern Army Combatives Program follows a modern training methodology. The question then becomes, is modern or traditional more effective at developing resilience based on the same assessment?

Based purely on a review of each style, the logical conclusion would be that each emphasizes aspects of physical, mental, emotional, and behavioral development. There are differences within each of these domains, though. The rate of progression, integration of ethical decision making and conduct, and habituation of training all vary between the two styles. These differences are worth noting, but without esoteric knowledge of each system, the base hypothesis must be that each is equally suited for developing individual resilience. Truly determining if a correlation exists between training methodology and resilience outcome requires a more deliberate research method. This comparison is useful, though, as the qualitative result now forms a testable null hypothesis through which I can quantitatively determine correlation.

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[81]United States Army Combatives School, "United States Army Combatives School Standard Rules" (Fort Benning, GA: United States Army Combatives School, 2011), 7; United States Army Combatives School, "United States Army Combatives School Intermediate Competition Rules and Regulations" (Fort Benning, GA: United States Army Combatives School, 2011), 17.

[82]Kanō and Japan Kokusai Kankōkyoku, *Judo (Jujutsu)*, 19–20.

Methodology

To conduct this study, I began by searching for related studies and evidence-based articles using the Combined Arms Research Library online, as well as the SCIRUS, Psynet, PubMed, SagePub, Taylor and Francis, Ingenta Connect, Karger, JAMA Network, and Science Direct search engines. I conducted a series of searches using a combination of the following keywords: traditional, modern, martial art(s), resilience, psychology, stress, positive coping, positive affect, positive thinking, self-control, realism, altruism, and physical fitness. I included English language documents from foreign sources. In some cases, subjects from identified meta-studies were individually obtained and included in this study. The initial gathering of sources resulted in 1,233 documents. I reviewed each document's abstract and/or summary for relevance and culled the population to 231 documents. I further reviewed each of the remaining 231 documents individually and selected 61 that were relevant to this study. The final population consisted of document with a date range of 1978–2013. Table 1 provides a complete list of the final population.

I classified each document by whether it pertained to a modern or traditional methodology, coding each with an M or T, respectively. If I could not make a determination regarding methodology, I coded the document with an N. I then assigned a score based on whether the document included positive information pertaining to an individual factor of resilience.[83] If the study indicated positive development of one of these factors, (positive thinking, positive affect, positive coping, optimism, realism, self-control, and physical fitness) I gave it a score of one in that category. I added these scores to determine each document's resilience score. Some studies did not explicitly address individual factors of resilience. In these instances, I made inferences regarding the discussed impact on individual factors. Documents that

[83]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Locations 896–945.

looked at aggression are examples. Aggression relates to resilience through the self-control and positive coping factors; therefore, a document that indicated a decrease in aggression scored a one in each category. Table 2 provides a complete listing of this assessment. I then grouped each document by methodology and statistically compared their mean scores using a two-tailed and one-tailed t-test for two samples assuming unequal variances. I used the data analysis tool pack in Microsoft Excel 2010 and a 95% confidence interval in both tests. The sample of modern documents contained fifteen documents. Table 3 provides a listing of these documents. The sample of traditional documents contained forty documents; Table 4 provides a listing of these documents. Documents coded with an N are not included in the comparison.

Results

The null hypothesis initially tested was, "that there was no statistically significant difference between the means of each sample." The two-tailed t-test indicated that there was enough difference to reject the null hypothesis. That is, the resilience outcomes from modern and traditional training methodologies are not the same. The results of the one-tailed t-test indicated that the mean of the traditional sample was higher and that this result was statistically significant. Restated, traditional training methodologies result in statistically higher mean individual resilience levels. The results of this test are located in Appendix 5.

Limitations

The study suffered from four critical limitations. The first limitation derives from the method of study. As an archival review, this study is limited to existing sources. These sources do not specifically address resilience or its factors. This leads to the second limitation, which is the subjective assessment of the resilience strength of each document. Depending on level of expertise, it is very possible that each document will score differently. Related to the second limitation and following from the first is the subjective classification of a document as modern or

traditional in nature. Wherever possible, indicators such as reliance on competition or familiarity with individual style were used to make this classification, but as some styles are often taught with varying methodologies, a reviewer with different experiences may make a different assessment. The last limitation is a result of this classification. Documents lacking determination were not included in this data comparison. Though there were only seven such documents, the mean resilience score was 4.57. By comparison, the means of the modern and traditional samples were 1.86 and 3.00, respectively. The inclusion of these documents may have resulted in a less statistically significant result. If all seven had been classified as modern, for instance, there would have been no statistically significant reason to reject the null hypothesis. These limitations must be addressed in future studies by including reviews and classification by relevant experts in the field of resilience and in each martial art.

Discussion

Dr. Meredith defines positive coping as, "the process of managing taxing circumstances, expending effort to solve personal and interpersonal problems, and seeking to reduce or tolerate stress or conflict, including active/pragmatic, problem-focused, and spiritual approaches to coping."[84] Of the twenty-five indications of positive development of this factor, all but one fell into traditional training methodologies.[85] This factor directly relates to the secondary appraisal. This appraisal includes the available knowledge, skills, and abilities to cope with stress and highlights the relationship between content and classification of a modern or traditional martial art.[86] The observed data supports the inference that traditional training methodologies include training that provides knowledge, skills, and abilities needed to manage stress. Training

[84]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Location 172.

[85]See Appendix 1, Tables 3 and 4 for coding results.

[86]Lazarus and Folkman, *Stress, Appraisal, and Coping*, 35; Nosanchuk and MacNeil, "Examination of the Effects," 153–159.

methodologies that neglect this training tend to be more modern, and are supported by a review of the MACP, which contains no stress management training.[87] Ali Najafi indicates that traditional martial arts training may provide the ability to identify and mitigate certain emotional responses to stress, whereas modern approaches do not include such training.[88] Nosanchuk indicates similar findings and reflects this idea in his method for classifying traditional and modern martial arts.[89] Further discussion must now focus around each of the individual factors of individual resilience.

