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TITLE: Decision-making and Moral Fitness in the Fog of War

SUBMITTED IN PARTIAL FULFILLMENT
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MASTER OF MILITARY STUDIES

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Executive Summary

Title: Decision-making and Moral Fitness in the Fog of War

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Thesis: The US Navy Explosive Ordnance Disposal (EOD) training pipeline, pre-deployment training cycle, and EOD Leadership Continuum (EODLC) improves the quality of judgment and decision-making of EOD operators in combat but the development of moral fitness will also mitigate the psychological factors associated with the nature of EOD operations and increase moral action.

Discussion: A decade of combat has had an impact on today's military leaders and the pace of war has presented challenges in the realm of decision-making. Sound decision-making abilities have always been relevant but even more so today due to the character of modern war. Leaders need to be adaptive to the changing environment of combat and capable of making sound decisions in a chaotic environment for the protection of those under their charge as well as the prevention of making poor moral decisions.

US Navy EOD possesses a unique capability and is a critical component across the range of military operations. US Navy EOD operators support conventional military operations as well as all Service Special Operations Forces (SOF) and need to be capable of operating in all environments to render safe or dispose of any type of explosive hazards. Today's military operations are conducted in an environment where combatants are not easily distinguishable. Operators need to be fully capable of thinking quickly and effectively under extreme pressure where time is not available to prevent loss of life or mission failure. Intuitive skills and moral fitness must be developed as much as possible to ensure moral action in an ambiguous operating environment.

Research psychologist Dr. Daniel Kahneman describes the way people think in two processes. System 1 and system 2 are the two processes that an individual uses to develop a decision in any particular situation. System 1 is a fast process that operates quickly with little to no effort in developing a decision or judgment based on heuristics developed from previous experiences. System 2 is a slow process that requires significant effort in developing a decision or judgment when there is no experiential knowledge to quickly develop a decision. System 1 is intuitive and system 2 is analytical in nature. Additionally, research psychologist Gary Klein developed the Recognition-primed decision (RPD) model which uses pattern recognition to speed up the analytical decision-making process due to experiential knowledge. EOD training develops heuristics and patterns by conducting strenuous training scenarios repetitively that fosters intuitive decision-making skills.

US Navy EOD has always trained to a high standard to successfully be able to provide a unique capability that will ensure mission success across the range of military operations. Additionally, EOD has always conducted professional development to meet the requirements of military ethics training. The professional ethics in US Navy EOD is the EOD ethos. The ethos describes how the EOD operator should perform his or her mission both

tactically and ethically. It is critical that these ethical concepts are not just words on a document. Ethics need to be exercised the same way one prepares for a tactical mission to increase the moral fitness of EOD operators to ensure actions on and off the battlefield are moral.

Conclusion: The last decade of combat has involved US Navy EOD in every capacity. It has required the quick turnaround of operators for subsequent deployments to ensure the US Military's ability to accomplish the mission in an environment where the enemy's weapon of choice are Improvised Explosive Devices (IEDs). The EOD training pipeline adequately prepares the EOD operator to successfully accomplish the mission. The recently developed and implemented EODLC has increased professional development, specifically in military ethical decision-making. The combination of intuitive decision-making and further development of moral fitness will ensure actions conducted on and off the battlefield are moral.

The conclusions drawn from this research led to several recommendations that will foster an ethical approach in intuitive decision-making by possessing a high sense of moral fitness. The US Navy EOD community should maximize the use of combat ethical decision-making lessons learned (LL). The LLs should be provided to the Senior Enlisted Advisory Group (SEAG) to be briefed during Commanders Conferences and the Executive Steering Committee (ESC) on community performance and ethical issues. This will give Commanding Officers a perspective on issues they may be able to positively influence. The EODLC should continuously be assessed by the EOD community and refined as appropriate to further develop moral fitness and leadership. The result will be an EOD community that is highly effective and morally fit.

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

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Preface

The completion of this research project is significant to me because it enabled me to explore an area in which I have both professional and personal interest. I am intrigued by how people apply judgment and make effective moral decisions. This research project would not have been possible without the mentorship, expertise, and support of my research mentors, Dr. Christopher Stowe and Dr. Rebecca Johnson. Your patience and effort in my endeavor is very much appreciated. Your guidance and mentorship helped me clarify my thoughts and successfully complete this project. Thank you.

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I would like to thank my mother and step-father, Hazel and James Harrison, and my father, Ned Ferracci for instilling in me a sense of work ethic, pride and ownership in all I do, and family values. I am forever indebted for the love and support you have shown me. Thank you.

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Finally and most importantly, I would like to thank my wonderful and loving wife, Sheila. You are the reason I have made it to where I am today. Words cannot express how much I truly appreciate your support, encouragement, and love. Thank you for being with me on this incredible journey through life.

Introduction

A decade of combat has had an impact on today's military leaders and the pace of war has presented challenges in the realm of decision-making and moral fitness. Sound decision-making abilities have always been relevant, but are even more so today due to the character of modern war. Socialization and solid foundations of morality and ethics may contribute to the *way* leaders make decisions but have little bearing on *how* leaders make a decision. While socialization and solid foundations of morality and ethics are critical in shaping one's character and how ethical decisions are made, they are not the only driving factors in the decision-making process in the fog of war. There are additional elements that can further increase moral action. Intuitive decision-making skills are required for successful Navy Explosive Ordnance Disposal (EOD) operations in the chaos of war. The US Navy Explosive Ordnance Disposal (EOD) training pipeline, pre-deployment training cycle, and EOD Leadership Continuum (EODLC) improves the quality of judgment and decision-making of EOD operators in combat, but the development of moral fitness will also mitigate the psychological factors associated with the nature of EOD operations and increase moral action.

