

EMERGENCY RESPONSE: CREATIVITY AND TRAINING

A Dissertation

by

MARCIA BASTIAN

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2008

Major Subject: Educational Psychology

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Co-Chairs of Committee, James McNamara

Joyce Juntune

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ABSTRACT

Emergency Response: Creativity and Training. (December 2008)

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Every time emergency responders respond to an incident, they enter an ambiguous situation that is an ill-defined problem space. As the responders engage with the incident, they discover, piece by piece, the unique interlocking problems and act quickly to put form and structure onto the potential solution. In order to quickly, effectively, and safely resolve an incident, emergency responders must have depth and breadth of knowledge across responder disciplines and domains. This knowledge is acquired through both formal training courses and informal training in the station house. The ability to quickly assess a situation, accurately identify the elements as they emerge and their significance, then decide on a course of action combining a variety of domains and skill sets speaks to the creative nature of emergency responders. This study uses naturalistic inquiry to explore what it is like to be an emergency responder, describe how creativity manifests itself in a field environment, and discuss what emergency responders want in their training.

This study found that being an emergency responder is emotional, exciting, stressful, challenging, full of the unexpected, and rewarding. During an incident, emergency responders are dealing with the complex interactions of various emotions while resolving difficult and often sad situations. Being an emergency responder is synonymous with being a good problem solver; they are also highly emotionally resilient.

The process of creativity within an emergency response environment is seen through preparation that is, training. The consistent review and development of skills makes the skills automatic. Responders also cross-train and, often, an individual responder will have expertise in multiple areas. The improvisational skills of emergency responders to events which are often emergent and creative in their own right, demonstrate a depth of creative force through the handling of complex, high-risk situations with persistence, endurance, and determination.

Finally, this study found that emergency responders are passionate about their training. They know that what they learn and practice during training evolutions forms the foundation of their professionalism, provides opportunities to learn new skills or hone already established skills, reinforces safety considerations, and will save their lives and the lives of other people.

DEDICATION

This work is dedicated to the late Alejandro Treviño, a great man and gentleman.
He exemplified the Spirit of US&R.

ACKNOWLEDGEMENTS

I would like to thank my committee chairs, Dr. James McNamara and Dr. Joyce Juntune, and my committee members, Dr. Rodney Hill and Dr. Edward Funkhouser, for their guidance and support throughout the course of this research.

One does not earn a doctoral degree without the support of many patient loving friends and colleagues. In my case, the men and women of Texas Engineering Extension Service (TEEX), Urban Search and Rescue (US&R) Division and members of Texas Task Force 1 patiently listened and supported me as I worked my way through the research and writing process. To each of them, I extend my most heartfelt thanks. Special warmth goes to my “US&Rian brothers”, Jeffrey Bolich, Clint Arnett, and Chuck Klafka for all the brotherly teasing and encouragement they provided me. My deepest gratitude goes to Mr. Bob McKee, Division Director, TEEX/US&R, who encouraged, supported, and believed in me from the beginning. And, of course, thank you does not do justice to my participants who gave generously of their time, encouragement, and support.

Thank you to the sisters of my heart, Edith Marie Andrews (Miss Edie) and Judith Katherine Cryer. Edie held me many long years, listening to me cry and express my insecurities, telling me “Get your big girl panties on, and get on with it!” I did. And the Welch/Wilcox family, who excitedly kept asking me, “How’s your paper coming along?” And finally, my son, Zachary Blake Flagler. His support the last few months made my heart sing.

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CHAPTER I

INTRODUCTION

Statement of the Problem

Every time emergency responders respond to an incident, they enter an ambiguous situation that is an ill-defined problem space. As the responders engage with the incident, they discover, piece by piece, the unique interlocking problems and act to put form and structure onto the potential solution. In addition to the need for depth and breadth of knowledge across responder specialties and domains, the need for creative problem solving in field environments demands flexibility and originality in thinking. An understanding of how emergency responders prepare through training for the demand of rapid and accurate problem solving in the field will help strengthen training curriculum.

Within the emergency response community, the heavy rescue environment requires a unique specialist response team. Urban Search and Rescue (US&R) teams are multi-disciplinary teams comprised of highly trained personnel from diverse disciplines including, but not limited to fire services, emergency medical services (EMS), law enforcement, engineering, computer programming, public relations, disaster canine handlers, and physicians. US&R teams are generally last to be called in to an incident, only when first responder resources cannot adequately handle the specialized nature of a particular incident. US&R teams confront and solve problems in highly dangerous and

This dissertation follows the style of *American Journal of Evaluation*.

ambiguous environments. These teams must be prepared to act quickly, with flexibility of thought, to address each problem or portion of a problem, as it presents itself.

Members of US&R teams possess depth and breadth of knowledge across many domains allowing them to generate creative, effective solutions. This observation supports what many researchers in the field of creativity have pointed out, that creativity does not happen in a vacuum, rather it emerges within a broader framework (Wallas, 1926; Gardner, 1993, p. 370). Wallas (1926) posits that creativity has four stages: preparation, incubation, illumination, and verification (chap IV, p. 80). Torrence and Safter (1999) discuss incubation, flexibility, and elaboration in creative thinking. Rogers (1979) emphasizes the importance of psychological openness in the creative personality.

Understanding what it is like to be an emergency responder and gaining insight into how creativity is manifested in the field can help instructional designers develop appropriate training experiences for the responder community. How preparation impacts creative problem solving in a heavy rescue environment may also assist instructional designers and trainers enhance training curriculum for emergency responders.

Related Literature

The complex nature of human beings necessitates a multi-disciplinary approach to studying various aspects of human behavior. The study of creativity and discussions on training are no exception. Creativity researchers often draw from multiple disciplines and are, themselves, interdisciplinary. Psychology (Csikszentihalyi, 1996a), business and management (Amabile et al., 1996; Amabile, 1998; Ismail, 2005; Loewe & Dominiquini, 2006), cognitive and computing sciences (Boden, 2004), and education

(Gardner, 2006, Torrance & Safter, 1990, 1999; Sternberg, 1988, 2001) all weigh in on studies of creativity. Training issues also emerge in a variety of fields including psychology (Ford & Schmidt, 2000), and public health (Rottman et al., 2005; Uden-Holman et al., 2005) as well as in government documents (GAO, 2005). Due to the multiple disciplines addressing both training and creativity, discussions on these issues will, by their nature, flow among and combine with a variety of research interests.

Creativity—The Stages of Control

Poincaré (1845–1912), the physicist credited for the foundational work in Chaos Theory, described his thought processes in *Science and Method* (1929). From his experiences, he identified four phases of thought: preparation, incubation, illumination, and verification. Wallas (1926) called these phases the stages of control. Though research on the creative process may call these stages by different names, much of the literature describes and supports the stages of control as central themes of human creativity.

The first stage of control, preparation, is the time spent learning. This learning is domain-specific in knowledge and skills (Wallas, 1926; Amabile, 1996; Boden, 2004) as well as wide-ranging including life experience (Wallas, 1926; Gardner, 1993). Incubation is the time spent when the person unconsciously works on the problem (Wallas, 1926; Poincaré, 1929; Kaufmann, 1988; Nickerson, 1999). Illumination is the aha! or emergence of the solution. Wallas (1926) describes illumination as “the ‘happy idea’ together with the psychological events which immediately preceded and accompanied that appearance” (p. 80). Poincaré (1929) provides an excellent description

of the aha! in conjunction with incubation: “One morning, walking on the bluff, the idea came to me, with the . . . characteristics of brevity, suddenness and immediate certainty” (p. 388). Verification entails the implementation of the solution, asking the questions, “Does it work?” and “What modifications or elaborations need to be made?”

The stages of control do not happen in a linear fashion (Williams & Yang, 1999), rather, they often work concurrently, especially incubation in conjunction with preparation and illumination (Csikszentihalyi, 1993). Once verification occurs, preparation, incubation, and illumination will again come into play to work on the issues that arose from the implementation of the solution.

Training

Hands-on, skills based training is an essential component of emergency response training. Classroom, theory based training is not adequate for preparing responders on how to assess an incident site, build shoring to help secure a portion of a collapsed structure, move a 36,000 lb block of concrete without powered driven machinery, or use hydraulic rescue tools to rescue a trapped victim from a vehicle. Yet, exclusively skills-based training also lacks the depth of training needed by emergency responders to deal with real-life emergency response incidents.

Ford and Schmidt (2000) describe three important elements of emergency response training that go beyond skills based learning:

Emergency response training presents three problems that are not encountered in training for routine operations. The first of these is a need to remember the provisions of emergency plans and procedures over long periods of time until an emergency occurs. The second problem is a need to generalize from the specific conditions under which training occurred

to the potentially very different conditions of an actual emergency. The third problem is a need to develop effective mechanisms for teamwork under conditions that limit retention and generalization (p. 195).

In addition, curriculum developers, or instructional designers, who develop training curricula using the instructional systems design model, assume that knowledge, skills, and abilities (KSAs) “learned in training will be used on the job soon after training” (p. 200). In the field of emergency response, this is not necessarily the case. Thus, the issue becomes one of skills development in conjunction with transfer of knowledge to ill-defined and unforeseen situations that also involve pre-established plans, policies, and procedures. Scenarios serve as effective training tools to incorporate KSAs, generalization of training to specific conditions, and transfer to “potentially very different conditions” (p. 1), and develop transferable team skills among people who may or may not work together again.

As noted previously, emergency responders work in uncertain and ambiguous environments in which specific skills must be linked to ever changing situations. Scenarios facilitate the unfolding of unforeseen events so responders have the opportunity to develop flexibility, transferability of KSAs, and implement appropriate and novel solutions. Scenarios also offer training and skills assessment that provide paths to alternative outcomes (Burt & van der Heijden, 2003; Millett, 2003) that, at their best, link strategy to knowledge (Fahey, 2003). In addition, scenarios provide a method to examine the interplay of forces and how various groups pursue their respective objectives (van der Veer, 2005), thus helping responders to develop deeper

understandings of other teams who may be working on different aspects of an incident as well as strengthening their own team interactions.

Purpose of the Study

The purpose of this study is to gain an understanding of the experience of being an emergency responder and the development of leaders within the field of emergency response. This study will also explore the role creativity and training play in the development of leadership within emergency response. The case study method will be used to study and analyze the experience of being an emergency responder, the development of the leaders, and the role creativity and training play from the point of view of leaders in emergency response who also serve on US&R teams.

Objectives

The overarching goal of this study is to explore creativity in an emergency response environment. The specific objectives of this study are to:

- A. Gain a deeper understanding of the experience of being an emergency responder.
- B. Gain insight into how creativity manifests itself in the leaders in emergency response.
- C. Gain an understanding of the training of emergency responders.

Research Questions

The following questions will guide this investigation:

1. What is it like to be an emergency responder?
2. How does creativity manifest itself in the emergency response environment?