Dr. Meredith defines positive affect as, "feeling enthusiastic, active, and alert, including having positive emotions, optimism, a sense of humor (ability to have humor under stress or when challenged), hope, and flexibility about change."[90] Thirty-two documents indicated positive impacts within this factor. This factor relates directly to the primary appraisal that determines the level of threat a stressful event poses to the individual.[91] Examining the studies that pertain to this factor indicates that increased positive impacts tend to come with advance and/or success in competition. Margaret Kurian and her team discovered significant increases in optimism as they examined practitioners of increased rank.[92] Outside of the modern or traditional methodology,

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[87]United States Army Combatives School, *Combatives Level 1 Program of Instruction* (Fort Benning, GA: United States Army Combatives School, 2006); United States Army Combatives School, *Combatives Level 2 Program of Instruction* (Fort Benning, GA: United States Army Combatives School, 2006); United States Army Combatives School, *Basic Army Combatives Instructor Course (Level III) Program of Instruction* (Fort Benning, GA: United States Army Combatives School, 2011); United States Army Combatives School, *Tactical Army Combatives Instructor Course (Level IV) Program of Instruction* (Fort Benning, GA: United States Army Combatives School, 2011).

[88]Ali Najafi, "Humility Enhancement through the Traditional and Modern Practice of Martial Arts" (Langley, British Columbia, Canada: Trinity Western University, 2003), 52, http://www.collectionscanada.gc.ca/obj/s4/f2/dsk4/etd/MQ93653.PDF, (accessed February 15, 2014).

[89]Nosanchuk's fourth criterion relates to the integration of philosophy and meditation with training; Nosanchuk and MacNeil, "Examination of the Effects," 156.

[90]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Location 172.

[91]Lazarus and Folkman, *Stress, Appraisal, and Coping*, 31.

[92]Margaret Kurian et al., "Relating Scales on the Children's Personality Questionnaire to Training Time and Belt Rank in Ata Taekwondo," *Perceptual and Motor Skills* 79, no. 2 (1994): 905–906.

Duthie examined a population based on length of practice and indicated similar results.[93] This is significant as it may indicate that length and/or consistency of practice may have a similar effect to the effect of training methodology.

Dr. Meredith defines positive thinking as, “information processing, applying knowledge, and changing preferences through restructuring, positive reframing, making sense out of a situation, flexibility, reappraisal, refocusing, having positive outcome expectations, a positive outlook, and psychological preparation.”[94] This factor impacts both the primary and secondary appraisals as well as reappraisal.[95] Similar to positive effects, a trend of improvement based on rank and/or length of practice emerges. Clive Layton observed this trend within a population of traditional *Shotokan Karate* practitioners.[96] Richman found similar results in competition-oriented training methodology, but with the additional caveat that success in competition also reinforced this factor.[97] These findings indicate that competition may serve as a way to rapidly develop this factor in younger, less experienced practitioners.

The definition of self-control is, “the process of monitoring, evaluating, and modifying emotional reactions to accomplish a goal (i.e., self-regulation, self-management, self-enhancement).”[98] This factor applies within all three stress appraisals.[99] Forty-nine of the sixty-two documents reviewed indicated improvements in some factor of self-control. Among modern

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[93]R. B. Duthie, L. Hope, and D. G. Barker, "Selected Personality Traits of Martial Artists as Measured by the Adjective Checklist," *Perceptual and Motor Skills* 47, no. 1 (1978): 74–76.

[94]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Location 172.

[95]Richard S. Lazarus and Susan Folkman, *Stress, Appraisal, and Coping*, 31, 35, 37.

[96]Clive Layton, "Anxiety in Black-Belt and Nonblack-Belt Traditional Karateka," *Perceptual and Motor Skills* 71, no. 3 (1990): 237–239.

[97]Charles L. Richman and Heather Rehberg, "The Development of Self-Esteem through the Martial Arts," *International Journal of Sport Psychology* 17, no. 3 (1986): 237–239.

[98]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Location 172.

[99]Lazarus and Folkman, *Stress, Appraisal, and Coping*, 31, 35, 37.

and traditional methodologies, this factor is the most consistently influenced because it pertains to anxiety, aggression, and hostility. These are among the most popularly researched psychological factors associated with martial arts training. In documents where self-control was the only factor scored, anxiety, aggression, and hostility were the predominant study subjects. Nosanchuk observed this in 1989, examining the differences between modern and traditional martial arts training on aggressiveness.[100] Nosanchuk's results also showed that traditional methodologies improved aggression by a greater margin than modern methodologies, while Bjorkqvist noted decreases in male practitioners and increases in female practitioners.[101] This data seems to indicate that either training methodology improves this factor.

Realism is the, "realistic mastery of the possible, having realistic outcome expectations, self-esteem and self-worth, confidence, self-efficacy, perceived control, and acceptance of what is beyond control or cannot be changed."[102] This factor is most associated with the primary appraisal, but also influences the secondary appraisal and reappraisal.[103] Realistic people perceive less stress in situations they do not control. Their judgment of control is based on a firm understanding of their individual abilities and limitations. When observing this factor, only traditional martial arts methodologies resulted in increases in realism. Steyn attributes this to values-based training in a traditional setting.[104] Lakes, looking primarily at self-regulation, also noted increases in self-esteem that may have improved a subject's ability to perceive control

[100]Nosanchuk and MacNeil, "Examination of the Effects," 158.

[101]Ibid., 158; K. Björkqvist and L. Varhama, "Attitudes toward Violent Conflict Resolution among Male and Female Karateka in Comparison with Practitioners of Other Sports," *Perceptual and Motor Skills* 92, no. 2 (2001): 586–587.

[102]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Location 172.

[103]Lazarus and Folkman, *Stress, Appraisal, and Coping*, 31, 35, 37.

[104]B. J. M. Steyn and S. Roux, "Aggression and Psychological Well-Being of Adolescent Tae Kwon Do Participants in Comparison with Hockey Participants and a Non-Sport Group," *Sport Psychology* 15, no. 1 (2009): 40–43. http://reference.sabinet.co.za/webx/access/electronic_journals/ajpherd/ajpherd_v15_n1_a4.pdf (accessed February 15, 2014).

when presented with mental, physical, and emotional challenges.[105] Lakes' observations proved not to be statistically significant.[106] This factor shows a strong bias toward traditional training methodologies.

Meredith defines altruism as, "selfless concern for the welfare of others, motivation to help without reward."[107] Similar to realism, only traditional martial arts methodologies indicate improvements in altruism. This factor relates to all three appraisals within Lazarus' model but may show greater influence on reappraisal.[108] Altruistic motivations can serve as a moral compass that reinforces the value of an action, even if the outcome was not optimal. The importance of morals or values cannot be understated here; it is not surprising that training methodologies that integrate values, morals, and/or ethical philosophies reinforcing acceptable social values and beliefs fall within the traditional classification. Martial arts like *Aikido* embody the notion that each participant is responsible for the safety and wellbeing of their partners. Heckler, in an interview with Miller states, "In *Aikido*, when the *uke* attacks you, he's really giving himself to you. You could really hurt him, but the whole notion is not to hurt him in receiving the attack. Doing it that way empowers both of you."[109] This notion is all but absent in modern styles that emphasize winning over development. This notion poses a great challenge to training methodologies adopted to teach soldiers how to win against an enemy that means to kill them.