Training pipelines and institutionalized professional development have a tremendous impact on intuitive decision-making in combat. EOD operators need to be adaptive to the changing environment of combat and remain capable of making sound decisions in a chaotic environment for the protection of those under their charge as well as the prevention of making poor moral decisions. These cognitive abilities must be trained the same way a combat unit exercises its tactics, techniques, and procedures to support combat readiness. EOD operators will make decisions in combat that have consequences that may affect their personal moral and

ethical foundations. EOD operators must be properly prepared in war and in peace-time operations to make accurate tactical decisions and equipped with skills to increase moral action. Intuitive decision-making skills are critical to ensure EOD operators make sound and accurate decisions under time pressure scenarios. Additionally, possessing a sense of moral fitness will increase moral action in the conduct of operations. Leadership that continuously reinforces morality and ethics significantly contributes to the development of moral fitness.

This paper will examine how intuitive decision-making skills are developed throughout EOD training and how moral and ethical decision-making skills are developed and reinforced throughout an EOD operator's career. Though the research may be applicable to all professions requiring intuitive and ethical decisions under time pressure scenarios, the scope is focused on how to better prepare the EOD operator to make tactical decisions that have operational and strategic impacts. This paper will discuss intuitive decision-making with respect to pattern recognition, stress-induced inoculation, and their application to EOD training. This paper will also consider moral and ethical leadership as it pertains to moral fitness. Finally, this paper will provide recommendations to the best methods to train the EOD operator in making intuitive tactical decisions that are ethical in nature to ensure success on the battlefield when the smoke clears.

Literature Review

There has been in-depth study in the areas of ethics, moral dilemmas, and decision-making as they pertain to professions that conduct operations in stressful environments. There has also been study on how the conscious and subconscious mind works and the roles each play in decision-making. It is not a mystery that tactical proficiency and effective leadership skills are critical factors in effective decision-making in combat, but they do not account for the

development of moral fitness. Socialization, morals, and ethics are several factors that contribute to the development of one's character and ethical behavior but leadership must be continuous to ensure EOD operators are tactically proficient and morally fit.

A key element in judgment and decision-making is the cognitive process. *Webster's Dictionary of the American Language* defines cognition as the intellectual process by which knowledge is gained about perceptions or ideas.¹ Dr. Daniel Kahneman, a Nobel Prize recipient in Economic Sciences, has conducted ground-breaking study and research in psychology over the last several decades and asserts there are two systems that drive the way people think. According to Dr. Kahneman, "System 1 operates automatically and quickly, with little or no effort and no sense of voluntary control. System 2 allocates attention to the effortful mental activities that demand it, including complex computations. The operations of System 2 are often associated with the subjective experience of agency, choice, and concentration."² For the purpose of this paper, System 1 and System 2 will be referred to as intuitive decision-making and analytical decision-making, respectively. Intuitive decision-making is faster than analytical decision-making and is more effective in combat situations. Biases and heuristics are critical elements in understanding intuition. Kahneman argues that there are distinctive patterns in the errors people make and these systematic errors are known as biases and will recur in particular circumstances.³ Kahneman's research has revealed that biases provide evidence for the heuristics of judgment.

Heuristic is a "simple procedure that helps find adequate, though often imperfect, answers to difficult questions."⁴ Heuristics are a function of the subconscious mind that takes a complex problem and relates it to a less-complex one, producing an adequate course of action. Biases and heuristics are important factors in intuitive decision-making. Although biases can be a

limitation in decision-making when the stakes are high for a less than accurate decision, biases provide a mechanism for fine-tuning intuitive skills. Kahneman's research has also revealed that intuitive judgments under uncertainty are not produced by heuristics alone. Accurate intuitions of experts can be explained by experiential knowledge gained through recurring training and the effects of prolonged practice than by heuristics alone.⁵ The concept of expert intuition can be seen in the performance of firefighters and police officers in situations when decisions were made based on a "gut feeling." Kahneman assesses that the speed and efficiency of System 1 can be attributed to both skill and heuristics as alternative sources of intuitive judgment and making decisions.

Leaders face complex problems that require time-critical decisions to be made in which there is no clear choice on a daily basis. Moral fitness aids an individual's ability to make effective moral decisions. Moral fitness is an alert state of mind that emphasizes accountability and responsibility on a moral level.⁶ Values such as ideals, convictions, and principles shape one's character and are the foundation of moral fitness. Moral fitness has to continuously be exercised in the same way as developing proficiency in a professional skill set. Moral fitness and intuitive decision-making skills are critical in modern war where the enemy is not necessarily identifiable as a combatant and could consist of women and children, as seen among suicide bombers, in the last decade of war. Rules of Engagement (ROE) and the Law of Armed Conflict seem clear on paper but making decisions in the fog of war are not as transparent. The lack of transparency in an environment where the enemy is not easily identifiable can cloud the judgment of an operator not possessing a certain degree of moral fitness. Intuitive decision-making skills and moral fitness directly affects the moral actions of an EOD operator.

Intuitive Decision-making versus Analytical Decision-making

EOD operators consistently need to develop and fine-tune their time-sensitive critical decision making skills for success in combat. This skill is critical, especially based on the experimental evidence that determines that time pressure has negative impacts on the effectiveness of decision-making.⁷ Most situations in combat that require decisions to be made for the preservation of life, limb, and property require expediency. Individuals can approach these decisions intuitively or analytically. Intuitive and analytical functions have both positive characteristics and limitations. Pattern recognition based on previous experiences used by the subconscious mind drives the process of intuitive decision-making. This function is extremely efficient because it is instantaneous in nature and conducive to environments in which factors change rapidly. Although intuitive processing is fast, it can produce inaccurate judgments and decisions if not developed correctly. Analytical decision-making is based on logic and quantitative analysis and is rational in nature because it uses sound judgment based on facts. Its primary limitation is that it is time-dependent, which is not often conducive to efficient action in the chaos of combat and the fog of war.