3. What role does training play in developing emergency responders?

Limitations

Generalization of findings is not possible in qualitative research, yet with the use of thick description, transferability is possible. The voices heard are only a mixture of leaders in the field of emergency response who are also members of US&R teams.

Given the nature of US&R as a response organization, it is reasonable to expect interruptions in scheduling. However, as this study involves how preparation contributes to creative problem solving in a heavy rescue field environment, the potential interruptions in scheduling provides a positive situation as it is these incidents that provide the environment for the questions of interest.

Assumptions

The researcher has the following assumptions regarding this research project.

- Each subject will be honest in the interview and will not purposively try to mislead the researcher.
- Each subject will have an understanding of what it is like to be an emergency responder.
- Prolonged engagement will be available between the researcher and the participants.
- Qualitative methodology is the best technique to answer the research questions of this study.

Definition of Terms

<i>Creativity</i>	“... central to [the] meaning [of creativity] is the ability to take existing pieces of information and combine them in novel ways that lead to greater understanding and suggest new behaviors and responses” (Stickgold & Walker, 2004).
<i>Creative problem solving</i>	In the context of this study, creative problem solving encompasses problem discovery and definition in conjunction with combining existing pieces of information in novel ways that respond effectively to the resolution of the incident.
<i>Confirmability</i>	Confirmability refers to the ability to track the data (i.e., constructions, assertions, facts) to their sources and “the logic used to assemble the interpretations into structurally coherent and corroborating wholes [as] both explicit and implicit’ (Lincoln & Guba, 1985, p. 243)” (Erlandson et al., 1993, p. 35).
<i>Credibility</i>	Credibility is established by adequately representing the multiple realities that emerge throughout the study (Lincoln & Guba, 1985, p. 296).
<i>Dependability</i>	Dependability is built through “... ‘trackable variance’, variabilities that can be ascribed to particular sources

(error, reality shifts, better insights, etc.)” (Erlandson et al., p. 34).

<i>Emergency responders</i>	For the purposes of this study, emergency responders refers to the following response disciplines: Emergency Medical Services, fire services, law enforcement, and urban search and rescue.
<i>Emergent design</i>	“ . . . succeeding methodological steps . . . based upon the results of steps already taken” (Lincoln & Guba, 1985, p. 102-103).
<i>Field environment</i>	A field environment is defined as the incident scene.
<i>Heavy rescue environment</i>	A disaster incident scene that often includes structural collapse and requires search and rescue skills beyond what is normally trained for in emergency response organizations.
<i>Law enforcement</i>	In this study law enforcement refers to police officers and police departments.
<i>Member check</i>	Member checks provide an opportunity for “stakeholding groups to test categories, interpretations, and conclusions” (Lincoln & Guba, 1985, p. 314).
<i>Multiple realities</i>	Multiple realities are “a move from the objective to the perspective . . . they represent perspectives” (Lincoln & Guba, 1985, p. 72) of the individual respondents.

<i>NFPA</i>	National Fire Protection Association
<i>NIMS</i>	National Incident Management System
<i>Peer debriefing</i>	“Peer debriefing helps build credibility by allowing a peer who is a professional outside the context and who has some general understanding of the study to analyze materials, test working hypotheses, and emerging designs, and listen to the researcher’s ideas and concerns” (Erlandson et al., 1993, p. 140).
<i>Prolonged engagement</i>	“Spending enough time with the subject of interest so that the researcher is able to ‘see’ what the subject ‘sees’ without going native” (Erlandson et al., 1993).
<i>Purposive sampling</i>	“Purposely selecting a sample that encompasses the construct of interest and can give rich detail about that construct” (Erlandson et al., 1993).
<i>Thick description</i>	Thick description is the researcher’s attempt “to describe in great detail the interrelationships and intricacies of the context being studied. Thus the result of the study is a description that will not be replicated anywhere. The ‘thick description’ that has been generated . . . enables observers of other contexts to make tentative judgments about applicability of certain observations for their contexts and

to form ‘working hypotheses’ to guide empirical inquiry in those contexts” (Erlandson et al., p. 33).

Transferability

“The naturalistic researcher . . . does not maintain that knowledge gained from one context will have no relevance for other contexts or for the same context in another time frame. ‘Transferability’ across contexts may occur because of shared characteristic” (Erlandson et al., 1993, p. 32).

Triangulation

Triangulation is the collection of “information about different events and relationships from different points of view. . . . Different questions, different sources, and different methods should be used to focus on equivalent sets of data” (Erlandson et al., 1993, p. 31).

Trustworthiness

Trustworthiness establishes the basis by which the inquirer persuaded “his or her audiences (including self) that the findings of an inquiry are worth paying attention to, worth taking account of. What arguments can be mounted, what criteria invoked, what questions asked, that would be persuasive on this issue?”(Lincoln & Guba, 1985, p. 290).

US&R

Urban Search and Rescue

CHAPTER II

LITERATURE REVIEW

Introduction

These days creativity, and its business counterpart, innovation, are fashionable. A search on both public and scholarly databases using the keyword “creativity” produces a rich harvest of references across domains and disciplines: Google Books produced 8,460 references; PyscInfo produced 18,460; the Modern Language Association database had 2,449 references; while the combined humanities databases, retrospective and Full text, on Wilson Web netted 2,450 references. The literature currently available on creativity is a huge jump from the paltry 186 references Guildford noted in 1950. Despite the amount of literature, both popular and scholarly available on the topic, creativity is confusing (Piiro, 2004). Runco (2004) notes that “creativity is notoriously difficult to define and measure” (p. 21) and “probably the only thing on which everyone agrees is that creativity involves originality” (p. 21). Yet, even the concept of originality poses challenges as it is not sufficient, in and of itself, to identify and define creativity.

The study of creativity in terms of people, process, and products helps to organize and focus the field. A variety of fields weigh in on the three Ps which serves to connect and enhance the study and understanding of creativity. A much cited work related to cognitive and information processing by Noppe and Gallagher (1977) looks at both people and process by studying the interrelationship of perception, personality, and cognition in relationship to creative thinking. The results of this work encouraged the

study of creative processes as relational and multifaceted, not as isolated structures. Boden (1995), who combines her research among cognitive and computer sciences, philosophy, and psychology, maintains that artificial intelligence through computer mapping provides a method which allows for a “scientific understanding of how creativity is possible.” Another combined field of note is decision sciences, engineering systems, and information technology in which techniques for preparing jazz musicians in improvisation are being explored as appropriate methodologies to enhance the improvisation skills of “emergency management personnel to make creative decisions under time constraints, even when the stakes are high” (Mendonca, 2006, p. 348). From the field of education, Paul Torrence (1979) did extensive work on training people to develop their creativity skills. Rollo May, one of the early humanist psychologist, suggested that “the most important kind of courage” (1975, p. 21) is creative courage which allows “discovering of new forms, new symbols, new patterns on which a new society can be built” (p. 21).

Gundry, Kickul, and Prather (1994) sum up the situation well when they liken operationalizing creativity to “nailing Jello to a wall” (p. 22). Everyone recognizes that creativity in humans is important, and some have even said it is essential to the survival of the species (Maslow, 1965; Csikszentmihalyi, 1993), however, the construct creativity is one slippery dude. This chapter will review selected concepts and literature related to issues of creativity.

Historical Understandings of Creativity

The issue of what motivates and stimulates the creative spirit in humanity is a topic of interest probably dating back prior to the written word. The need to explain creativity is seen throughout history. Ancient Greek culture combined the sacred and the profane. Assuming that a deity had to be involved with creativity, the Greeks claimed that the nine Muses, the daughters of the god and goddess Zeus and Mnemosyne, who presided over the arts and sciences, were the sources of inspiration. Poets, philosophers, and musicians were particularly attuned to the inspiration of their respective muses (Prose, 2002). In his poem *Theogony*, likely written sometime in the 8th century BCE, Hesiod gives credit to the Muses for not only inspiration but the command to him to write poetry. Hesiod goes a step further, though, and states that the Muses consider humanity “mere bellies” without their involvement:

And one day they [the Muses] taught Hesiod glorious song while he was shepherding his lambs under holy Helicon, and this word first the goddesses said to me—the Muses of Olympus, daughters of Zeus who holds the aegis:

(ll. 26-28) ‘Shepherds of the wilderness, wretched things of shame, mere bellies, we know how to speak many false things as though they were true; but we know, when we will, to utter true things.’

(ll. 29-35) So said the ready-voiced daughters of great Zeus, and they plucked and gave me a rod, a shoot of sturdy laurel, a marvellous thing, and breathed into me a divine voice to celebrate things that shall be and things there were aforetime; and they bade me sing of the race of the blessed gods that are eternally, but ever to sing of themselves both first and last (n.p.).

The ancient Chinese “regarded the world and man as uncreated . . . having no creator, god, ultimate cause or will external to itself” (Mote, 1971, pp 17-18). Unlike

other civilizations both ancient and modern, this situation places Chinese viewpoints on creativity in a unique, non-theistic context.

Confucianism, which became the official State philosophy of China circa 1st or 2nd century BCE, takes a holistic, cosmological view of human creativity. The Heavens, “as the source of pattern and order in the world” (Neville, 2007), are the creative, life-generating force in which humans are “co-creators endowed with the intelligence and wisdom of apprehending Heaven as creativity in itself” (Weiming, 2007, p 118). For Confucians, everything is a “demonstration of Heaven’s creativity” with “all modalities of being interconnected with this ceaseless evolution” (p. 116). This generative creativity “is open, dynamic, transformative, and unceasing” (p. 118). In addition, Confucianism sees the paradox of creativity as both a constructive and destructive force. Creativity brings change, and change, at its core, destroys something or parts of something, as it constructs something new (Kaufman, 2007; Kim, 2007, Taylor, 2001).

For the monotheistic traditions of Judaism, Christianity, and Islam, human creativity emanates from God, though each faith tradition grounds creativity differently. Judaism emerged approximately 4,000 years ago as a religion of action. *Tikkun olam*, repairing or healing the world, is a central tenet of Judaism that requires human action in the here and now of the world. Judaism emphasizes education and preparation for anything one undertakes as well as flexibility and adaptability, all of which are essential components of creativity. The Christian tradition began its evolution 2,000 years ago and began the Common Era (CE), otherwise known as Before Christ (BC) and After Death (AD), and struggled with creativity in terms of the sacred and the profane.

In severing Eros and Agape, Christianity dug a chasm between religious and secular art. A vision of Jesus on the cross could inspire a great painting of the Crucifixion, but might put a bit of a damper on the erotic poet. There were no deities to oversee the lyric, the love song, the dance. Another source was needed, an alternate explanation for creativity—for what cannot be summoned at will and seems beyond the artist's control . . . And since falling in love is the closest that most people come to transcendence, to the feeling of being inhabited by unwilled, unruly forces, passion became the model for understanding inspiration. Why does the artist write or paint? The artist must be in love (Prose, 2002, pp. 4-5).