Meredith characterized physical fitness as, "bodily ability to function efficiently and

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[105]Kimberley D. Lakes and William T. Hoyt, "Promoting Self-Regulation through School-Based Martial Arts Training," *Journal of Applied Developmental Psychology* 25, no. 3 (2004): 301–302.

[106]Ibid.

[107]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Location 183.

[108]Lazarus and Folkman, *Stress, Appraisal, and Coping*, 31, 35, 37.

[109]D. Patrick Miller, "When Soldiers Meditate: An Interview with Richard Strozzi Heckler," Kindle ed. (Napa, CA: Fearless Books, 2010), Location 211.

effectively in life domains."[110] This factor is foundational to all aspects of Lazarus' model and is a significant precursor for resilience in general.[111] Only two directly referenced studies addressed this factor, and they both involved traditional methodologies. Grodin observed that traditional *tai chi* and *qigong* both improved the physical health of practitioners and aided in healing post trauma.[112] Lam indicates that traditionally taught Chinese martial arts improve cardiovascular and aerobic fitness, body composition, muscle mass, muscle strength, and movement speed.[113] Unlike realism and altruism, however, this factor must be considered with skepticism. Given the extremely physical nature of many modern martial arts training regimes, the simple fact that many studies did not measure it is not enough to determine which methodology is more effective at developing physical fitness.

Recommendations for Future Study

The results of this study seem to indicate that traditional training methodologies are generally better at developing resilience factors than modern training methodologies. The evidence presented supports future study within this field. Future studies must address all of the limitations listed above and focus specifically on the factors of resilience. Given the diversity of resilience research, these new studies should also address the emerging ideas of psychological capital and hardiness as they relate to resilience, martial art training, and stress management. Additionally, research should seek to address the inherent biases presented in the discussion of

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[110]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Location 183.

[111]Lazarus and Folkman, *Stress, Appraisal, and Coping*, 31, 35, 37.

[112]Michael A. Grodin et al., "Treating Survivors of Torture and Refugee Trauma: A Preliminary Case Series Using Qigong and T'ai Chi," *Journal of Alternative and Complementary Medicine* 14, no. 7 (2008): 805–806.

[113]Michael Huen Sum Kuk Lam, Eunice Yuen Kum Lee, and Kyle Ka Yiu, "External Chinese Martial Arts and Health," in *Martial Arts for Health – Translating Research into Practice*, ed. Shirley S. M. Fong (Online: OMICS Group Incorporation, 2014): 17–18, http://www.esciencecentral.org/ebooks/martial-arts-for-health/pdf/martial-arts-for-health.pdf (accessed February 15, 2014).

realism, altruism, and physical fitness. This study also focused narrowly on individual resilience; future study, however, should also include analysis of the impacts of training on unit, community and family resilience.[114] These topics help build upon the notion that resilient individuals have positive impacts on the groups of which they are members. Developing the body of collective knowledge in this manner will undoubtedly improve the overall understanding of the relationship between training methodology and training effectiveness.

The results of this study clearly demonstrate the positive correlation between traditional training methodologies and resilience. On its own, this study highlights the need for future research in this area, but given the identified limitations of the study, more evidence may be required to definitively conclude which methodology is better. The Marine Corps has taken a more traditional approach to implementing the Marine Corps Martial Arts Program. What follows is a mini case study of this program and discussion regarding its resilience outcomes.

MARINE CORPS MARTIAL ARTS PROGRAM COMPARATIVE CASE STUDY

As discussed briefly in an earlier section, the Army experimented with traditionally taught martial arts in the mid-to-late eighties. The Trojan Warrior program produced a number of documented benefits. This program developed individual physical, psychological, and specific mission-related skills as well as team cohesion.[115] Specifically, the program resulted in an 85 percent increase in the ability to manage stress and shock, and a 65 percent increase in the ability to coordinate mind, body, and emotions.[116] These improvements are doubly impressive when considered in the context of the Trojan Warrior training population. The program taught two teams of special operations soldiers, already operating at the peak of their performance potential.

[114]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Location 497.

[115]Richard Strozzi-Heckler, *In Search of the Warrior Spirit: Teaching Awareness Disciples to the Military*, Kindle, 4th. ed. (Berkeley, CA: Blue Snake Books; Distributed by North Atlantic Books, 2007), Location 5029–5034.

[116]Ibid., Location 5034.

Despite the success of this program, the Army discontinued it due to budget constraints.[117] While the Army turned away from, and largely forgot about, the results of this program, the Marine Corps later identified its potential benefits and began developing the current Marine Corps Martial Arts Program.

In the early phases of the program, the idea of a Marine Corps Martial Arts Program had two goals. First, the program had to prepare the Marine to be, "combat-effective in a changing geo-political environment."[118] Second, the program had to enhance, "character values on deployment and at home."[119] The Marine Warrior Project served as the developmental arena for the early Marine Corps Martial Arts Program. In keeping with the two goals for the program, teaching included technical, principle, and values instruction.[120] Similar to the Trojan Warrior Project, the Marine Warrior Project produced amazing results. The project significantly increased self-worth, self-esteem, self-satisfaction, positive affect, and self-examination.[121] Additionally, the program increased the participants' ability to maintain focus during distractions, improved effectiveness in Military Operations on Urban Terrain training, and improved physical fitness.[122] These principles carried over and added to Marine Corps tradition, ultimately coalescing into the Marine Corps Martial Arts Program. So, how does the Marine Corps program compare to the Modern Army Combatives program?

Purpose

The two programs share a number of similarities. The first is their stated purpose. Like

[117]Ibid., Location 5048

[118]Strozzi-Heckler, *In Search of the Warrior Spirit*, Location 5716.

[119]Ibid.

[120]Ibid., Location 5791.

[121]Ibid., Location 5832.