Kahneman asserts that impressions and thoughts arise in the conscious mind during experiences and/or situations without being able to trace from where these beliefs came.⁸ The subconscious mind, based on previous experiences, formulates impressions, thoughts, feelings, intuitions and many decisions people make. It is this process of the subconscious mind upon which intuition is based. The subconscious mind finds links between new situations and various patterns of past situations and experiences. The subconscious mind will project new circumstances onto previous patterns that have been learned and will send a message of feeling to the consciousness. This subconscious-dominated process is instantaneous and processes

information in parallel, instead of sequentially, and enables a form of pattern recognition which is based on biases and heuristics that enable judgment and subsequently decision-making. It is this speed and efficiency in the subconscious process that makes intuitive decision-making effective in a time-critical environment. Although there are benefits in intuitive decision-making skills there are flaws as well.⁹ The flaws in intuition can lead to less-than-optimum decisions.

Limitations on intuitive decision-making are predicated on biases that may be inaccurate. Dr. Kahneman describes a scenario in which biases are flawed. “Steve is very shy and withdrawn, invariably helpful but with little interest in people or the world of reality. A meek and tidy soul, he has a need for order and structure, and a passion for detail.”¹⁰ Dr. Kahneman proposes the question: Is Steve more likely to be a librarian or a farmer? Dr. Kahneman asserts that the resemblance of Steve’s personality is more stereotypical of a librarian than a farmer and this strikes most people almost immediately. Most people ignore the equally relevant statistic that there are almost 20 male farmers in the United States for every one male librarian and therefore it is more likely that Steve’s personality is more likely to be found on a tractor than as a librarian.¹¹ Dr. Kahneman asserts that this use of resemblance as a simplifying heuristic or “rule of thumb” to make a judgment causes predictable biases in decision-making. These biases are limitations that happen automatically and can lead to inaccurate decisions.¹² This limitation is an important factor to consider when the goal of an EOD operator is not focused on getting it right but rather on never getting it wrong.

Analytical decision-making follows a rational process of logic and quantitative analysis from scenario to solution. Rational decisions that optimize cognitive abilities are used in processes such as the Military Decision Making Process (MDMP), Joint Operational Planning Process (JOPP), and the Marine Corps Planning Process (MCP) when developing Operational

Plans (OPLANS) or while on a Crisis Response Planning Team (CRPT). Characteristics of analytical processing consist of optimum results, objectivity, facts, consequence consideration, and deductive reasoning, to name a few. While this process is effective in critically analyzing a problem set and producing an accurate solution, it is not effective under time pressure.

Conditions that permit critical thinking are: (1) the risk of delay is acceptable, (2) risk to mission or loss of life is high if actions are taken immediately, (3) situation is non-routine or ambiguous.¹³ All three situations are problematic for the operator who is under a time pressure scenario, but the last two situations are the crux of the problem. Risk of delay is not acceptable when a delay could result in loss of life or mission failure so the first situation is negated. EOD operations commonly consist of scenarios that will result in loss of life or potentially mission failure if the wrong decision is made. These scenarios are routinely ambiguous in nature and require a suitable alternative in lieu of a known accurate answer to a problem.

Because analytical decision-making is based on logic and quantitative analysis, it is timely and requires mental work. The functionality of analytical decision-making is deliberate, effortful and orderly. Analytical decision-making in Kahneman's research has concluded that mental computation not only involves the mind but also involves the body: muscles tense up, blood pressure rises, heart rate increases, and pupils dilate.¹⁴ Analytical decision-making requires attention and its functions are disrupted when attention is focused elsewhere. Conducting analytical tasks requires mental effort especially in an environment filled with distractions. Experiments conducted by psychologist Roy Baumeister have revealed concrete evidence that all actions of voluntary effort--cognitive, emotional, or physical--deplete the pool of shared mental energy and performance declines when attention is not focused or inappropriately directed.¹⁵ Limitations of human attention capacity is disrupted or over powered by any "white noise" such

as enemy fire and stressors that foster emotion. The emotional stressors that inhibit the analytical processes that control thoughts and behaviors are problematic when the right decision needs to be made in a split second. Conducting activities that require self-control of emotions and behaviors while analytically or critically assessing an action are counter-intuitive.

Dr. Kahneman's research has shown that people process information both intuitively and analytically when consciously making decisions. Situations requiring a decision to be made that cannot be completed intuitively will automatically default to a critical thinking process where information is processed analytically. Intuitively making a decision comes automatically while keeping analytical thought processing in an almost effortless mode in which only a small portion of cognitive capacity is engaged.¹⁶ The key goal in fine-tuning one's intuitive decision-making skills is bridging the gap between the analytical and intuitive processes of the brain by speeding up one's analytical processes and this concept is very applicable to EOD training.

Much like Dr. Kahneman's System 1 and System 2 concept, psychologist Dr. Gary Klein's Recognition-primed decision (RPD) model is very applicable to EOD training and must be explored as well. The RPD model is based on experiences and how these experiences form patterns. Klein's research has revealed that when someone is exposed to a new situation, they can assess the situation and match patterns previously learned to develop an optimum solution.¹⁷ This model further bridges the gap between analytical and intuitive processing. RPD can also be utilized when a specific pattern has not been developed that would normally be applicable to a situation by comparing possible solutions. Klein refers to this process as simulation.¹⁸ In Klein's research of first responders, he found that they could weigh a course of action based on experience and could project its applicability to their situation. If the first responder's course of action was suitable for the current situation he would implement it. If the first responder found

that his course of action was not applicable, he would have to modify it or generate an alternate course of action that was suitable for the situation.¹⁹

The RPD concept of utilizing pattern recognition and simulation to quickly assess a situation and rapidly apply a course of action leverages both intuitive and analytical thought processing. RPD is dependent on the level of one's experience to apply patterns that have been developed to a situation and is intuitive in nature (tacit knowledge) while mental simulation is based on analytical processing (rational knowledge).²⁰ Considering the concepts of both Dr. Kahneman and Dr. Klein, the EOD training pipeline is conducive to bridging the gap between analytical and intuitive decision-making in tactical situations.