Thus, in Christian based societies, love, in its various forms, became the explanation for the inspiration of secular expressions of creativity.

In the early centuries of Islam which was established in the 7th century CE, the Islamic societies of Arabia were vital centers of advancements in the arts, intellectual domains, medicine, and many other areas of human activity (Abd-Allah, 2006; Al-Hayani, 2005). The advancements occurred within the framework of “bid’a (innovation) and ijihad (critical legal thinking in search for answers to new problems” (Abd-Allah, 2006, p. 1) wherein new ideas, discoveries, and change were reviewed and reflected upon for their appropriateness within the teachings of the Quran. Beaudin (2005) states the situation regarding creativity and Islam simply: creativity is derived “from the core of a spiritually-grounded humanity.”

This is all in way of saying that the human need to understand the motivation and stimulation of creativity is nothing new. Throughout human history and across cultures and societies creative acts have been explained as inspired by a deity or deities and/or human interconnection with cosmological forces. Additionally, many traditions understand that inspiration does not happen in a vacuum, but, rather, preparation by

gaining knowledge and skill in a particular domain is a critical part of creative activity. Westwood and Low (2003) say it well, “Creativity and innovation take place in a context” (p. 240), and there are many contexts in which creativity takes place.

In Western cultures, the advent of studying human activity and psychology through scientific inquiry helped bring about a new direction for exploring and discussing the source of creativity internal to the individual person. Puccio (1989) points out that “the systematic study of creativity has been limited primarily to the 20th century” (p. 13). The vast majority of creativity research has occurred over the past 60 years since Guilford’s 1950 inaugural Presidential address to the American Psychological Association (APA). As Guildford noted, there was a lot of interest in issues of creativity and not much actual scientific work done on the topic. He states that “the neglect of this subject by psychologists is appalling” (p. 445) and suggested that one reason for its neglect was due to “the quest for easily objectifiable testing and scoring [which] has directed us away from the attempt to measure some of the most precious qualities of individuals and hence to ignore those qualities” (p. 445). In short, Guildford acknowledged that human creativity is complex and studying it in terms of traits is difficult. He called for the community of psychologists to take up the challenge of studying human creativity through appropriate methods of research design. The research community responded with great enthusiasm and, as noted in the Introduction, in the ensuing years since Guilford’s address, research into creativity has developed to the point that it spans disciplines. This cross-disciplinary interest in creativity calls to mind

the fact that creativity is a complex (Furnham et al., 2008; Westwood & Low, 2003) and “not fully understood process” (Westwood & Low, 2003, p. 235).

An Organizing Framework for the Study of Creativity

Background

The stages of control provide a framework for understanding creativity that is used by other more formalized theoretical frameworks. Across disciplines and divergent approaches to the study of creativity, researchers agree that creativity does not happen in a vacuum. Amabile (1996), Gardner (1993), Csikszentihalyi (1996a), Torrance and Safter (1999), Boden (1995, 2004) and many other researchers in the field of creativity have noted various components involved with creative production. Poincaré (1929), a physicist, described “in vivid detail the successive stages” (Wallas, 1926, p. 81) he experienced as he was in the act of discovery and creation.

It is time to penetrate deeper and to see what goes on in the very soul of the mathematician. For this, I believe, I can do best by recalling memories of my own.

For fifteen days I strove to prove that there could not be any functions like those I have since called Fuchsian functions. I was then very ignorant; every day I seated myself at my work table, stayed an hour or two, tried a great number of combinations and reached no results. One evening, contrary to my custom, I drank black coffee and could not sleep. Ideas rose in crowds; I felt them collide until pairs interlocked, so to speak, making a stable combination. By the next morning I had established the existence of a class of Fuchsian functions, those which come from the hypergeometric series; I had only to write out the results, which took but a few hours.

Then I wanted to represent these functions by the quotient of two series; this idea was perfectly conscious and deliberate, the analogy with elliptic functions guided me. I asked myself what properties these series must

have if they existed, and I succeeded without difficulty in forming the series I have called theta-Fuchsian.

Just at this time I left Caen, where I was then living, to go on a geologic excursion under the auspices of the school of mines. The changes of travel made me forget my mathematical work. Having reached Coutances, we entered an omnibus to go some place or other. At the moment when I put my foot on the step the idea came to me, without anything in my former thoughts seeming to have paved the way for it, that the transformations I had used to define the Fuchsian functions were identical with those of non-Euclidean geometry. I did not verify the idea; I should not have had time, as, upon taking my seat in the omnibus, I went on with a conversation already commenced, but I felt a perfect certainty. On my return to Caen, for conscience's sake I verified the result at my leisure.

Then I turned my attention to the study of some arithmetical questions apparently without much success and without a suspicion of any connection with my preceding researches. Disgusted with my failure, I went to spend a few days at the seaside, and thought of something else. One morning, walking on the bluff, the idea came to me, with just the same characteristics of brevity, suddenness and immediate certainty, that the arithmetic transformations of indeterminate ternary quadratic forms were identical with those of non-Euclidean geometry.

Returned to Caen, I meditated on this result and deduced the consequences. The example of quadratic forms showed me that there were Fuchsian groups other than those corresponding to the hypergeometric series; I saw that I could apply to them the theory of theta-Fuchsian series and that consequently there existed Fuchsian functions other than those from the hypergeometric series, the ones I then knew. Naturally I set myself to form all these functions. I made a systematic attack upon them and carried all the outworks, one after another. There was one however that still held out, whose fall would involve that of the whole place. But all my efforts only served at first the better to show me the difficulty, which indeed was something. All this work was perfectly conscious.

Thereupon I left for Mont-Valérien, where I was to go through my military service; so I was very differently occupied. One day, going along the street, the solution of the difficulty which had stopped me suddenly appeared to me. I did not try to go deep into it immediately, and only after my service did I again take up the question. I had all the elements and had

only to arrange them and put them together. So I wrote out my final memoir at a single stroke and without difficulty.

I shall limit myself to this single example; it is useless to multiply them. In regard to my other researches I would have to say analogous things (Poincaré, 1929, pp. 387-389).

From Poincaré's writings, Wallas (1926) identified four stages to creative production: preparation, incubation, illumination, and verification. Wallas referred to these components as the stages of control.

The Stages of Control

Preparation

Throughout the literature on creativity, preparation in a domain is consistently cited as a crucial element to creative production. Csikszentihalyi (1996a) states that “creativity involves changing a way of doing things, or a way of thinking, and that, in turn, requires having mastered the old ways of doing or thinking” (p. 155). Wallas (1926) also identified preparation as the initial stage of creative thinking, where a problem is “investigated . . . in all directions” (p. 80). This investigation is a “hard, conscious, systematic, and [sometimes] fruitless analysis of the problem” (p. 81).

Gardner's (1993) biographical study of seven eminent people supports the idea that preparation is a critical component of creativity. In this work, he describes the creative development of seven eminent people each representing a different domain—Albert Einstein, physics; T. S. Eliot, poetry; Sigmund Freud, psychology; Pablo Picasso, painting; Igor Stravinsky, music; Martha Graham, dance; and Mahatma Gandhi, politics and spiritual leadership. Gardner states that he “frequently found a ‘ten-year-rule’ at

work: a creative individual makes a breakthrough after ten years of work in a domain” (p. 83). He also found that there were “significant innovations or reorientations occurring at approximate decade-long intervals after an initial decade in which the skills of one’s trade have been mastered” (p. 214). Interestingly, Gardner points out that in her work as a dancer and choreographer, Martha Graham unwittingly addressed this ten-year-rule as she trained the dancers in her troupe.

Graham believed that it took ten years to build a dancer (which fits with the ten-year rule for creative breakthroughs that I have described): ‘The body must be tempered by hard, definite technique—the science of dance movement—and the mind enriched by experience.’ Students worked every day on ‘the torture,’ becoming muscular and hardened in the process. After ten years a student could leave the ensemble and join a group of four. Graham commented that ‘it took years to become spontaneous and simple. Nijinsky took thousands of leaps before the memorable one.’ (p. 298).

Table 1.1 shows the ten-year-rule by summarizing the important creative acts of each of the seven eminent persons studied across decades.

Table 1.1. The ten-year rule at work

Creator	10 years	20 years	30 years
Freud	“Project” <i>The Interpretation of Dreams</i>	<i>Three Contributions to the Theory of Sex</i>	Social Works
Einstein	Special theory of relativity*	General theory of relativity**	Philosophical works
Picasso	<i>Les demoiselles d’Avignon</i> * Cubism	Neoclassical style	<i>Guernica</i> **
Stravinsky	<i>Le sacre du printemps</i> *	<i>Les Noces</i> **	Later styles
Eliot	<i>The Waste Land</i> *	<i>Four Quartets</i> **	Playwright/critic
Graham	First recital	<i>Frontier</i> *	<i>Appalachian Spring</i> ** Neoclassical style
Gandhi	South Africa Satyagraha	Ahmedabad*	Salt march**

Source: Gardner, H. (1993). *Creating Minds*. (p. 371). New York, NY: Basic Books.

* Radical breakthrough

** Comprehensive work

Shaw (1989) discusses preparation in terms of immersion into an area of interest. This immersion encompasses “the education, schooling, and learning phase, and involves data-taking, feelings, question identification, methodology, systematology, phenomenology, and the development of skills and techniques” (p. 288). In a similar vein, Boden (2004) notes the importance of expertise developed through a “long apprenticeship . . . whether in science or in art” (p. 34). In addition, the three components of Amabile’s (1996) componential model of creativity—domain-relevant skills, creativity-relevant processes, and intrinsic task motivation—all contain elements

of preparation. Amabile (2001) also points out “the role of hard work in creativity . . . creative eminence depends on the application of consistent effort over long periods of time” (p. 334).

Incubation

Preparation and hard work are intentional acts that are conscious parts of the creative process (Shaw, 1989). Incubation, Wallas’s second stage of control, is generally an involuntary, unconscious act (Wallas, 1926; Amabile, 1983; Kaufman, 1988; Shaw, 1989; Nickerson, 1999; Boden, 2004). During incubation, while the person is “not consciously thinking about the problem . . . much unconscious mental exploration [takes] place” (Wallas, 1926, p. 80–81). Arieti (1976) supports Wallas’ contention that incubation is an unconscious act and Csikszentihalyi (1996a) describes incubation as “the process of creativity [that] usually goes underground for awhile” (p. 98).

Time away from the problem can take any form and be of any duration. People often report that they came to understand a problem while engaged in the most unlikely activities, such as taking a walk, brushing one’s hair, working on another problem, or engaged in a sporting event. The key to incubation is mental relaxation (Wallas, 1926). Csikszentihalyi (1996a) supports Wallas and points out that creative people develop habits of strength, that is, habits that conserve and direct energy. One of these habits of strength is making time for reflection and relaxation. Csikszentihalyi found that there

are times you should not expect any task to be done, any decision to be reached. You should just indulge in the luxury of reflection for its own sake. Whether you intend it or not, new ideas and conclusions will emerge in your consciousness anyway—and the less you try to direct the process the more creative they are likely to be.