[122]Ibid., Locations 5832–5840.

the Modern Army Combatives Program, the Marine Corps Martial Arts Program combines mental and physical aspects in order to produce a more effective warrior.[123] Also similar to the Modern Army Combatives Program, the linkage between physical training and physical application of combat principles expands this purpose.[124] The Modern Army Combatives Program specifically states that combatives, "bridges the gap between physical training and tactics."[125] The Marine Corps Martial Arts Program has four objectives. The first is to enhance the capabilities of the Marine Corps as a whole.[126] The second is the provision of basic combative skills.[127] The third is making those skills applicable, "across the spectrum of violence."[128] The fourth and final objective is strengthening the Marine Corps warrior ethos.[129] These four objectives align closely with the three objectives of the Modern Army Combatives Program: understanding controlled aggression, developing skills applicable throughout the spectrum of force, and reinforcing the warrior ethos.[130] Each touts effective development of courage, self-confidence, discipline, and esprit-de-corps.[131] At least on the surface, both programs appear very similar. But where the Modern Army Combatives Program is structured as a stand-alone adjunct to other programs, the Marine Corps Martial Arts Program integrates and reinforces other Marine

[123]Department of the Navy, Marine Corps Reference Publication 3-02b, *Marine Corps Martial Arts Program (MCMAP)* (Washington, DC: Department of the Navy, 2011), 1-1.

[124]Ibid.

[125]Department of the Army, Field Manual 3-25.150, *Combatives*, 1-1.

[126]Department of the Navy, Marine Corps Reference Publication 3-02b, *Marine Corps Martial Arts Program (MCMAP)*, 1-1.

[127]Ibid.

[128]Department of the Navy, Marine Corps Reference Publication 3-02b, *Marine Corps Martial Arts Program (MCMAP)*, 1-1.

[129]Ibid.

[130]Department of the Army, Field Manual 3-25.150, *Combatives*, 1-1.

[131]Department of the Navy, Marine Corps Reference Publication 3-02b, *Marine Corps Martial Arts Program (MCMAP)*, 1-1.

Corps programs.

The Marine Corps Martial Arts Program synergizes three dimensions: mental, character, and physical. Two components make up the mental dimension. The first component is warfighting (which encompasses training and education in the general study of the art of war), decision-making training, expeditionary maneuver warfare, common skills training, force protection, and risk management.[132] The second component is professional military education and encompasses professional reading; cultural studies; historical studies; and customs, courtesies, and traditions.[133] The mental discipline creates a base upon which future training builds and integrates. Two components make up the character dimension, which includes training within the Marine Corps core values and leader development system.[134] The physical dimension also consists of two components. The first component is fighting techniques and the second is combat conditioning.[135] The Modern Army Combative program lacks the sophisticated level of integration that the Marine Corps Martial Arts Program enjoys. This becomes evident by examining the content of each system.

Content

Both programs share a very similar syllabus of physical techniques that include armed, unarmed, standing, and grappling techniques. This is all that the two programs share as far as content is concerned. The Marine Corps Martial Arts Program includes content in both the mental and character dimensions that is absent in the Modern Army Combatives Program. Within the mental dimension, the Marine Corps Martial Arts Program includes military case studies and

[132]Ibid., 1-2.

[133]Department of the Navy, Marine Corps Reference Publication 3-02b, *Marine Corps Martial Arts Program (MCMAP)*, 1-2.

[134]Ibid., 1-3.

[135]Ibid.

martial cultural studies.[136] Case studies are guided discussions focusing on individual experiences.[137] They serve as a vehicle for examination of action within the context of combat.[138] Martial cultural studies are also guided discussions focusing on cultural influences on the "creation, development, training and sustainment of a warrior."[139] These discussions are mandatory parts of the progression system and provide a forum of analysis of the Marine Corps culture. Within the character dimension, Marine Corps core values form the basis of instruction. Additionally, the Marine Corps Martial Arts Program makes extensive use of "tie-ins."[140] Tie-ins are guided discussions regarding "values based decisions, such as responsible use of force, substance abuse, citizenship, suicide awareness, sexual responsibility, and equal opportunity."[141] Collectively, these discussions create firm links between martial arts training and other programs.

By contrast, the Army treats these topics individually and does not have any program that addresses the cultural influences on the Army or its methods of waging war. Another major difference between the programs is sustainment training.[142] The Modern Army Combatives Program requires sustainment training that helps develop mastery. The final difference is a tracking mechanism for training-related injuries. The Marine Corps tracks injuries via both manual and electronic means.[143] The Marine Corps Martial Arts Program's comprehensive sustainment-training and safety programs closely resemble the underlying principles found in

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[136]George J. Flynn, "Marine Corps Order 1500.59," in *Marine Corps Martial Arts Program (Short Title: MCMAP)* (Washington, DC: United States Marine Corps, 2010), 1-1.

[137]Ibid.

[138]Flynn, "Marine Corps Order 1500.59," 1-1.

[139]Ibid.

[140]Ibid.

[141]Ibid.

[142]Flynn, "Marine Corps Order 1500.59," 2-1.

[143]Ibid., 3, 5-2.

many traditional martial arts. These programs apply across all three domains and reinforce the program's progression system.[144]

Progression System

Progression with The Marine Corps Martial Arts Program takes place within a hierarchical system of five belt ranks.[145] The description of these ranks demonstrates the martial art program's integration with other Marine Corps training programs. The first belt is the tan belt with 27.5 hours of training, taking place at the entry level and covering basic techniques and instruction in leadership and core values.[146] The gray belt follows the tan belt and, like all other belts, individuals undergo training at the unit level.[147] Gray belt training requires twenty hours of training and five hours of sustainment training. It introduces advanced techniques and increases discussions within the mental and character dimensions. Mastery of gray belt techniques allows Marines to attend instructor training.[148]

This is an important difference between the Modern Army Combatives Program and the Marine Corps Martial Arts Program. The Modern Army Combatives Program does not require separate training to become an instructor. The green belt follows gray belt mastery and, during 17.65 hours of training and eight hours of sustainment training, requires demonstration of maintained proficiency of previous skills as well as all rank-specific professional military education.[149] As mentioned earlier, the sustainment training requirement endures through all

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[144]Ibid., 2-1.

[145]Department of the Navy, Marine Corps Reference Publication 3-02b, *Marine Corps Martial Arts Program (MCMAP)*, 1-3, 1-4.

[146]Flynn, "Marine Corps Order 1500.59," 4-1; Department of the Navy, Marine Corps Reference Publication 3-02b, *Marine Corps Martial Arts Program (MCMAP)*, 1-4.

[147]Flynn, "Marine Corps Order 1500.59," 4-1.

[148]Ibid.

[149]Ibid.