Intuitive Decision-making and EOD Training

The U.S. Navy Explosive Ordnance Disposal (EOD) Community is the world's premier combat force for countering explosive hazards and conducting expeditionary diving and salvage missions around the world. The EOD Required Operational Capabilities and Projected Operating Environment (ROC & POE) delineates the unique capabilities required of Navy EOD and the environment in which operations will be conducted. The EOD Training Manual (TRAMAN) delineates the standard to which an EOD operator must be trained.²¹ EOD operators are trained to render safe and/or dispose of all military ordnance including US, foreign, and underwater ordnance, improvised explosive devices (IEDs), chemical, biological, and nuclear weapons. The environment an EOD operator operates in ranges from permissive to non-permissive on land, at sea, and underwater. The unique capability of Navy EOD is the reason it can fully integrate with conventional and unconventional forces in both a permissive and non-permissive environment. The EOD training pipeline and pre-deployment training cycle reinforce intuitive decision-making skills at the tactical level through the development of heuristics, pattern recognition, and

the ability to control physiological conditions of the human body. The EOD Leadership Continuum (EODLC) reduces the gap in Professional Military Education (PME) specifically with respect to training in Military Ethical Decision Making (MEDM).

The Navy EOD mission requires EOD operators to be capable of making sound decisions under time restraints and under immense pressure in scenarios that are often life and death in character. They must demonstrate excellent judgment in both system 1 and system 2 thinking. The training pipeline that EOD operators undergo is strenuous and lengthy. Scenarios are conducted over and over until drill sets are successfully completed. The complexity of these scenarios is gradually increased as the operators' skill sets are further developed. The repetitiveness of these scenarios throughout a spectrum of complexity is instrumental in the development of pattern recognition or situational development. The EOD training pipeline and pre-deployment training cycle also develops an EOD operator's ability to reduce the negative impacts of psychological and physiological factors. Muscle memory increases visualization from previous experiences, which develops patterns and creates previous experiences that develop consequence recognition. The ability to rapidly identify negative consequences of a particular decision in counter-IED operations is critical to personal survival as well as mission success.

Training environments should be difficult and realistic, and the nature of the training environment should be indicative to that of the elements of the EOD Ethos.²² During training emphasis should be placed on stress-induced situations, and emphasis should be taken away from losing, or an attitude that just got you killed, and refocused on what decision should have been made to increase success. Mike Spick's research in air combat has demonstrated that survivability in future combat will increase drastically after the first five successful air combat engagements.²³ This concept is applied to EOD training scenarios that resemble real-life combat

scenarios and is very instrumental in developing heuristics and pattern recognition. Ken Murray asserts that stress inducing simulation training creates a decision point in a “person’s survival psychology at the point of projectile impact.”²⁴ The purpose of stress-induced inoculation is based on giving leaders combat experience similar to those of well-seasoned war veterans with intuitive senses for decision-making, or fine-tuned skills based on experience. Essentially, this concept fosters the development of tacit knowledge.

Readiness and combat effectiveness are crucial in the successful and safe execution of EOD operations across the spectrum. Stress-induced inoculation training simulates environments closely resembling combat experiences. Psychological research has proven that stress-induced situations have negative physiological effects on the human body, which decrease performance. These physiological affects result in an increase in heart rate, labored breathing, tunnel vision, and trembling. Fear and anxiety exacerbate these physiological effects and result in a decrease in vigilance and longer reaction times to peripheral cues.²⁵ Linda Fatkin and Debbie Patton utilize a conceptual definition of stress as “a multifaceted, dynamic, and interactive process with psychological and physiological dimensions,” that pays not only attention to stress type and intensity but incorporates the human factors (personality, perceptions, experience, and expectations) as key elements in assessing an individual’s stress.²⁶ This is an important factor when determining performance of an EOD operator in an uncertain environment. There are many factors in the EOD training pipeline that affect stress levels and stress directly correlates with performance. Real-world stress factors that affect an EOD operator consist of but are not limited to: threats consisting of enemy fire (direct or indirect), threat of secondary and tertiary IEDs, distracting noises such as troops in contact while working on an EOD problem, etc. All of these factors draw on an individual’s attention resource when processed analytically. These factors

also elevate the operator's vigilant state to that of a hyper-vigilant state, which creates an environment conducive to poor judgment. This high emotional arousal decreases cognitive functioning and tactical decision-making.²⁷ A decrease in tactical proficiency increases the ambiguity and risk in an EOD scenario involving an explosive threat or enemy fire. Ambiguity and danger are two of several factors that can contribute to immoral action.²⁸ It is this state of mind that has to be mitigated. Just as equipment or materiel readiness is key to determining mission effectiveness, it is equally important that cognitive readiness is developed to increase an EOD operator's ability to suppress negative physiological effects and make expedient and sound decisions. Cognitive readiness is the key in maintaining optimal performance in a combat environment.