[In addition,] the best relaxation is not doing nothing. It usually involves doing something very different from your usual tasks. Some of the most demanding activities like rock climbing, skiing, or skydiving are relaxing to people who have desk jobs because they provide opportunities for deep involvement with experiences that are completely different from the usual (pp. 353–354).

The physicist, Freeman Dyson, believes being idle “is very important” (Csikszentihalyi, 1996a, p. 98) to the creative process. Frank Offner agrees: “If you have a problem, don’t sit down and try to solve it. Because I will never solve it if I am just sitting down and thinking about it. It will hit me maybe in the middle of the night” (p. 99).

Though the actual activity of incubation may be involuntary and subconscious, the decision to step away from the problem and engage in other activities, with the intent of coming back to the problem refreshed, is intentional (Poincaré, 1924; Wallas, 1926; Kaufman, 1988, Csikszentihalyi, 1996a). Other times, stepping away from a problem occurs because of outside factors, such as when Poincaré was unable to continue working directly in physics due to military service, or when illness requires a person to rest, as was the case with A. R. Wallace, a British Naturalist, and Darwin (Wallas, 1926).

The problem with the exploration of incubation as an activity that truly occurs is that it is difficult to test and confirm under controlled, laboratory circumstances (Weisberg, 1986; Csikszentihalyi, 1996a; Boden, 2004). Boden suggests that rather than incubation memory, serendipity, that is, noticing, or time away from the problem, such as sleep, may bring about the relaxation of mental constraints which allows for the insight. Csikszentihalyi (1996a) adds to the discussion of the existence of an incubation period.

The evidence for incubation comes from reports of discoveries in which the creator becomes puzzled by an issue and remembers coming to a sudden insight into the nature of a problem, but does not remember any intermediate conscious mental steps. Because of this empty space in between sensing a problem and intuiting a solution, it has been assumed that an indispensable stage of incubation must take place in an interval of the conscious process (p. 98).

Illumination

Not surprisingly, illumination is closely connected to incubation. Boden (2004) observes that the unconscious work of incubation is “preceded and followed by consciousness” (p. 31). Illumination is the conscious activity following incubation; it is the emergence of a new idea, insight, or solution that can be sudden, the aha! or Eureka experience (Poincaré, 1924; Wallas, 1926; Amabile, 1983; Kaufmann, 1988), and is often preceded by a feeling (Wallas, 1926; Csikszentihalyi, 1996a). Boden (1995) reports that people often feel the approach of the solution even though the individual has no idea what the solution is.

Throughout recorded human history people have described the experience and sensation of illumination. Poet Amy Lowell illustrates the connection between incubation and illumination:

I registered the horses as a good subject for a poem: and having so registered them, I consciously thought no more about the matter. But what I had really done was to drop my subject into the subconscious, much as one drops a letter into a mail-box. Six months later, the word of the poem began to come into my head, the poem—to use my private language—was ‘there’ (Lowell, 1985, p. 111).

Though illumination may often appear to be sudden, Gruber (1981) suggests that by looking at case studies “the more one looks at a case, the more one sees that a seemingly sudden inspiration exhibits a complex history of purposeful growth and a

dense inner structure” (p. 57). Shaw’s (1989) description of illumination as “the moment or phase when the pieces of the puzzle fall into place, when the chaos becomes ordered, and when something emerges from apparently nothing” (p. 288) lends support to Gruber’s thought and ties illumination into preparation and incubation. Csikszentihalyi (1996a) also ties illumination to preparation and incubation:

In real life, there may be several insights interspersed with periods of incubation (p. 80) . . . The insight presumably occurs when a subconscious connection between ideas fits so well that it is forced to pop out into awareness, like a cork held underwater breaking out into the air after it is released (p. 104).

Poincaré (1924) sums up the historical nature of illumination when he writes that the “most striking at first is this appearance of sudden illumination, a manifest sign of long, unconscious prior work” (p. 389). While Weisberg (1986) rejects the notion of incubation, he does support the issue of preparation in relationship to illumination: “. . . evidence from research studies indicates that, rather than being independent of past experience, solution of ‘insight’ problems depends on detailed past experience with such problems” (p. 137).

Verification

Verification is a conscious activity during “which both the validity of the idea [is] tested, and the idea itself [is] reduced to exact form” (Wallas, 1926, p. 81). Verification entails “deliberate problem solving [during which] the new insights are itemized and tested” (Boden, 2004, p. 30). This description holds true for the arts as well as the sciences (Weisberg, 1986; Boden, 2004), though Boden suggests the term “evaluation” (p. 30) as a better fit for the arts. Essentially, verification is what Edison

was referring to when he said “creativity is 1 percent inspiration and 99 percent perspiration” (Csikszentihalyi, 1996a, p. 80). The verification stage is when the creator does the work of confirming that the illumination, or insight, works. Vinacke (1952) describes verification as the stage in which the “the materials developed in the illumination periods are worked over, criticized, elaborated, and smoothed out” (p. 245).

Whereas Wallas (1926) presents four stages of control, Csikszentihalyi (1996a) suggests five components to the creative process with the fourth and fifth components—evaluation and elaboration—corresponding to Wallas’ validation stage. For Csikszentihalyi, evaluation is the process of determining “whether the insight is valuable and worth pursuing” (p. 80), while elaboration is the process of creating and testing the product.

Amabile’s (1996) revised componential model of creativity incorporates response validation and communication as the fourth step of a five step process. During response validation and communication the creator tests the “response possibility against factual knowledge and other criteria” (p. 113). In essence, this step is the deliberate act of problem solving that will verify the workability of the illumination, or insight.

Radical Behaviorism

Background

Creativity poses a problem for behaviorists who generally “ignore the phenomenon” (Abra, 1988, p. 407). Behaviorism looks to explain behavior through various theories involving stimulus and response. In classical conditioning theory stimulus–response (S–R) pairings are either unconditioned or conditioned. An

unconditioned S–R simply means that there is a natural connection between the stimulus and the response, such as the stimulus of the sight or smell of food when one is hungry results in the response of salivation. An unconditioned S–R is one that is not naturally connected but rather is trained. For example, there is no natural connection between the stimulus of a bell ringing and the response of salivation; however such a response can be trained or conditioned. S–R pairings are observable actions and behaviors. Another theory of behaviorism, radical behaviorism made popular by B. F. Skinner, is operant conditioning which uses consequences to modify the occurrence and form of behavior. Operant conditioning shapes behaviors through consequences over repeated occurrences. Skinner identified four types of operant conditioning:

1. Positive reinforcement—strengthens a behavior through the consequence of providing something desired in return for a behavior such as a rat’s bar pressing behavior is reinforced when it receives a piece of food in return for pressing the bar.
2. Negative reinforcement—strengthens a behavior by providing an undesired consequence such as bar pressing behavior being encouraged when a rat receives a mild electrical shock on its feet that stops when it presses the bar.
3. Punishment—weakens a particular behavior through the consequence of a negative experience such as when a rat presses a bar and receives a mild electrical shock. When the rat repeatedly experiences this consequence, the rat learns to stop pressing the bar.

4. Extinction—weakens a particular behavior through the consequence of experiencing neither a positive consequence nor stopping a negative consequence. A rat's bar pressing behavior weakens because it experiences no reason to press the bar.

Because Skinner was the rare behaviorist who addressed creativity (Skinner, 1965, 1970, 1972a, 1972b, 1974), this section will review his thoughts and responses to his views on human creativity.

B. F. Skinner

Skinner was “a strict determinist, attributing all behavior to our genetic endowments and environmental histories” (Epstein, 1991, p. 363; Skinner, 1965, 1972a, 1972b, 1974; Neuringer, 2003). Skinner believed that “novelty or originality can occur in a wholly deterministic system” (Skinner, 1970, p. 69) and that “by analyzing the genetic and individual histories responsible for our behavior, we may learn how to be more original” (Skinner, 1972a, p. 355). Furthermore, “a person does not act upon the environment, perceiving it and deciding what to do about it; the environment acts upon him, determining that we will perceive it and act in special ways” (Skinner, 1972a, p. 352). Skinner made clear his thought that manipulating environments is the key to producing behavior: “The task is not to think of new forms of behavior but to create an environment in which they are likely to occur” (Skinner, 1972a, p. 355). Using the example of a person who is successful at singing or playing a tune by ear versus one who is not, he cautions:

We easily lose sight of the conditioning required to develop [a] behavior. The individual who cannot mimic an auditory pattern or who cannot sing or play by ear is likely to be puzzled by one who can. He finds it quite impossible to sing a matching pitch or to hum a corresponding tune or to imitate the noise of a locomotive, and he has no conception of how the successful mimic does so. He cannot be a successful mimic by any 'act of will.' The difference lies in the histories of reinforcement. If the repertoire with which one reproduces a melody has never been established, it will not be brought into play by the appropriate circumstance (Skinner, 1965, p. 119).

Here Skinner is talking about training yet he ignores the possibility of talent.

Skinner based much of his radical behaviorism on Darwin's model of natural selection resulting in a selectionistic determinism or consequences of selection (Skinner, 1965; 1974, 1987, Moxley, 1997; Ringen, 1993). He states that "operant behavior is the field of intention, purpose, and expectation. It deals with that field precisely as the theory of evolution has dealt with another kind of purpose" (Skinner, 1986, p. 716). This concept of selection is instrumental in Skinner's explanation of creative thinking:

The mutations in genetic and evolutionary theory are random, and the topographies of response selected by reinforcement are, if not random, at least not necessarily related to the contingencies under which they will be selected. And creative thinking is largely concerned with the production of 'mutations' (Skinner, 1974, p. 114).

Returning to the idea of novelty within a deterministic system, Skinner continues to demonstrate the tie between natural selection and radical behaviorism when he states that "contingencies of reinforcement also resemble contingencies of survival in the production of novelty" (p. 224). In addition, he suggests that natural selection's explanation for the origins of the great variety of life and species on the earth "without appealing to a creative mind" (p. 224) opens

the possibility that contingencies of reinforcement may explain a work of art or the solution to a problem in mathematics or science without appealing to a different kind of creative mind or to a trait of creativity or to the possibility that ‘men of genius have more creative nervous energy than lesser mortals.’

In both natural selection and operant conditioning the appearance of ‘mutations’ is crucial (p. 224).

Epstein (1991) responds to this idea of selection and novelty: “Selection alone doesn’t produce anything new in evolution. Mechanisms of variation are also necessary. Selection merely limits the range of variation that occurs in the next generation” (p. 363). Epstein also points out that “mechanisms of variability must exist, some relatively trivial, perhaps, and some profound. To rely on so-called ‘random’ variation is by no means enough to account for the dramatic and complex instances of novelty we often observe in behavior” (p. 363). In short, before behavior can be selected in the origin and development of the individual, the behavior “must somehow be generated” (p. 363). As to where novel behavior originates, Skinner does not offer any explanations (O’Donohue & Ferguson, 2001; Epstein, 1991).