Marine Corps Martial Arts Program ranks and is absent within the Modern Army Combatives Program. All Marine Corps noncommissioned officers must attain at least a green belt and the requirement for rank-specific professional military education carries forward to all high ranks.[150] Brown belt introduces advanced techniques and begins training designed to impart the ability to teach leadership and core values training.[151] Attaining the brown belt rank requires 18.5 hours of training and fifteen hours of sustainment training. After demonstrating mastery of tan through brown belt techniques, Marines progress to black belt.[152] Black belt training focuses on advanced skill mastery and program administration. Marines must complete 20.75 hours of training and twenty hours of sustainment training in order to attain black belt.[153] The black belt rank has six levels, or degrees.[154] Any rank above 1st degree black belt requires centralized processing through the Marine Corps Martial Arts Center of Excellence.[155] Promotion to 2nd degree black belt requires 286 hours of instruction, eighteen months of experience as a martial arts instructor/trainer, completion of two essays, and performance of all previous techniques.[156] Candidates for 2nd degree black belt must also at least be a sergeant. Similar requirements exist for 3rd degree black belt, but the rank requirement is staff sergeant, captain, or chief warrant officer two or higher and twenty-four months of experience as a martial arts instructor/trainer as a 2nd degree black belt. The requirements for 4th degree black belt and higher are not published at

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[150]Department of the Navy, Marine Corps Reference Publication 3-02b, *Marine Corps Martial Arts Program (MCMAP)*, 2011), 1-4; Flynn, "Marine Corps Order 1500.59," 4-1.

[151]Flynn, "Marine Corps Order 1500.59," 4-1.

[152]Ibid.

[153]Ibid., 4-2.

[154]Department of the Navy, Marine Corps Reference Publication 3-02b, *Marine Corps Martial Arts Program (MCMAP)*, 1-4.

[155]Flynn, "Marine Corps Order 1500.59," 4-2.

[156]Ibid.

this time. The Marine Corps Martial Arts Program also has provisions for suspending and removing rank.[157] The progression system closely resembles a traditional martial art such as *Judo*.

Classification

Based on the four criteria identified earlier regarding modern and traditional training methodologies, and given this examination of the individual components of the Marine Corps Martial Arts program, it is clear that the MCMAP much more closely follows the characteristics of traditional training methodology, especially when contrasted with the Modern Army Combatives Program. Both programs are relatively equivalent and score firmly in the modern classification based upon the use of *kata* over technical drill and *kumite*. With regards to safety, however, the Marine Corps Martial Arts Program is clearly more traditional than the Army program, though both programs would score as modern when compared to martial arts like *Judo* or *Aikido*.

Most strikingly though is the comparison on the last two criteria: the role of respect and the integration of philosophy in the training. On these two criteria the Marine Corps program is much more traditional than the Army program. The integration of the Marine Corps program with its military rank system reinforces the leader/led relationship, and the integration of the program with the range of professional development programs illustrates the overarching philosophical integration. The Army program fundamentally lacks any such integration of respect or philosophy Though subjective, these assessments clearly indicate that the Marine Corps Martial Arts Program uses a much more traditional methodology than the Modern Army Combatives Program. This comparative case study helps to identify three areas for potential changes to the Modern Army Combatives Program: content, progression system, and level of integration. Applying earlier analysis indicates that the Marine Corps Martial Arts Program should be more effective at building individual resiliency.

[157]Ibid., 4-2.

Unfortunately, researchers have conducted no specific studies comparing the impact of the two training programs on resilience. The Department of Defense Medical Surveillance Program, however, releases monthly newsletters that discuss identified trends regarding medical readiness and treatments across the Department. In 2012, this program reviewed diagnosis rates of mental disorders broken down by service. This report showed that between years 2000 and 2011, both the Army and the Marine Corps saw increases in the diagnosis of mental disorders.[158] The data presented also clearly indicated that the rates of diagnosis are much lower within the Marine Corps than in the Army.[159] An earlier newsletter from 2008 examined the rates of mental and behavioral health referrals by service across deployment horizons.[160] This report showed that by percentage, mental and behavioral health referrals are much more common in the Army than in the Marine Corps.[161] These reports are by no means definitive and many variables could explain the differences. They do, however, present evidence that seems to confirm the hypothesis that Marines tend to be more resilient than soldiers. Based on analysis of the programs, it is not unreasonable to conclude that the Marine Corps Martial Arts Program may at least be part of the reason for this as it incorporates the same differences highlighted during my comparison of the Modern Army Combatives Program and *Judo*.

The rate of progression is much slower, which allows skill mastery versus skill acquisition. Therefore, marines may be more proficient at applying the skills learned through the program to counter stressful situations. The Marine Corps program heavily integrates philosophy and values-based ethical training. The level of integration not only reinforces ideas developed in

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[158]Armed Forces Health Surveillence Center, "Mental Disorders and Mental Health Problems, Active Component, U.S. Armed Forces, 2000-2011," *Medical Surveillance Monthly Report* 19, no. 6 (2012): 29, 16.

[159]Ibid.

[160]Armed Forces Health Surveillance Center, "Update: Deployment Health Assessments, U.S. Armed Forces, January-December 2007," *Medical Surveillance Monthly Report* 15, no. 1 (2008): 32, 18.

[161]Ibid.

other Marine Corps programs, but also contributes to an overall perception of the value of the martial arts program. It is both a developmental and reinforcing program. Each of these programs support the habituation of training throughout the service of the individual marine. The Marine Corps program is part of the Marine professional education system and included on Marine Corps fitness reports. Marines stick with the system not only because they have to, but because they may begin to see the value of the knowledge, skills, and abilities they gain through dedicated practice within the program.

CONCLUSION

Almost all discussions about martial arts devolve into a debate over effectiveness. Which style is better? Television, movies, and print media have perpetuated this debate. An academic analysis of any martial art should approach the topic from an anthropological perspective, examining the body of knowledge transferred through its practice. This, in some cases, requires an understanding of cultural values and traditions, leading to the purpose, content, and progression within the martial art. These ideas weave an immensely rich and varied accounting of the ideals and teachings of each individual style and the culture that practiced it, and pertain to all martial arts.[162] Research using this lens to study the esoteric nature of a martial art avoids the debate over effectiveness, at least temporarily. It transforms the body of knowledge into a history of sorts, and allows identification of clear elements to compare and contrast between styles.[163] This monograph examined the purpose, content, and progression/certification within martial arts that represent each of the subject training methodologies.

The qualitative comparison of the Modern Army Combatives Program to a traditional martial art avoided biases toward one training methodology. Using historical and foundational documents, this study highlighted some of the key differences between traditional and modern

[162]Green and Svinth, *Martial Arts in the Modern World*, xi.