The EOD training pipeline begins with training at the Naval Diving and Salvage Training Center prior to EOD training. The training pipeline is over a year long and places emphasis on developing EOD operators physically and mentally ensuring mission success in austere and dynamic environments. An EOD operator must be able to think quickly, be innovative, and adapt to situations in an environment that is ever changing. EOD training produces phenomenal operators and fosters a training environment that enables the development of heuristics and pattern recognition skills described by Dr. Kahneman and Dr. Klein. EOD training also fine-tunes the candidate's ability to control the physiological effects of stress.

During dive school, training evolutions such as drown-proofing, in-water proficiency (IWP) drills, and underwater problem solving are several methods utilized to help candidates develop self-control. Each evolution builds upon the previous evolution in complexity. All of the tasks associated with the evolutions are conducted in an environment where most candidates are not comfortable. Fatigue and anxiety place the candidate in a hyper-vigilant state where the

student must learn to suppress emotions and maintain clarity of thought and focus to successfully accomplish the tasks. The ability to operate and perform tasks under stressful conditions is further tested throughout the EOD training pipeline, which increases a student's confidence and ability to control emotions.

The rigors of EOD training also hones an individual's ability to cope with stressors that amplifies anxiety under extreme conditions while presenting physiological challenges. Scenarios are developed to assess a student's ability to locate, identify, render-safe, and dispose of every type of ordnance and explosive threat. While accomplishing these tasks the student has to continually assess the situation for any additional hazards to include booby traps and entrapment scenarios. The scenarios are further complicated when dealing with Improvised Explosive Devices (IEDs) when the student is operating in a bomb suit under extreme weather conditions. These evolutions are physically and mentally exhausting and the student has to learn to suppress fatigue and emotions to ensure success of the mission. Training scenarios designed to assess a student's ability to effectively identify and render-safe underwater explosive threats are conducted under conditions where the student will have to operate in cold water with little to no visibility. Once the student has become comfortable operating under extreme physical and environmental conditions, he develops an ability to control the physiological effects of stress and anxiety and is able to focus on the task or mission. Once this physiological state is achieved, the student becomes more efficient at applying heuristics or matching patterns as researched by Kahneman and Klein. Heuristics and patterns are acquired through the development of procedural knowledge, which is emphasized throughout EOD training.

Procedural knowledge is developed throughout EOD training by repetition of tasks. Repetition of a particular task builds familiarity of the skill set associated with that task,

subsequently enabling the task to be completed more efficiently and expeditiously.²⁹ An example of procedural knowledge would be riding a bike. When a child is learning how to ride a bike, they are hesitant to fully commit all of the actions needed to ride a bike. An adult has to assist them getting on the bike, maintaining their balance, and instructing them when to start peddling once balance and momentum are achieved. Through practice and experience the child is eventually able to get on the bike and start riding because they have developed procedural knowledge. The task of riding the bike has become intuitive. The development of procedural knowledge begins in the EOD training pipeline and continues through an EOD operator's operational tours.

During Dive School of the EOD pipeline, EOD candidates learn self-contained underwater breathing apparatus (SCUBA) and myriad other complex underwater breathing systems. The candidates learn strict procedures in the employment of these various rigs and how to trouble shoot equipment malfunctions underwater. The tasks associated with gaining proficiency in these systems start at the basic level of being able to take equipment on and off underwater. Once the students have successfully completed the basic tasks and have a firm understanding of the operating parameters of the equipment, the tasks become more challenging and difficult. Ultimately the student has to be able to successfully complete underwater problem solving where the instructors inflict complex equipment failures upon the student and the student has to remain underwater and fix the problems without surfacing. The developmental approaches to acquiring these skills are introduced from a systematic, methodical process to procedural knowledge. During EOD School, specifically IED phase, the student has to learn the complexities of neutralizing an IED while in a bomb suit. Initially, just donning the bomb suit is a challenging task due to its weight and restrictions on maneuverability. Through a systematic

approach of task accomplishment, the student is eventually able to quickly don the bomb suit and efficiently conduct the tasks needed to neutralize an IED threat. Dive and EOD training develop procedural knowledge and the ability to regulate one's physiological state. Once a candidate successfully completes the dive and EOD training pipeline, they will report to their first operational command where these skills are further developed.

Once an EOD graduate reports to their first operational command and is assigned to an EOD Platoon, they begin a rigorous pre-deployment training cycle that further develops the basic technical skills already learned. The pre-deployment training cycle for an EOD Platoon is 18 to 24 months, depending on the response organization (RESPORG) of the platoon.³⁰ RESPORGs include EOD Mobility (MOB), EOD Mine Counter-Measures (MCM), and EOD Special Operations Forces (SOF) platoons. The pre-deployment training cycle will focus on approximately 30 mission essential tasks where skills are practiced, tested, and evaluated developing the tactical capability, mission planning, and decision-making at the platoon and individual level. Training scenarios are increased in complexity, ranging from permissive environments to extremely austere conditions where there is no acceptable margin of error in the application of EOD skills and decision-making.

In addition to the established EOD training pipeline and pre-deployment training cycle, the EOD community has recently instituted the EOD Leadership Continuum (EODLC). The EODLC fills the gap in PME that EOD operators historically very rarely received in an institutionalized manner. The continuum is broken into four phases that target officers and enlisted personnel at specific career milestones. The leadership continuum is Professional Military Education (PME) that is EOD community centric. Although the EODLC is not tactically focused it does cover a wide variety of professional development. The topics of professional

development consist of but are not limited to, command readiness programs, Casualty Assistance Programs, Global Force Management, manning and manpower, financial management, small unit leadership, character and leadership, professional military ethics, etc. The breadth and depth of the topics given are dependent on the years of service, experience, and rank of the enlisted and officers receiving the training. The depth of the topics and seminar like discussions escalate in complexity based on the experience level and rank of the students.