Traditional psychologies treat behaviors as indicators of internal processes, a position radical behaviorism rejects. Skinner points out “that artists talk about themselves and very often about their inner lives” (Skinner, 1970, p. 63) and the resultant behaviors. He cautions that the artists’ accounts of their “emotions, thoughts, ideas, and impulses” (p. 62) which generate the creative activity may not be accurate as they learned to use vocabulary from “people who had no contact with these things and who, therefore, cannot teach them to describe them accurately” (p. 62-63). Skinner

prefers to start with that which is observable, the artist's achievements, and work back into the inner world:

We have no direct contact with the mind or emotions of the artist. Only indirectly, if at all, can we induce him to have strong feelings or original ideas. If art springs from an inner life which is truly original, in the sense that it begins with the artist, then there is nothing to be done beyond giving the artist an opportunity. It is much more promising, however, to argue that the achievements of the artist can be traced to the world in which he lives, for we can then begin to examine that world, not only to explain the achievement, but to find the means of taking practical steps" (p. 63).

Skinner continues his argument for making the inner life visible: ". . . 'a creative mind' explains nothing. It is an appeal to the miraculous: mind is brought in to do what the body cannot do. But we must then explain how the mind does it" (p. 68). He defends his push to make the creative mind visible to the scientific world to be studied by asking, "Why not continue to believe in our creative powers if the belief gives us satisfaction?" (Skinner, 1972a, p. 354). He answers, "To accept a wrong explanation because it flatters us is to run the risk of missing a right one—one which in the long run may offer more by way of 'satisfaction'" (1972a, p. 354). Skinner's argument begs the question, "Whose satisfaction?"

Though Skinner emphasizes the importance of "mutations" in the emergence of creative activity (Abra, 1988; Epstein, 1991; O'Donohue & Ferguson, 2001; Skinner, 1965, 1970, 1972a, 1974, 1986), he does not neglect the artist as an individual. Still, he frames the individual artist in terms of selection, history, and environment: "The selective side of the artist's role emphasizes his uniqueness and the almost infinite variety of the circumstances under which he lives and paints" (Skinner, 1970, p. 70).

Skinner challenges traditional psychologies by pointing out what is lost by their pursuits:

By attempting to move human behavior into a world of nonphysical dimensions, mentalistic or cognitive psychologists have cast the basic issues in insoluble forms. They have also probably cost us much useful evidence, because great thinkers (who presumably know what thinking is) have been led to report their activities in subjective terms, focusing on their feelings and what they introspectively observe while thinking, and as a result they have failed to report significant facts about their earlier histories (1974, p. 118).

He presses home the point while adding the importance of being able to assist humanity in developing originality:

A formulation of creative thinking within the framework of a natural science may be offensive to those who prize their conceptions of the individual in control of the world about him, but the formulation may have compensating advantages. So long as originality is identified with spontaneity or an absence of lawfulness of behavior, it appears to be a hopeless task to teach a man to be original or to influence his process of thinking in any important way (Skinner, 1965, p. 256).

Skinner did not believe in the autonomy of the individual, a feeling he carried over to creative activities: “What is threatened, of course, is the autonomy of the poet. The autonomous is the uncaused, and the uncaused is miraculous, and the miraculous is God” (Skinner, 1972a, p. 354). He points out that because a poet is not always

aware of the origins of his behavior, he is likely to attribute [his word choices] to a creative mind, perhaps, or a mind belonging to someone else—to a muse, for example, whom he has invoked to come and write his poem for him (p. 354).

In the end, though, Skinner challenges people to think about why they cling to their mythologies:

For the second time in a little more than a century a theory of selection by consequences is threatening a traditional belief in a creative mind. And is

it not rather strange that although we have abandoned that belief with respect to the creation of the world, we fight so desperately to preserve it with respect to the creation of a poem? (p. 354).

Humanistic Psychology

Background

Humanistic psychology emerged from dissatisfaction with what Abraham Maslow (1969) came to term First Force and Second Force psychologies, that is, respectively, behaviorism and psychoanalytic methodologies. Both of these fields of psychology are based in deterministic understandings of forces that shape, influence and/or drive the human organism. In the case of behaviorism, human beings respond to and are shaped by stimuli in the environment external to the person (Epstein, 1991, p. 363; Skinner, 1965, 1972b, 1974; Neuringer, 2003) while “orthodox Freudians made man a creature of instinct” (Matson, 1969, p. 15) that responds to internal biological drives. In the late-1950s through the 1960s, a rebellion against the reductionistic tendencies of these approaches to human psychology began to take form (AHP, 2008; Friedman, 1994; Giorgi, 2000, 2005; Maslow, 1954, 1963, 1964, 1968; May, 1959; Rogers, 1954, Rogers and Stevens, 1967; Shaffer, 1978).

Maslow envisioned a Third Force in psychology, humanistic psychology, which would include aspects of various approaches to the study and practice of psychology. He saw the Third Force as “a coalescence into a single philosophy of groups in psychology” (Maslow, 1969, p. 724). Maslow, in his earliest writings on the Third Force describes it as including “the first and second psychologies” (p. 724). In an attempt to “avoid the sophomoric two-valued, dichotomized orientation, for example, of being either pro-

Freudian or anti-Freudian” (p. 724), Maslow invented the terms “epi-behavioristic” and “epi-Freudian”, epi meaning upon, to express the his feeling of inclusion—behavioristic, Freudian, and humanistic.

As the Third Force began to develop, a clearer vision emerged. Vich (1963) in the inaugural issue of *Phoenix*, the newsletter of the then newly minted American Association for Humanistic Psychology (AAHP), summarized Maslow’s remarks at the AAHP convention: “Dr. Marslow spoke of the professional isolation experienced by himself and others who were interested in a broader and more human psychology which included the best of our knowledge of man, whether it be Freudian, behavioristic, or whatever” (p. 1). In the same issue of *Phoenix*, Jourard (1963) rather caustically commented “that Humanistic Psychology will be best served if it is undergirded with research that seeks to throw light on the qualities of man that are uniquely human, rather than on qualities that he shares with rats, pigeons, or machines” (p. 2). And, finally, the New Member Drive section of the *Phoenix* (1963) called scholars and researchers who are “dissatisfied with a psychology that views man as a composite of part functions, a psychology whose model of science is taken over from physics, and whose model of a practitioner is taken over from medicine” (p. 3) to submit for publication “theoretical and research papers that deal with values, being, self-actualisation, creativity, autonomy, identity, and related concepts” (p. 3). Clearly, a radical shift in the study of human behavior, psychology, and emotional health was occurring.

Humanistic psychology is fundamentally concerned “with the value of life and with what it means to be human” (Shaffer, 1978, p. 1). This grounding in human

meaning goes back to “man’s earliest efforts to answer the basic riddles of existence through art, religion, and philosophy” (p. 1). Schaffer points out that humanistic psychology is more an attitude or orientation toward psychology as a whole rather than a specific content area and has implications throughout the study of psychology including personality theories, abnormal psychology, experimental research, and even psychopathology. The Association for Humanistic Psychology (AHP) (2008) supports Shaffer’s statement and adds that humanistic psychology

is a value orientation that holds a hopeful, constructive view of human beings and of their substantial capacity to be self-determining. It is guided by a conviction that intentionality and ethical values are strong psychological forces, among the basic determinants of human behavior. This conviction leads to an effort to enhance such distinctly human quality as choice, creativity, the interaction of the body, mind and spirit, and the capacity to become more aware, free, responsible, life-affirming and trustworthy (n.p.).

Sandy Friedman, AHP Past President, in her address to AHP (1994) sums up the differences between reductionistic views of human psychology and humanistic psychology:

The humanistic shift can be thought of something like this: from determinism to self-determination, from causality to purpose, from manipulation to self-responsibility, from analysis to synthesis, from diagnosis to dialogue, from solution-oriented models to process, from degradation of human life to celebration of the human spirit. . . . to be humanistic means among other things to see ourselves and each other as whole, multidimensional and unique, not a simple bundle of instincts to be probed and dissected, but as a choiceful unity of heart, mind and spirit, will, and even spleen . . . to be seen, heard, felt and honored (n.p.).

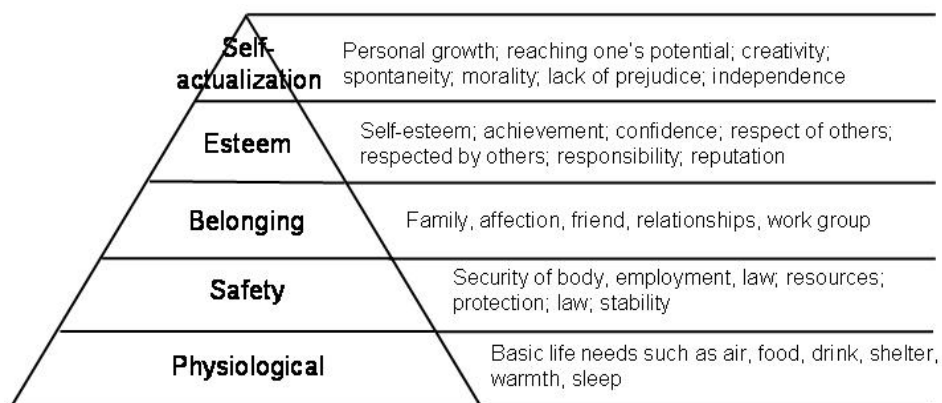
It is against this backdrop of the human being as a whole, rather than functional parts that can be made visible for study, that creativity is seen in dynamic relationship to other human traits. The Third Force believes that human traits “cannot be meaningfully

studied in isolation” (Shaffer, 1978, p. 33). In addition, it is assumed “that those personal attributes that seem most distinctively human (like self-awareness, compassion, and creativity) are not derived from, or secondary to, more fundamental and physiologically based drives, but instead constitute primary phenomena in their own right” (p. 33).

A. H. Maslow

In his book, *The Organism*, Kurt Goldstein (1934) presented the idea of self-actualization. Maslow, “the spiritual father of humanistic psychology” (Shaffer, 1978, p. 33), expanded upon this concept and put it at the top of his hierarchy of needs (see Figure 2.1) (Maslow, 1943, 1954, 1987).

Figure 2.1. Maslow's Hierarchy of Needs



In Maslow's theory of human motivation, which is one of the principle theories of humanistic psychology, “health is not simply the absence of disease or even the opposite of it (1987, p. 14), but, rather, “the healthy organism is . . . basic need-gratified and therefore released for self-actualization” (p. 39). For Maslow, self-actualization is synonymous with health (p. 120). It is within the context of the healthy or self-actualized

person, that creativity is seen in its most vibrant forms though Maslow acknowledges that a person can have enormous talent and creativity and yet lack psychological health:

. . . some of the greatest talents of mankind were certainly not psychologically healthy people—Wagner, for example, or Van Gogh or Degas or Byron. . . . I early had to come to the conclusion that great talent was not only more or less independent of goodness or health of character but also that we know little about it. (Maslow, 1959, p. 83).