[163]Ibid., 9.

training methodologies. It determined that there should be no difference between the resilience outcomes of each methodology, but also highlighted three areas that may influence resilience outcomes. The qualitative determination, that modern and traditional training methodologies are equally suited for developing resilience, became the null hypothesis for the quantitative study. This archival review is the first of its kind and contributes completely new data regarding the correlation between training methodology and resilience. This study quantitatively determined that traditional training methodologies are more effective at developing resilience. In order to address the differences between my qualitative and quantitative results, I compared the Modern Army Combatives Program to the Marine Corps Martial Arts Program. The resulting discussion highlighted the same three potential areas that may influence resilience outcomes. They are the rate of progression, integration of values/ethics training, and habituation of training. Slowing the rate of progression ensures practitioner and trainer skill mastery. Extending the time needed for promotion and mandating separate training for trainer certification may also decrease the occurrence and severity of injuries within the program. One study, conducted in 2012, found injury rates as high as 15.5 percent.[164] Making the program safer may also help mitigate resistance on the part of unit commanders to dedicate sufficient time for combatives training. Dr. Meredith found that lack of leadership support was the top barrier to resilience program implementation.[165] Sufficient time to train facilitates the integration of value/ethic-based training into the program. Integrating the Army Values and ethics training reinforces the idea of what it means to be a soldier in the United States Army. Similar to the Marine Corps Martial Arts Program, integrating these subjects supports the warrior ethos and transforms the Modern Army Combatives Program into a mechanism for improving discipline, esprit de corps, and

[164]Daniel R Possley and Anthony E Johnson, "Musculoskeletal Injuries Sustained in Modern Army Combatives," *Mil Med* 177, no. 1 (2012), 61.

[165]Meredith and Rand Corporation, *Promoting Psychological Resilience*, Locations 1451–1467.

commitment. When paired with current professional education courses and tied to promotion requirements, the Modern Army Combatives Program may also contribute positively to leadership development. Effective leadership is the most widely researched factor relating to both unit cohesion and morale.[166] Strong unit-level support and sufficient time to train are both requirements for fostering effective habituation of training. The habituation of training helps mitigate some of the negative effects associated with modern styles of training. Nosanchuk and MacNeil noted that higher levels of aggression control were the result of training.[167]

These areas, within the Modern Army Combatives Program, must change in order to achieve the greatest impact on resilience outcomes. The current Modern Army Combatives Program training methodology should be modified to an integrated traditional training methodology. Doing so will produce a program that effectively trains combatives skills and develops individual resilience in the Army.

[166]Sinclair and Britt, *Building Psychological Resilience*, 48–52.

[167]Nosanchuk and MacNeil, "Examination of the Effects," 158.