The most important factor regarding the incorporation of the EODLC is that it has increased the professional development of EOD operators in the realm of military ethical decision-making, where case studies are analyzed from recent combat operations and the universal standards of ethics are applied in conversation. The conversations conducted in a seminar setting give the EOD operators a better understanding of ethical decision-making and its applicability during the conduct of EOD operations. Although the training associated with the initial EOD pipeline, pre-deployment training cycle, and EODLC fosters intuitive decision-making skills and the application of ethics in making those decisions, it does not adequately address the concept of moral fitness and the impact leadership has on developing it.

Developing Moral Fitness

A strong foundation in ethics and values contributes to an individual's moral consistency. It is this moral consistency firmly grounded in virtues that mitigate the possibilities of unethical behavior and establishes that moral compass that drives positive behavior. Commanding Officers are charged with upholding good order and discipline and the welfare of their crew and should have a vested interest in the moral compass of their people.³¹ Leadership at all levels should consistently reinforce the calibration of this moral compass and development of moral fitness. History suggests that units and individuals with a lack of morals or weak values are more

susceptible to unethical conduct, especially when saturated in a combat environment or ambiguous situations. Examples such as in the My Lai incident and in recent scenarios as seen in Iraq are but two where unethical conduct emerged. Strong leadership and consistent engagement fosters direction and can mitigate the psychological stressors that affect moral fitness. Leaders influence subordinates through everything they say and do and by the example they set in their everyday activities, and this has a tremendous impact on the development of moral fitness. This influence is important considering the psychological stressors associated with the dynamic operating environment of modern times.

Psychological stressors of the modern military environment can have detrimental impacts on personnel and unit cohesion. Isolation, ambiguity, powerlessness, boredom, danger, and workload make up these stressors and they are prevalent due to long training cycles and high rate of deployments.³² (Appendix II depicts this in detail.) EOD operators can experience situations of isolation across the myriad of environments in which they operate. Conducting counter IED operations in remote areas of a combat zone or conducting single-person dive operations on underwater ordnance where stress levels are high and personal risk is significant are strenuous and stressful environments. These strenuous and stressful environments can have negative impacts on one's character if character is not grounded in solid virtues and nurtured into moral fitness.

A person who is morally fit possesses the mental alertness and sense of duty, to do what is right both in and out of uniform. Moral fitness of an individual is a driver for moral action just as physical fitness is a driver for physical performance. Most people tend to reflect on their past physical readiness performance with an intent to improve future performance. The same emphasis should be placed on moral fitness with a continuous reflection of past performance

incorporating open dialogue and a sincere commitment to improve past performance.³³ To truly understand the concept of moral fitness in a military organization, one has to consider ethics and moral decisions. The U.S. military embodies the code of conduct, which consists of guiding principles and the basis of conduct for a sailor when faced with a moral decision. The concept of an ethics pyramid has been used in different fields of applied ethics to include military ethical decision-making and is depicted in Appendix III with underlying concepts italicized.³⁴ Although this is a useful tool, it is empty and does not contribute to developing moral fitness if the fundamentals are not exercised.

Moral fitness is not achieved through episodic training events that are driven due to a quantitative check-in-the-box training requirements. It requires a continuous and honest reflection on the meaning of the values and norms a person strives to live by and the organization has established. Ethics classes and the litany of command policies that establish the directives of ethical behavior such as equal opportunity, sexual harassment, command philosophy, and even warrior ethos are empty when there is no commitment and engagement to fundamental values. These personal values and individualistic virtues shape personal behavior and conformity to norms or those rules or guidelines a person should act upon.³⁵ Only reflection can clarify the meaning and consequences of these values and this sense of commitment needs to be rooted in the attitudes of all personnel to establish a high level of moral fitness. Stronger emphasis is needed on the meaning of values that people live by and consequences when those values are misplaced to further develop moral fitness. Strong leadership is the key to developing moral fitness.

Leaders play a critical role in the development of moral fitness in their subordinates and they should be aware of the psychological and emotional constructs that can result in immoral

action.³⁶ Leaders who have open and honest dialogue with their subordinates on moral decisions in regards to what to do, how to do it, and why some decisions have to be made will foster a higher level of moral fitness within their organizations. This is important in the current environment where there are many stressors that can lead to immoral action. The development of moral fitness will aid an individual's ability to make effective moral decisions.

Conclusion and Recommendations

The character of modern war dictates that EOD operators need to be fully capable of leading and making accurate time-sensitive decisions in combat. Navy EOD has been and will continue to be a high demand force due to its unique capability. Leadership in combat requires tactical decisions to be made accurately, quickly, and ethically. Leadership based on tactical proficiency alone is not enough to ensure mission success when those decisions could have operational and strategic impacts as most EOD related-decisions do. The current EOD mission requires effective decision-making, and there is no margin for error in EOD operations.

EOD training has always developed operators who are capable of making quick and effective decisions under ambiguous situations. EOD training saturates candidates in training scenarios where the situation is ambiguous and the pressure is immense. This stressful environment forces candidates into situations where they have to make a decision that will determine a pass or fail status. EOD training fosters the development of heuristics, pattern recognition, and self-control through well-developed scenarios that accurately reflect current enemy tactics, techniques, and procedures (TTPs). This process enables the EOD operator to develop a repertoire of patterns and heuristics that can be applied to effective intuitive decision-making. The repetitiveness of these drills enables the operator to negotiate through biases that could diminish the quality of the decision being made. Emphasis on the development of moral

fitness needs to accompany the development of tactical proficiency as well. Ethical decision-making skills involve the continued development and fine-tuning of character traits similar to maintaining proficiency in one's technical skill through repetitive training.