Rather than getting caught up in the creativeness of the talented genius, Maslow choose to address the “more widespread kind of creativeness which is the universal heritage of every human being that is born, and which co-varies with psychological health” (1959, p. 84). So important is the centrality of creativeness in Maslow’s thought that he eventually came to feel “that the concept of creativeness and the concept of the healthy, self-actualizing, fully human person seem to be coming closer and closer together, and may perhaps turn out to be the same thing” (1963, p. 4). In 1971 Maslow reemphasized this point when he stated

that the problem of creativeness is the problem of the creative person (rather than of creative products, creative behaviors, etc.). In other words, he is a particular or special kind of human being rather than just an old-fashioned, ordinary human being who now has acquired new extrinsic possessions, who has now got a new skill like ice skating, or accumulated some more things that he ‘owns’ but which are not intrinsic to him, to his basic nature (p. 73-74).

Maslow understood the importance of developing creative, self-actualized persons as critical to the survival of societies (Maslow, 1963). He stated that his interest in creativeness and other human experiences that lead to psychological health was due to “a very strong feeling of a change of pace in history. It seems to me that we are at a point in history unlike anything that has ever been before. Life moves far more rapidly now

than it ever did before” (p. 4). In the mid-twentieth century, Maslow correctly noted that there was a “huge acceleration in the rate of growth of facts, of knowledge, of techniques, of inventions, of advances in technology” (p. 4). This unprecedented acceleration in human knowledge, he claimed, “requires a change in our attitude toward the human being and toward his relationships to the world. To put it bluntly, we need a different kind of human being” (p. 4). In true visionary fashion, Maslow encouraged the creation of “a new kind of human being who is comfortable with change, who enjoys change, who is able to improvise, who is able to face with confidence, strength and courage a situation of which he has absolutely no forewarning” (p. 4). In short, Maslow believed that “we must develop a race of improvisers, of ‘here-now’ creators” (1965, p. 4).

Underlying this talk of a new kind of person, of “here-now” creators is a different kind of philosophy about people as well as a focus on character. This emphasis on philosophy and character shifts the stress away from “created products, and technological innovations and aesthetic products and innovations” (p. 5) to an interest “in the creative process, the creative attitude, the creative person” (p. 5).

In a lecture given in 1962 to the 8th National Assembly of the Canadian Society for Education Through Art, Maslow (1963) identified and described the 18 characteristics that express the creative attitude, or creative disposition (see Appendix B). In many respects, Maslow found these characteristics descriptive of peak experiences which he considers to be essential for self-actualization.

Early on in his studies Maslow noted that self-actualized people are more open to peak experiences (1962, 1968), that is the ability to get “lost in the present, this detachment from time and place” (1963, p. 6). Peak experiences run along a continuum from great intensity akin to a mystical experience to simpler versions “namely fascination, concentration, or absorption in *anything* which is interesting enough to hold this attention completely” (p. 6). When discussing the creative attitude, Maslow preferred to start with the simpler versions of peak experiences as they are more “universal and familiar experiences which we all have, so we can get a direct feeling or intuition or empathy, that is, a direct experiential knowledge of a modest, moderate version of the fancier ‘high’ experiences” (1963, p. 6). In short, the simpler versions of peak experiences are more accessible to more people thus allowing a greater number of people to recognize, develop, and express a creative attitude. In Maslow’s thinking, wide access to and development of the creative attitude among people is essential if we are to

make ourselves over into people who don’t need to staticize the world, who don’t need to freeze it and to make it stable, who don’t need to do what their daddies did, who are able confidently to face tomorrow not knowing what’s going to come, not knowing what will happen, with confidence enough in ourselves that we will be able to improvise in that situation which has never existed before. This means a new type of human being (1963, p. 4).

Self-actualization, peak experiences, and the creative attitude are process focused. Maslow clearly delineated between process and product creativeness (1958; 1963; 1971) and emphatically stated that “we must become more interested in the creative process, the creative attitude, the creative person, rather than in the creative product alone” (1965, p. 5).

Maslow referred to creativeness associated with process, attitude, and person as primary creativeness, and product related creativeness as secondary creativeness (1958; 1963). Not surprisingly, with humanistic psychology's emphasis on a holistic understanding of human psychology, Maslow held primary creativeness in high regard. He states that primary creativeness

comes out of the unconscious and which I have found in the specially creative people that I have selected out to study carefully. This kind of primary creativeness is very probably a heritage of every human being. It is a common and universal kind of thing. Certainly it is found in all healthy children. It is the kind of creativeness that any healthy child had and which is then lost by most people as they grow up (1971, p. 83).

In addition, Maslow identified primary creativeness as inspirational phase of creativity and “the source of new discovery—of real novelty—of ideas which depart from what exists at this point” (Maslow, 1958, p. 51). For Maslow, primary creativeness that finds its fullest expression in the self-actualized person emerges from the deeper self and comes with

the ability to play—to enjoy—to fantasy—to laugh—to loaf—to be spontaneous, and, what's most important for us here, creativity, which is a kind of intellectual play, which is a kind of permission to be ourselves, to fantasy, to let loose, and to be crazy, privately. (Every really new idea looks crazy, at first.) (1958, p. 51).

It is the process of play, dreaming, and relaxing that supports the human being's ability to discovery.

Secondary creativeness is “the working out and the development of the inspiration” (1963, p. 5). It is where a “large proportion of production-in-the-world, the bridges, the houses, the new automobiles, even many scientific experiments and much literary work” (1959, p. 93) occurs. Secondary creativeness might result in a product and

stresses not only creativeness, but also relies very much on just plain hard work, on the disciplines of the artist who may spend half a lifetime learning his tools, his skills, and his materials, until he becomes finally ready for a full expression of what he sees (p. 5).

In this statement Maslow points to the element of preparation in the creative work before inspiration can become reality.

Finally, Maslow identifies a third category of creativeness, that of integrated creativity. Integrated creativity uses the processes of both primary and secondary creativeness “well in good fusion or in good succession . . . it is from this kind that comes the great work of art or philosophy or science” (1959, p. 93).

Maslow had a lot to say on the matter of human creativity. He saw creativity as nothing less than the driving force that can save human societies and, therefore, was interested in “fostering the new kind of human being that we need, the process person, the creative person, the improvising person, the self-trusting, courageous person, the autonomous person” (1971, p. 100).

Zeitgeist

Background

Zeitgeist, or the spirit of the times, is generally seen from an historical perspective, 20-20 hindsight (Runco, 2007). This general intellectual and moral state or temper that characterizes any particular period of time puts parameters around creative endeavors and, oftentimes, defines what is creative within the context of time and culture (Boring, 1961, 1971). Boring discusses creativity in terms of zeitgeist, broadly defining the term as “the total body of knowledge and opinion available at any time to a person

living within a given culture” (p. 336). Runco (2007) adds to this understanding when he comments that “zeitgeist imposes a value system and provides prerequisites for specific kinds of creativity” (p. 214).

Boring (1961) states that “not only is a new discovery seldom made until the times are ready for it, but again and again it turns out to have been anticipated . . . as the times were beginning to get ready for it” (p. 326). Boring points out that the maturation of scientific thought is a dynamic process occurring over years, and sometimes centuries, entailing social interaction and communication: “This interaction *is* the Zeitgeist, which is not unlike a stream” (p. 328). As the researcher conducts experiments and studies the work of others, “one discovery leads to another, or one experiment leads to a theory that leads to another experiment, and the history of science tells the story” (p. 331). In this way, researchers gain “in erudition and wisdom, and become more mature” (p. 328).

Zeitgeist is “a steadily changing current of common belief” (p. 325) which is “forever being altered” (p. 325) by the work of individual and groups of researchers and their interactions. Nakamura and Csikszentmihalyi (2003a) supports this notion of interaction and communication when he comments that a potentially creative person “cannot contribute anything new if the society in which he lives does not provide access to past knowledge or provides no opportunities to do state-of-the-art work” (p. 189). Referring to how prior work done over years and even centuries impacts a researcher’s thought Boring (1961) makes it plain that “no man clearly understands the sources of his own creativity” (p. 326). In short, scientific creativity does not happen in a vacuum; no researcher is an island; and we each see “a little further . . . by standing on the shoulders

of Giants.” Available knowledge communicated “whenever it becomes effective . . . is the *Zeitgeist* working” (p. 336). It is within the context of zeitgeist, that is, the body of knowledge available to a researcher, that development of thought and paradigm shift in the study of creativity can be reviewed. This section looks at zeitgeist at work through the career of Mihaly Csikszentmihalyi.

Csikszentmihalyi

Csikszentmihalyi’s research in creativity spans over 50 years during which time he pursued and developed new approaches to researching creativity while actively engaging the thoughts of researchers in other disciplines. Csikszentmihalyi began his career in psychology as an undergraduate at the University of Illinois in 1956. This was a time when psychology was focused on establishing itself as a “science” and behaviorism and Skinner’s ideas reigned. Csikszentmihalyi found behaviorism “a dreary, mechanistic, and provincial view of the human experience” (Csikszentmihalyi, 2000, p. xii) and looked around for alternatives. In the early 1960s, the Committee on Human Development, a graduate program at the University of Chicago, provided him with the intellectual alternatives he was seeking. This interdisciplinary program “brought together anthropologists, sociologists, psychologists, and an occasional biologist in the study of how people change through the course of life” (p. xiii). In this vibrant environment of interdisciplinary activity and discussions, Csikszentmihalyi found his life’s work.

Csikszentmihalyi’s doctoral thesis (1965) described “in detail the cognitive and behavioral patterns used by art students whose work was rated as original and contrasting them with the patterns employed by students whose work artists and critics

rate as lacking originality” (Csikszentmihalyi, 1990a, p. 191). This work produced a wealth of data with the results being widely reported (Getzels & Csikszentmihalyi, 1966, 1967, 1968, 1969), “especially those concerning personality traits and cognitive processes” (Csikszentmihalyi, 1990a, p. 191). Getzels and Csikszentmihalyi (1976) used this work as a springboard for “a longitudinal study of artistic development” (p. 1). Up to this point, studies of the life and work of artists which hoped to disclose “the secret origins of creativity” had “been retrospective, carried out after the artist had become worthy of biographic attention” (p. 1). Getzels and Csikszentmihalyi took a different approach following the development of a group of artists prospectively

in order to determine the steps by which creative works come into being. Instead of attempting to reconstruct the genesis of completed works of art, we sought to observe the development of artists, and the production of their work as it was being created (p. 1).