Appendix 1: Correlative Study Data Tables

Table 1: List and Classification of Sources

Author	Date	Modern or Traditional	Title	Summary of Results
Binder	1999	N	Psychosocial Benefits of the Martial Arts: Myth or Reality	Increase in Self-Control, Self-Esteem, Physical Fitness, Self-Acceptance, and Importance of Training Method.
Bjorkqvist et al.	2001	M	Attitudes toward violent conflict resolution among male and female karateka in comparison with practitioners of other sports	Hostility and aggression decreased in Males, increases in Females
Bond et al.	2002	T	Moderate Aerobic Exercise, T'ai Chi, and Social Problem-Solving Ability in Relation to Psychological Stress	Decreased Anxiety
Brown et al.	1995	T	Chronic psychological effects of exercise and exercise plus cognitive strategies	Lessened Anxiety, Stabilized Mood, and Reduced Negative Affect, Improved Self-Esteem
Cerin et al.	2009	M	Mechanisms linking affective reactions to competition-related and competition-extraneous concerns in male martial artists	Increased Emotional Control
Chen et al.	2005	T	Effect of Taijiquan exercise on mental health of middle and old aged females.	Decreased Anxiety and Depression
Chen et al.	2002	T	Tai Chi and Well-Being of Taiwanese Community-Dwelling Elders	Reduced Anxiety, Depression and Stabilized Mood
Daniels et al.	1990	M	An analysis of the relationship between hostility and training in the martial arts	Hostility Decreased with rank advances
Daniels et al.	1992	M	Length of training, hostility and the martial arts: a comparison with other sporting groups	Hostility decreased with rank advances
David et al.	2006	M	Taking Charge: A Pilot Curriculum of Self-Defense and Personal Safety Training for Female Veterans With PTSD Because of	Improvements in fear response, emotional control, and self-efficacy
Duthie et al.	1978	N	SELECTED PERSONALITY TRAITS OF MARTIAL ARTISTS AS MEASURED BY THE ADJECTIVE CHECKLIST	Positive effects as rank advances
Edelman	1994	T	The Implementation of a Video-Enhanced Aikido-Based School Violence Prevention Training Program To Reduce Disruptive and Assaultive Behaviors among Severely Emotionally Disturbed Adolescents	Hostility and aggression decreased as rank advanced
Endresen et al.	2005	M	Participation in power sports and antisocial involvement in preadolescent and adolescent	Decreased Violence in Social Settings
Focht et al.	2000	T	Influence of martial arts training on the perception of experimentally induced pressure pain and selected psychological responses	Improvements in anger, self-efficacy, self-esteem, self-confidence
Fu et al.	1996	T	The effects of Tai Chi on psychological balance	Stabilized Mood
Galatino et al.	2005	T	The effect of group aerobic exercise and t'ai chi on functional outcomes and quality of life for persons living with acquired immunodeficiency	Decreased Anxiety
Gibb et al.	1997	T	A therapeutic programme for people with dementia	Increased Positive Affect
Grodin et al.	2008	T	Treating survivors of torture and refugee trauma: a preliminary case series using qigong and t'ai chi	Significant improvements in anxiety, stress, tension, depression, anger, fatigue, self-esteem, and mindfulness.
Jin	1989	T	Changes in heart rate, noradrenaline, cortisol and mood during Tai Chi	Reduced Stress, Anxiety, and Depression and Stabilized Mood
Jin	1992	T	Efficacy of Tai Chi, brisk walking, meditation, and reading in reducing mental and emotional stress	Reduced Anxiety and Stress and Stabilized Mood
Konzak et al.	1980	T	Some social psychological dimensions of karate participation: An examination of personality characteristics within the training context of a traditional martial art	General well-being increased as rank advanced
Kuan at al.	2007	T	Goal Profiles, Mental Toughness and its Influence on Performance Outcomes among Wushu Athletes	Self-confidence and perception of control increased with success
Kurian et al.	1993	T	Personality characteristics and duration of ATA Taekwondo training	Reduces Anxiety and Increased Independence
Kurian et al.	1994	T	RELATING SCALES ON THE CHILDREN'S PERSONALITY QUESTIONNAIRE TO TRAINING TIME AND BELT RANK IN ATA TAEKWONDO	Self-reliance and optimism increased as rank advanced
Kutner et al.	1997	T	Self-report benefits of Tai Chi practice by older adults	Improved Self-Esteem
Lakes et al.	2004	T	Promoting self-regulation through school-based martial arts training	Positive improvements in anger, self-efficacy, self-esteem, self-confidence as rank advances/with time practicing
Lam et al.	2014	T	External Chinese Martial Arts and Health	Increase physical fitness and Increase Self-Esteem, Self-Confidence, Empathy, Emotional Control, with Reductions in Anxiety, Aggression,
Lamarre et al.	1999	M	Judo--the gentle way: a replication of studies on martial arts and aggression	Aggression decreased with rank advanced
Layton	1990	T	ANXIETY IN BLACK-BELT AND NONBLACK-BELT TRADITIONAL KARATEKA	Reduced Anxiety
Lee et al.	2007	T	Effect of Tai Chi on state self-esteem and health-related quality of life in older Chinese residential care home residents	Improved Self-Esteem
Long et al.	2000	T	Effect of Yang style Tai Chi on sleep, mood for old adults.	Reduced Anxiety, Depression and Stabilized Mood
Mack	1980	T	A Theoretical Model of Psychosomatic Illness in Blacks and an Innovative Treatment Strategy	Increased Positive Affect
McGowan et al.	1989	M	DIFFERENCES IN MOOD STATES BETWEEN SUCCESSFUL AND LESS SUCCESSFUL KARATE PARTICIPANTS	Increased in Unsuccessful
Mills et al.	2000	T	Does Tai Chi/Qi Gong help patients with Multiple Sclerosis?	Reduced Anxiety and Lessened Depression
Monahan	2007	N	The Practice of Self-Overcoming: Nietzschean Reflections on the Martial Arts	Martial Arts Practice leads to Nietzschean Self-Overcoming
Mustain et al.	2004	T	Tai Chi Chuan, health-related quality of life and self-esteem: a randomized trial with breast cancer survivors	Improved Self-Esteem
Najafi	2003	T	Humility enhancement through the traditional and modern practice of martial arts.	Increased Humility and Hopefulness
Nosanchuck et al.	1989	T	Examination of the effects of traditional and modern martial arts training on aggressiveness	Decreased Aggression and Role of Instructor as Exemplar
Nosanchuk	1981	T	The Way of the Warrior: The Effects of Traditional Martial Arts Training on	Aggression decreased with rank advanced
Pettersson et al.	2013	M	Practices of weight regulation among elite athletes in combat sports: a matter of mental	Increased Self-Control
Phillips	2011	T	Classical martial arts training: a Zen approach to health, wellness and empowerment for women	Traditional Martial Arts foster commitment, perseverance, determination, and Self-Control
Reyens et al.	2001	M	Karate and aggressiveness among eight-year-old boys	No statistically relevant change in aggression
Reyens et al.	2002	M	Karate and aggressiveness among eight-year-old boys	Decrease in Aggression
Reyens et al.	2004	M	Competitive martial arts and aggressiveness: a 2-yr. longitudinal study among young boys	Increase in Aggression
Reyens et al.	2002	T	Effect of traditional judo training on aggressiveness among young boys	Increase in Aggression
Richman et al.	1986	M	The development of self-esteem through the martial arts	Self-esteem increased with rank and success
Rothpearl	1980	T	PERSONALITY TRAITS IN MARTIAL ARTISTS: A DESCRIPTIVE APPROACH	Hostility decreased with rank advances
Shireman	2010	N	The effect of martial arts training on self-concept, self-esteem, and self-efficacy	Martial Arts Training Generally Results in Increased Self-Concept, Self-Esteem, and Self-Efficacy. Time and Physical Contact are key
Skelton et al.	1991	T	Aggressive behavior as a function of Taekwondo ranking	Aggression decreased with rank advanced
Steyn et al.	2009	M	Aggression and psychological well-being of adolescent Tae Kwon Do participants in comparison with hockey participants and a non-sport group : sport psychology	Increases in Growth and Acceptance and Reduced Aggression and Hostility
Trulson	1986	T	Martial Arts Training: A Novel "Cure" for Juvenile Delinquency	Reduced Anxiety and Increase Self-Esteem and Ability to Function in Social Settings
Twemlow et al.	2008	N	Embodying the mind: movement as a container for destructive aggression	Increases Self-Awareness, Reduces Aggression,
Twemlow et al.	1998	T	Application of Traditional Martial Arts for the Treatment of Violent Adolescents	Martial Arts Training Increases Self-Control and Helps Curb Aggression. May Assist In Leadership Development. Traditional Martial Arts Foster Connectedness.
Vertonhen et al.	2010	N	The social-psychological outcomes of martial arts practice among youth: a review	General positive within Martial Arts, but Identifies Areas to improve future research.
Wall	2005	T	Tai Chi and mindfulness-based stress reduction in a Boston Public Middle School	Reduced Anxiety
Wang	2004	T	The effect of Tai Chi on health outcomes in patients with chronic conditions: a systematic	Reduced Stress
Wang et al.	2010	T	Tai Chi on psychological well-being: systematic review and meta-analysis	Reduced Stress, Anxiety, and Depression while Improving Mood and Self-Esteem
Wargo et al.	2007	M	PERSONALITY CHARACTERISTICS OF MARTIAL ARTISTS	No statistically relevant change in either self-esteem or aggression
Weiser et al.	1995	N	Psychotherapeutic Aspects of the Martial Arts	Martial Arts enhance Self-Esteem, attentiveness, assertiveness, and
Yang et al.	2004	T	Effects of Taiji exercise on the psychology and the functions of the autonomic nervous systems of the middle aged and elderly	Decreased Anxiety and Depression
Zivin et al.	2001	T	An effective approach to violence prevention: traditional martial arts in middle school	Decreases with rank advances