The recently implemented EODLC does an excellent job at providing PME that has long been neglected in the EOD community. Previous PME in the EOD community had been provided in an ADHOC nature when the opportunity to support professional development presented itself. During the last decade of combat that has heavily involved EOD operations to counter the IED threat there has been minimum opportunity for any professional development. The implementation of the EODLC in the EOD training pipelines, pre-deployment training cycle, and enlisted and officer career progression path has sufficiently filled the void in the lack of PME. While the EODLC provides sufficient coverage in all professional development topics to include leadership and professional military ethics, it could more sufficiently address moral fitness and how intuitive decision-making skills and moral fitness increases moral action. Furthermore, it is leadership styles that impact the development of moral fitness on a daily basis.

Leaders who possess a leadership style of hardiness and moral fitness are very effective at minimizing factors that potentially create a stressful environment. Leaders who possess moral fitness and demonstrate these concepts in what they say and do on a daily basis will significantly impact not only their subordinates but their peers and seniors as well. The specific impact on subordinates will be a constant reinforcement of their personal values and character traits. This will contribute to individuals and the organization having a sense of moral fitness and healthy command climate.

The conclusions derived from this research led to several recommendations that will foster an ethical approach in intuitive decision-making and set the conditions for organizational

moral fitness throughout the EOD Community. The recommendations are made to help inexperienced EOD operators make intuitive decisions that are ethical in nature and develop operators who possess a sense of moral fitness. The ultimate result will be a generation of EOD operators who possess high levels of intuitive skills and moral fitness that will increase moral action and health of the community. The following are recommendations for consideration by the Navy EOD Community to further develop the community.

1. Maximize the use of combat ethical decision-making Lessons Learned (LL): Require that case studies utilized during the EODLC are implemented into training scenarios conducted during the pre-deployment training cycle. Scenarios should be designed to not only focus on EOD tactical intuitive decision-making but on moral decisions as well. Additionally, recommend that decisions made by EOD operators that resulted in substandard performance both professionally and personally be provided to the Senior Enlisted Advisory Group (SEAG) so the SEAG can brief the community leadership at the Commanders Conference and Executive Steering Committee (ESC) on community performance and ethical issues. This will provide Commanding Officers a perspective on issues they may be able to influence before they become major problems.

2. Further develop the EODLC to examine leadership styles: The EODLC should explore in depth the leadership styles of transformational leaders and hardy leaders. Consideration should be given on how these leadership styles reinforce values in subordinates and the development of character. Consideration should also be given on how to handle stress factors that contribute to unethical behavior and poor command climate.

3. Continuously emphasize the EOD Ethos from EOD Training throughout career progression: The EOD Ethos is relatively new and was carefully developed by the Community

leadership. EOD candidates are first exposed to the ethos during the initial EOD training pipeline but it quickly fades into the background. Although it is commonly seen framed and hanging on the Quarterdeck walls and in Command spaces or used as talking points on occasion it has not been fully implemented. It is recommended that the EOD Ethos be demonstrated in words and actions at all levels of leadership. The EOD Ethos should be emphasized throughout the pre-deployment training cycle and during career progression to be incorporated into the EOD culture.

In summary, the EOD Community should focus on leadership and decision-making in all ranks of the EOD operators. Training should incorporate an element of ethics in intuitive decision-making. The EOD Ethos should be embraced and leaders should be aware of the impact their leadership style has in cultivating values and ethics in their subordinates and organizational climate. Fine-tuning the sense of intuitive decision-making with an element of moral fitness in the EOD operators' leadership style will have significant positive impacts on the EOD Community. The result will be the development of EOD operators who can make quick, accurate, and ethical decisions in the dangerous and uncertain environment in which they operate, significantly increasing the effectiveness of the force.

Appendix I

United States Navy Explosive Ordnance Disposal Ethos

I am a United States Navy EOD Technician, a warrior, professional sailor and guardian of life.

I willfully accept the danger of my chosen profession and will accomplish all duties my great country asks of me.

I will follow in the wake of those who have served before me with uncommon valor. I was born from the bombs of and mines of the Blitzkrieg. I have cleared the world's sealanes and fought in the jungles, deserts and mountains around the globe.

I will never disgrace the Navy EOD Warriors of the past and will uphold their honor and memory, both on and off the battlefield.

I am a quiet professional! I strive to excel in every art and artifice of war. I adapt to every situation and will overcome all obstacles. I will never fail those who depend upon me.

I maintain my mind, body and equipment in the highest state of readiness that is worthy of the most elite warrior.

I will defeat my enemy's spirit because my spirit is stronger. I will defeat my enemies' weapons because I know my enemies' weapons better.

I will complete every mission with honor, courage and commitment. Though I may be alone and completely isolated, I will trust my teammates and my country. I will never give up and I will never surrender.

Where many strive and train to get it right, I will relentlessly train so I never get it wrong.

I am a United States Navy EOD Technician.

Appendix II

Primary Stressor Dimensions in Modern Military Operations

Stressor	Characteristics
1. Isolation	Remote location Foreign Culture and language Distant from family and friends Unreliable communication tools Newly configured units, do not know your coworkers
2. Ambiguity	Unclear mission or changing mission Unclear rules of engagement Unclear command or leadership structure Role confusion (what is my job?) Unclear norms or standards of behaviors (what is acceptable here and what is not?)
3. Powerlessness	Movement restrictions Rules of engagement constraints on response options Policies prevent intervening, providing help Forced separation from local culture, people, events, and places Unresponsive supply chains-trouble getting needed supplies and repair parts Differing standards of pay, movement, behavior, etc., for differing units in area Indeterminate deployment length-do not know when we are going home Do not know or cannot influence what is happening with family back home
4. Boredom (alienation)	Long periods of repetitive work activities without variety Lack of work that can be construed as meaningful or important Overall mission or purpose not understood as worthwhile or important Few options for play and entertainment
5. Danger (threat)	Real risk of serious injury or death, from: Enemy fire, bullets, mortars, mines, explosive devices, etc. Accidents, including “friendly fire” Disease, infection, toxins in the environment Chemical, biological, or nuclear materials used as weapons
6. Workload	High frequency, duration, and pace of deployments Long work hours and/or days during deployments Long work hours and/or days in periods before and after deployments