Getzels and Csikszentmihalyi followed art students through their education and then again seven years later to find out who actually became a working artist “earning their livelihood in our society” (p. 1). Their work was ground breaking, putting the elements of creativity—person, process, and product—in real-time context with talent, motivation, environment, and social issues. As they correctly point out,

Many of the obstacles on a student’s way to a career in the arts have nothing to do with artistic talent and problem finding. A person must earn enough to survive; he must maintain self-respect, establish a position among his peers, gain recognition from critics, find meaning in what he is doing (p. 159).

Another innovative aspect of this longitudinal study was the combination of quantitative and qualitative research methodologies. Though Getzels’ and Csikszentmihalyi’s study “was objective and analytic, based on quantitative data” (p. 7),

the researchers felt it important “to provide a more subjective and holistic view” (p. 7) and, therefore, rounded out the quantitative results with individual case studies of several of the artists.

This longitudinal study supported much that was already known about creative personalities in terms of perseverance, tolerance for ambiguity, introspection, independence, and being socially withdrawn.

It is possible that these traits are necessary for pursuing a creative activity . . . The cognitive task of restructuring old problems or discovering new ones is apparently embedded in a set of personality traits that facilitate this potentially deviant task. It takes a person who is cut off from others, who has an intense inner life, who does not depend on outside direction and support, to break away from the premises on which the majority bases its thinking (p. 40).

In addition, the quality of naiveté was also supported. Getzels and Csikszentmihalyi comment that “only naïve persons risk questioning phenomena everyone else takes for granted, or dare impose their own interpretations on percepts that have established meaning” (p. 44). Einstein demonstrated this naiveté “when he remarked that he had to discover new laws because he could not understand the old ones” (p. 44).

An important finding of this study is that much of creativity is problem finding rather than working on problems already found, that is problems handed to one; thus, the importance of naiveté to the creative personality. Problem finding

is goal-directed, but it often pursues goals beneath the threshold of awareness. It seeks out similarities between external objects and internal states; it uses symbolic means to express formless feelings, thereby disclosing that which otherwise would go unperceived, articulating what otherwise would remain unarticulated. Problem finding may well be at the origin of the creative vision” (p. 251).

Years after this study was published, Csikszentmihalyi (1990b) commented:

Many creative individuals have pointed out that in their work the formulation of a problem is more important than its solution and that real advances in science and in art tend to come when new questions are asked or old problems are viewed from a new angle (p. 193).

At the same time that this longitudinal study was going on, Csikszentmihalyi had also secured funding to study work satisfaction to which he also attached play and enjoyment (Csikszentmihalyi, 2000). The technical term used in psychology for the study of intrinsic motivation is autotelic, a most cumbersome word to those unused to academic jargon. During staff meetings Csikszentmihalyi and his graduate students started using the word “flow” to describe autotelic experiences. Flow just seemed to pin point what the person was experiencing, was a more accessible word, and, as Csikszentmihalyi states, “If we had continued to use the precise but cumbersome *autotelic experience*, few people outside the academic community would have paid attention” (p. xviii). Flow was first described as such in *Beyond boredom and anxiety: experiencing flow in work and play* (1975). As the concept of flow matured, nine elements of flow were identified (Csikszentmihalyi, 1996a):

1. There are clear goals every step of the way.
2. There is immediate feedback to one’s actions.
3. There is a balance between challenges and skills.
4. Action and awareness are merged.
5. Distractions are excluded from consciousness.
6. There is no worry of failure.
7. Self-consciousness disappears.

8. The sense of time becomes distorted.
9. The activity becomes autotelic.

Since its introduction, the interest in flow has gained wide use across domains and disciplines including sports psychology, business, education, game theory, and psychology (McQuillan & Conde, 1996; Csikszentmihalyi, 1990b, 1996a, 1997a 1997b; Kim, Oh, & Lee, 2005; Meyer & Turner, 2006; Wesson & Bonlwell, 2007).

In 1996, Csikszentmihalyi talked about the goal of his work: “I have devoted 30 years of research to how creative people live and work, to make more understandable the mysterious process by which they come up with new ideas and new things” (1996b, p. 36). His research endeavors have been rich and fruitful, leading him to the following insights on creative people:

Creative individuals are remarkable for their ability to adapt to almost any situation and to make do with whatever is at hand to reach their goals. If I had to express in one word what makes their personalities different from others, it's complexity. They show tendencies of thought and action that in most people are segregated. They contain contradictory extremes; instead of being an 'individual,' each of them is a 'multitude' (p. 36).

Csikszentmihalyi further points out that this complexity “does not imply neutrality or the average” (1996a, p. 57) but, rather, “it involves the ability to move from one extreme to the other as the occasion requires” (p. 57). To this point he identified 10 dimensions of complexity, each in pairs which appear to be antithetical traits that describe creative people. These 10 characteristics of creative people are as follows:

1. Creative individuals have a great deal of physical energy, but they are also quiet and at rest. They work long hours, with great concentrations, while projecting an aura of freshness and enthusiasm (p. 57).

2. Creative individuals tend to be smart, yet also naïve at the same time (p. 59).
3. Creative people combine playfulness and discipline, or responsibility and irresponsibility. There is no question that a playful attitude is typical of creative individuals. But this playfulness doesn't go very far without its antithesis, a quality of doggedness, endurance, perseverance (p. 61).
4. Creative individuals alternate between imagination and fantasy at one end and a rooted sense of reality at the other (p. 63).
5. Creative people seem to harbor opposite tendencies on the continuum between extroversion and introversion (p. 65).
6. Creative individuals are also remarkably humble and proud at the same time (p. 68).
7. Creative people, to an extent, escape rigid gender role stereotyping (p. 70).
8. Creative people are both rebellious and conservative (p. 71).
9. Most creative people are very passionate about their work, yet they can be extremely objective about it as well (p. 72).
10. Creative people's openness and sensitivity often exposes them to suffering and pain yet also to a great deal of enjoyment (p. 73).

Csikszentmihalyi is quick to point out that these 10 characteristics are to some extent arbitrary; however, in his years of research and working with creative people, these contrasting personality traits stand out as common elements. The importance of these antithetical pairings cannot be impressed enough as

these conflicting traits are usually difficult to find in the same person. Yet without the second pole, new ideas will not be recognized. And without

the first, they will not be developed to the point of acceptance. Therefore, the novelty that survives to change a domain is usually the work of someone who can operate at both ends of these polarities—and that is the kind of person we call ‘creative’ (p. 76).

Csikszentmihalyi’s curiosity has kept him on the leading edge of creativity research. Throughout his studies on creative people he has consistently adjusted his viewpoints with the knowledge as it emerges, combining information from a variety of domains. His discussions on a systems view of creativity (Csikszentmihalyi, 1988; Abuhamdeh & Csikszentmihalyi, 2004) takes the focus off the person-centered perspective and looks at the creative person in combination with field and domain. This creates a “more Copernican model in which the person is part of a system of mutual influences and information” (Csikszentmihalyi, 1988, p. 337). In another realm, Csikszentmihalyi (2004) challenges cultural relativism, prods at the desire of religious fundamentalists of both Islam and Christianity for totalitarian rule, public policy needs due to genetic engineering, and takes on America affluence pointing out that additional material well-being is not correlated with quality of life. And finally, as the field of psychology begins a paradigm shift away from pathology toward “an interest in the more desirable aspects of behavior” (Csikszentmihalyi & Csikszentmihalyi, 2006, p. 3), Csikszentmihalyi has become a leader and prominent researcher in the emerging field of positive psychology (Seligman & Csikszentmihalyi, 2000; Nakamura & Csikszentmihalyi, 2003b). One can easily see zeitgeist at work here.

Summary

Since Guilford’s 1950 APA Presidential address on creativity, the field of creativity research has burgeoned. As stated in the introduction to this chapter, creativity

research spans disciplines including, but not limited to, artificial intelligence, business and management, cognitive sciences and information processing, education, engineering, and psychology. Each discipline approaches the question of creativity with its own unique perspective and tools, looking to shed light on a possibly ineffable quality of human kind. As this massive amount of research literature has accumulated, the depth and complexity of human creativity has become increasingly apparent. Runco (2007) correctly points out “creativity is complex” (p. 239) and “there is no one causal agent or determining factor” (p. 239). In all this complexity, all this mess and attempts to “nail Jello to a wall”, Milgram (1990) asks an interesting question in regards to creativity research: “Is creativity an idea whose time has come and gone?” (p. 215). She answers, “I do not think so. I believe that it is an idea whose time is still coming, an idea that is still in the process of becoming” (p. 215).

CHAPTER III

METHODOLOGY

The case study approach was selected for this research as it provides a framework within which emergent themes can be discovered and used to gain understanding about the elements of the personal and professional lives of emergency responders and how responders express creativity during an incident. This approach is a process that involves revision and reflection and provides relevance to help in understanding the experience that is being studied (Lincoln & Guba, 1995). The case study method allowed the researcher to approach the study in a holistic manner by gathering data from participants through interviews, observations, and artifacts. The data was analyzed for emerging themes and patterns.

Qualitative Research

The case study approach to qualitative research is needed to acquire information that only an insider's view can show. Zussman (2004) states that qualitative research "is at its best precisely when it works from cases rather than samples, when it is opportunistic rather than systematic, when it specifies rather than generalizes, and when it struggles to find unconventional ways of linking research to concept" (p. 352).

Case studies allow the researcher to gain insight into the people and topics of interest. Case studies also provide reassurance regarding concerns of internal validity in the study's design. Internal validity issues in qualitative data "deal with the question of how research findings match reality" (Merriam, 1988, p. 201). Thus, in-depth case

studies exploring the experiences of emergency responders and how they express creativity in the field as well as their insights regarding training will address internal validity concerns.

This study refers to reality as how each participant views his experiences as an emergency responder, how he uses and directs creativity at the incident site, and his insights on training emergency responders. Merriam (1988) comments that a person's reality incorporates how the individual views the world and what constructions the person creates about reality. Since every human being lives within a different reality, the multiple realities in the proposed study must come from the participants themselves.

Human Instrument

The primary instrument in qualitative research is the human instrument. In addition, this study used a set of interview questions as a secondary instrument (see Appendix A). There are many advantages to using the human as the data-gathering instrument (Erlandson et al., 1993; Lincoln & Guba, 1985; Merriam, 1998). Lincoln and Guba (1985) state that “the human instrument has certain special properties—chief among them being virtually infinite adaptability” (p. 250) as well as the ability to be “developed and continuously refined” (p. 250). Erlandson, Harris, Skipper, and Allen (1993) expands upon Lincoln and Guba and describes the primary human instrument, the researcher, as “sensitive and actively respond[ing] to the situation being studied” (p. 108), allowing the researcher to be sensitive to the participants' lives while gathering and analyzing the data. In addition, the human instrument is “governed by both thoughts and emotions and will certainly change, and hopefully grow, throughout the study”

(p. 108). The researcher, as the human instrument, understands how people think and the meaning people attach to their actions. Lincoln and Guba (1985) discuss the advantages of the human instrument for gathering data in a case study. A qualitative researcher

- is able to collect responses and respond to further explanation.
- can interact with the situation in order to best assess and guide the interview dependent upon the respondent's statements.
- can provide a summary so that clarification can be gained from the respondent.