Table 2: Coding of Sources

Author	Date	Modern or Traditional	Positive Coping	Positive Affect	Positive Thinking	Self-Control	Realism	Altruism	Physical Fitness	Resilience
Binder	1999	N	1	1	1	1				4
Bjorkqvis et al.	2001	M	1			1				2
Bond et al.	2002	T		1						1
Brown et al.	1995	T	1	1	1	1				4
Cerin et al.	2009	M		1		1				2
Chen et al.	2002	T	1	1	1					3
Daniels et al.	1990	M				1				1
Daniels et al.	1992	M				1				1
David et al.	2006	M	1	1	1	1				4
Duthie et al.	1978	N	1	1	1	1				4
Edelman	1994	T				1				1
Endresen et al.	2005	M				1				1
Focht et al.	2000	T	1	1	1	1	1	1		6
Fu et al.	1996	T	1			1				2
Galatino et al.	2005	T		1	1					2
Gibb et al.	1997	T		1						1
Grodin et al.	2008	T	1	1	1	1	1	1	1	7
Jikkemien et al.	1989	N	1	1	1	1	1	1		6
Jin	1992	T	1	1	1	1				4
Jin	1980	T	1	1	1	1				4
Konak et al.	2007	T	1		1	1				3
Kuan at al.	1993	T		1	1	1				3
Kurian et al.	1994	T	1	1	1	1	1			5
Kurian et al.	1997	T	1	1	1	1	1			5
Kutner et al.	2004	T		1	1					2
Lakes et al.	2014	T	1	1	1	1	1	1		6
Lam et al.	1999	T	1	1	1	1	1	1	1	7
Lamarre et al.	1990	M				1				1
Layton	2007	T		1	1	1				3
Lee et al.	2000	T		1	1					2
Chen et al.	2005	T	1		1					2
Long et al.	1980	T	1	1	1					3
Mack	1989	T		1		1				2
McGowan et al.	2000	M				1				1
Mills et al.	2007	T	1		1					2
Monahan	2004	N		1	1	1	1	1		5
Mustain et al.	2003	T		1	1					2
Najafi	1989	T		1	1	1	1	1		5
Nosanchuck et al.	1981	T				1				1
Nosanchuk	2013	T	1			1				2
Pettersson et al.	2011	M				1				1
Phillips	2001	T	1	1	1	1	1	1		6
Reyens et al.	2002	M				1				1
Reyens et al.	2004	M				1				1
Reyens et al.	2002	T				1				1
Reyens et al.	1986	M				1				1
Richman et al.	1980	M		1	1					2
Rothpearl	2010	T	1			1				2
Shireman	1991	N	1	1	1	1				4
Skelton et al.	2009	T				1				1
Steyn et al.	1986	M	1	1	1	1	1	1		6
Trulson	2008	T	1	1	1	1				4
Twemlow et al.	1998	T	1			1				2
Twemlow et al.	2010	N	1	1	1	1				4
Wall	2005	T		1	1					2
Wang	2004	T	1		1					2
Wang et al.	2010	T	1	1	1	1				4
Wargo et al.	2007	M		1	1	1				3
Weiser et al.	1995	N	1	1	1	1		1		5
Yang et al.	2004	T		1	1	1				3
Zivin et al.	2001	T				1				1

Table 3: Coding of Modern Sources

Author	Date	Positive Coping	Positive Affect	Positive Thinking	Self-Control	Realism	Altruism	Physical Fitness	Resilience (Modern)
Bjorkqvis et al.	2001	1			1				2
Cerin et al.	2009		1		1				2
Daniels et al.	1990				1				1
Daniels et al.	1992				1				1
David et al.	2006	1	1	1	1				4
Endresen et al.	2005				1				1
Lamarre et al.	1990				1				1
McGowan et al.	2000				1				1
Pettersson et al.	2011				1				1
Reyens et al.	2002				1				1
Reyens et al.	2004				1				1
Reyens et al.	1986				1				1
Richman et al.	1980		1	1					2
Steyn et al.	1986	1	1	1	1	1	1		6
Wargo et al.	2007		1	1	1				3

Table 4: Coding of Traditional Sources

Author	Date	Positive Coping	Positive Affect	Positive Thinking	Self-Control	Realism	Altruism	Physical Fitness	Resilience (Traditional)
Bond et al.	2002		1						1
Brown et al.	1995	1	1	1	1				4
Chen et al.	2005		1		1				2
Chen et al.	2002	1	1	1					3
Edelman	1994				1				1
Focht et al.	2000	1	1	1	1	1	1		6
Fu et al.	1996	1			1				2
Galatino et al.	2005		1	1					2
Gibb et al.	1997		1						1
Grodin et al.	2008	1	1	1	1	1	1	1	7
Jin	1992	1	1	1	1				4
Jin	1980	1	1	1	1				4
Konak et al.	2007	1		1	1				3
Kuan at al.	1993		1	1	1				3
Kurian et al.	1994	1	1	1	1	1			5
Kurian et al.	1997	1	1	1	1	1			5
Kutner et al.	2004		1	1					2
Lakes et al.	2014	1	1	1	1	1	1		6
Lam et al.	1999	1	1	1	1	1	1	1	7
Layton	2007		1	1	1				3
Lee et al.	2000		1	1					2
Chen et al.	2005	1		1					2
Long et al.	1980	1	1	1					3
Mack	1989		1		1				2
Mills et al.	2007	1		1					2
Mustain et al.	2003		1	1					2
Najafi	1989		1	1	1	1	1		5
Nosanchuck et al.	1981				1				1
Nosanchuk	2013	1			1				2
Phillips	2001	1	1	1	1	1	1		6
Reyens et al.	2002				1				1
Rothpearl	2010	1			1				2
Skelton et al.	2009				1				1
Trulson	2008	1	1	1	1				4
Twemlow et al.	1998	1			1				2
Wall	2005		1	1					2
Wang	2004	1		1					2
Wang et al.	2010	1	1	1	1				4
Yang et al.	2004		1	1	1				3
Zivin et al.	2001				1				1

Table 5: t-Test Results

t-Test: Two-Sample Assuming Unequal Variances		
	Resilience (Traditional)	*Resilience (Modern)*
Mean	3	1.866666667
Variance	3.025641026	2.123809524
Observations	40	15
Hypothesized Mean Difference	0	
df	30	
t Stat	2.431640865	
P(T<=t) one-tail	0.010607059	
t Critical one-tail	1.697260887	
P(T<=t) two-tail	0.021214119	
t Critical two-tail	2.042272456	
Null Hypothesis:		
Mean Resilience (Traditional) = Mean Resilience (Modern)		
Result:		
t Stat > t Critical two-tail		
P(T<=t) two-tail < .05		
Reject the Null Hypothesis		
Alternative Hypothesis:		
Mean Resilience (Traditional) > Mean Resilience (Modern)		

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