Appendix III Ethics Pyramid

Ethics:	Reflection on and Explication of <i>morality</i>
Morality:	<i>norms</i> and <i>values</i> of a certain group of people in a certain period
Norm:	rule, a guideline to act upon; norms are based on <i>values</i>
Value:	an ideal, something you strive for, a conviction or principle; values for the foundation of ethics

Endnotes

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- ¹ Merriam-Webster's Third New International Dictionary, Unabridged.
- ² Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus and Giroux, 2011), 20.
- ³ *Ibid*, 3-4.
- ⁴ *Ibid*, 98.
- ⁵ *Ibid*, 234-244.
- ⁶ Dr. R. Richardson, Dr. D. Verweij, and Prof Dr. D. Winslow, "Moral Fitness for Peace operations," *Journal of Political and Military Sociology* 32, no. 1 (Summer 2004): 99-113.
- ⁷ A. John Maule, "Strategies for Adapting to Time Pressure," in *Decision Making Under Stress*, ed. Rhona Flin, et al., 271-278 (Brookfield, VT: Ashgate Publishing Company, 1999), 271.
- ⁸ Kahneman, *Thinking, Fast and Slow*, 4.
- ⁹ *Ibid*, 5.
- ¹⁰ *Ibid*, 7.
- ¹¹ *Ibid*, 7.
- ¹² *Ibid*, 28.
- ¹³ Marvin S. Cohen and Jared T. Freeman, "Improving Critical Thinking," in *Decision Making Under Stress*, ed. Rhona Flin, et al., 161-169 (Brookfield, VT: Ashgate Publishing Company, 1999), 168.
- ¹⁴ Kahneman, *Thinking, Fast and Slow*, 33-37.
- ¹⁵ *Ibid*, 41-42.
- ¹⁶ *Ibid*, 41-46.
- ¹⁷ Gary Klein, "Naturalistic Decision Making." *Human Factors* 50, no. 3, (June 2008): 456-460.
- ¹⁸ Gary Klein, *Sources of Power: How People Make Decisions* (MA: The MIT Press, 1999), 3.
- ¹⁹ *Ibid*, 58.
- ²⁰ Klein, "Naturalistic Decision Making," 456-460.
- ²¹ U.S. Department of Defense, *Commander Explosive Ordnance Disposal Group Two/One* (COMEODGROUPTWO/ONE). Directive M-3502.1A, November 13, 2014, 2.
- ²² United States Navy Explosive Ordnance Disposal Ethos (Appendix I).
- ²³ Dave Grossman, *On Combat: The Psychology and Physiology of Deadly Conflict in War and Peace* (PPCT Research Publications, 2007), 134.
- ²⁴ *Ibid*, 134.
- ²⁵ James E. Driskell, Eduardo Salas, Joan H. Johnston and Terry N. Wollert, "Stress Exposure Training: An Event-Based Approach" in *Performance Under Stress*, ed. Peter A. Hancock, et al., 271-286 (Burlington, VT: Ashgate Publishing Company, 2008), 272.
- ²⁶ Linda T. Fatkin and Debbie Patton, "Mitigating the Effects of Stress through Cognitive Readiness" in *Performance Under Stress*, ed. Peter A. Hancock, et al., 209-229 (Burlington, VT: Ashgate Publishing Company, 2008), 209.
- ²⁷ Irving L. Janis and Leon Mann, *Decision Making: A Psychological Analysis of Conflict, Choice, and Commitment* (New York: The Free Press, 1977), 61.
- ²⁸ Paul T. Bartone, "Understanding Prisoner Abuse at Abu Ghraib: Psychological Considerations and Leadership Implications," *The Military Psychologist* 20, no. 2 (Summer/Fall 2004): 14.
- ²⁹ P. Lewicki, P. "Unconscious Acquisition of Complex Procedural Knowledge," *Journal of Experimental Psychology: Learning, Memory, and Cognition* 13, no. 4 (1987): 523.
- ³⁰ U.S. Department of Defense, *Commander Explosive Ordnance Disposal Group Two/One* (COMEODGROUPTWO/ONE). Directive M-3502.1A, November 13, 2014, Section 2-1.
- ³¹ US Department of the Navy, *US Navy Regulations 1990*, Article 1131, September 14, 1990, 107.
- ³² Paul T. Bartone, "Resilience Under Military Operational Stress: Can Leaders Influence Hardiness?" *Military Psychology* 18, (07/02, 2006): S131-S148.
- ³³ *Ibid*, 99-113.
- ³⁴ *Ibid*, 99-113.
- ³⁵ Dr. R. Richardson, Dr. D. Verweij, and Prof Dr. D. Winslow, "Moral Fitness for Peace operations," *Journal of Political and Military Sociology* 32, no. 1 (Summer 2004): 99-113.
- ³⁶ The nine constructs are Authorization, Transfer of responsibility, Routinization, Dehumanization/disqualification, Moral disengagement, Bracketed Morality, Misplaced loyalty, Peer pressure, and Groupthink. Some if not all of these constructs can be attributed to the atrocities committed in the My Lai incident and in incidents most recently

seen in Iraq. Joe Doty and Master Sergeant Jeffrey E. Fenlason, "Real Lessons Learned for Leaders after Years of War," *Military Review* (March-April 2012): 84-85.

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