In addition, qualitative research has the following qualities on which the researcher, as the human instrument, can capitalize:

- Phenomenon presented is viewed within a holistic content and data gathered follows patterns.
- The research can build upon the base of tacit knowledge through the collection of the data.
- The data collected by the researcher is theorized upon and tested to bring a comprehensive final presentation and description.

Subjects

The participants in this study are three emergency responders who each represent multiple responder disciplines. The purposeful sampling generated participants who are members of US&R teams and are leaders within the field of emergency response with 20 or more years experience as responders (see Table 3.1).

Table 3.1. Summary of participant service and responder discipline

Participant	Yrs of service	Response Discipline			
		EMS	Fire	Law	US&R
Jim	23	✓	✓		✓
Charles	34	✓	✓		✓
Ray	22	✓	✓	✓	✓

Procedures

Structured interviews were scheduled and conducted with each of the participants. Unstructured follow-up interviews which clarified various issues and brought forward additional information occurred as needed. Due to my employment with TEEX/US&R, I experienced prolonged engagement with the participants through a variety of employment-related activities and taskings. In addition, I engaged with artifacts including a memory book, an information video, and newspaper and magazine articles.

Table 3.2 provides a summary of types of engagements and the person with whom the engagement took place during this study. Informal observations were also ongoing throughout the study.

Table 3.2. Summary of prolonged engagement activities

Type of Interaction	Participants		
	Jim	Charles	Ray
Structured interviews	✓	✓	✓
Unstructured follow-up interviews	✓	✓	✓
9/11 commemorative activities	✓	✓	✓
After Action Activities	✓		
Curriculum development projects *	✓	✓	✓
Daily work activities	✓		
Deployment activities	✓		
Email	✓	✓	✓
Emergency Services Unit video		✓	
Field exercises *	✓	✓	✓
Focus groups *		✓	✓
Hallway/coffee conversation	✓	✓	✓
Market survey development projects *			✓
Newspaper/magazine articles	✓		✓
Phone calls	✓	✓	✓
Presentations **	✓		
Professional certifications	✓	✓	✓
Resumes and bios	✓	✓	✓
Scrap book/memory book			✓

* The participants serve as subject matter experts (SME) on a variety of TEEEX/US&R projects. As Instructional Design Specialist for TEEEX/US&R, the researcher has extensive interaction with SMEs on these projects.

** The researcher assisted in the development of presentations given by Jim as well as review of presentations developed by other employees of the Division.

Analysis of Data

The data was analyzed using the constant comparative qualitative method, which allows for “continuous and simultaneous collection and procession of data” (Lincoln & Guba, 1985, p. 335). Goetz and LeCompte (1981) describe this strategy as combining

. . . inductive category coding with a simultaneous comparison of all social incidents observed. As social phenomena are recorded and classified, they also are compared across categories. Thus, the discovery of relationships, that is, hypothesis generation, begins with the analysis of initial observations, undergoes continuous refinement throughout the data collection and analysis process, and continuously feeds back into the process of category coding. As events are constantly compared with previous events, new typological dimensions, as well as a new relationship, may be discovered (p. 58).

The analysis of the data began as each structured interview was conducted and then transcribed. Content analysis of the structured interviews was carried out using MAXqda, a computer software program used for textual analysis. MAXqda allowed the researcher to code and conceptualize the relevant textual passages in search of redundancy and variations between and within the three structured interviews and then to extract that information in a manner agreeable to qualitative analysis. The use of MAXqda also provided a method of tracking units that fit into multiple categories. The categories that emerged were tested through the use of researcher peer debriefing, and all of the case studies’ data was brought together to search for emerging themes along with similarities and differences among them. The data was translated using thick description.

Establishing Trustworthiness

The tools of trustworthiness help the researcher reconstruct the constructions so that the respondent can verify them and helps persuade the audience, including the

researcher, “that the findings of an inquiry are worth paying attention to” (Lincoln & Guba, 1985, p. 290). Building trustworthiness includes credibility, confirmability, dependability, and transferability.

Credibility

Credibility is the compatibility that exists between the realities of the participants and the researcher’s interpretation of their realities. The purpose of credibility is two-fold: 1) to help reconstruct the multiple realities so the respondents can verify them, and 2) to provide the foundation for the audience to find the study of importance. Credibility was established through the use of peer debriefing, member checks, prolonged engagement and persistent observation, and triangulation.

Peer debriefing took place between the researcher and two “professional[s] outside the context” (Erlandson et al., 1999, p. 140) of the study. The purpose of peer debriefing was to periodically examine the materials and “test working hypotheses and emerging designs” (p. 140). During these peer debriefing sessions I received feedback that allowed me to more efficiently synthesize, organize, and construct themes. Also, peer debriefing provided me with additional themes, ideas, and insights. An important outcome of one peer debriefing session was the suggestion to combine elements into a more cohesive single unit instead of the two separate units I had originally produced.

Member checks provided an opportunity for the respondents to “review the material for accuracy and palatability” (Stake, 1995, p. 115) and was used to ensure accurate documentation of the collected data. During each of the interviews, I periodically summarized what the participant said and then asked if I understood

correctly. After the interviews were transcribed, each participant was offered the opportunity to review the transcription. In addition, as the writing of the participant descriptions and results progressed, the participants were given multiple opportunities to review the work and provide feedback. After reviewing the final draft of the results, one of the participants commented: “Accurate; very accurate. Accuracy is important. It establishes credibility. Marcia, your work is credible.”

Triangulation was used to verify data by using different and multiple sources of data and methods to validate and verify information against each other (Lincoln & Guba, 1985; Erlandson et al., 1999). Triangulation occurred as I noted similar or the same things said by different participants. This triangulation confirmed experiences among the participants and, often, additional information emerged. Newspaper articles kept in one participant’s memory book and the video describing the activities of the New York Police Department’s Emergency Services Unit also provided confirmation of and additional information. Also, I see these people in the work environment where I was able to observe their actions in conjunction with information flow. These triangulation activities provided a deeper understanding of the experiences of emergency responders and how they express creativity both during an incident and in daily project taskings.

Prolonged engagement and persistent observation “provides a foundation for credibility by enabling the researcher to learn the culture of an organization . . . [and] build trust and develop a rapport with the respondents” (Lincoln & Guba, 1985, p. 133), while persistent observation “adds salience to a study that otherwise might appear to be no more than a mindless immersion” (p. 140). As a full-time employee of TEEX/US&R,

I have been involved in prolonged engagement and persistent observation since before the study began. As such, I am uniquely positioned and trained for issues involved with persistent observation including “sorting out irrelevancies—the things that do not count” (p. 304). In addition to the methods described in this section on establishing credibility, I established credibility with the participants through our mutual employment activities.

Confirmability

Confirmability builds trustworthiness and is a necessary part of naturalist inquiry. Confirmability is the trail left by the researcher that allows an auditor “to determine if the conclusions, interpretations, and recommendations can be traced to their sources and if they are supported by the inquiry” (Erlandson et al., 1993, p. 35). Data was labeled and coded using MAXqda. Codes were developed using word descriptors for themes and applied across all three structured interviews. MAXqda provides a variety of functionalities which allow me to track data back to its original source. The tracking functionalities include a code-matrix browser, a code relation browser, a search function, and a text retrieval function which allows the user to retrieve text in relationship to themes that overlap, intersect, or are combined with other themes.

Dependability

Dependability refers to the consistency in a study that can be replicated with similar subjects, in similar contexts with similar results. Thus, dependability may be understood as the reliability of the research making a dependability audit necessary to show evidence of the shifts of reality and to help display “trackable variance” between the studies. Erlandson, Harris, Skipper, and Allen (1993) and Lincoln and Guba (1985)

point out that dependability and confirmability can be established through member checks, triangulation, and peer debriefings. I established dependability through member checks in which the participants reviewed the materials and provided feedback via email and in person discussions; triangulation by examining the data for consistency with the findings; and by participating in peer debriefing sessions with objective parties. A reflexive journal was kept noting issues of interest for follow-up, potential new lines of inquiry, insights, and other relevant information.

Transferability

Transferability, or generalizability, refers to how well the research findings may be applicable for a similar study or inquiry within a similar context yet with different subjects. Erlandson, Harris, Skipper, and Allen (1993) point out that “the naturalistic researcher maintains that no true generalization is really possible; all observations are defined by the specific contexts in which they occur,” (p. 32). The use of purposive sampling and thick description was used in this study to increase the likelihood that findings may be transferred to similar inquiries. In addition to purposive sampling, criterion sampling was also used as this study specifically addresses emergency responders who have five or more years experience in leadership positions and who also serve on a US&R team.

Thick description was used to enhance transferability by sharing the “constructions of those whose human setting they are investigating . . . It is thick description that will bring the reader vicariously into the setting the researcher is describing and thereby pave the way for shared constructions” (Erlandson et al., 1999,

p. 24). In addition, thick description provides a foundation for the reader to make judgments about how closely this investigation may be similar and useful to another situation (Lincoln & Guba, 1985; Erlandson et al., 1993).

Summary

The purpose of this study was to examine what it is like to be an emergency responder, how responders manifest creativity during an incident, and the importance of training in fields of emergency response. This chapter provided the procedures used in gathering and analyzing the information during the study. Using the constant comparative method, which consisted of comparing and contrasting notes from interviews, observations, artifacts, and a variety of activities involved in prolonged engagement, I analyzed and interpreted the experiences and attitudes of three members of the emergency response community. The techniques used were those of a qualitative nature and allowed me to experience and discuss the different thoughts, experiences, and attitudes of the three participants.

CHAPTER IV

RESULTS

Throughout this research project I came into contact with responders from a variety of disciplines and specializations. I often asked their feelings about their personal creativity and creativity on the job to which they generally looked startled and stated that they did not think they were very creative. I would reframe the situation offering them a different view of creativity, explaining that there are usually many unknown elements to the incidents to which they respond that demand quick and flexible responses. Again, the responders looked startled then thoughtful. Many of them shrugged and stated, “That’s why we train.” These confident, humble men and women generally do not think of themselves as creative or what they do as a creative activity. Emergency responders constantly train and cross-train in order to quickly and effectively make decisions that effect life and property in oftentimes difficult and emotional situations. The training and cross-training that responders do and how responders solve the problems they confront at an incident tells the tale. Emergency responders are a creative group of people who thrive on the excitement of solving the problems they confront at an incident.

Descriptions of Emergency Response Disciplines

During an emergency or disaster situation, a variety of professions might refer to themselves as emergency responders including hospital personnel, social workers, and municipal utilities personnel (e.g., power, electric, water, roads). The participants in this study come from the following responder disciplines: Emergency Medical Services

(EMS), fire services, law enforcement, and urban search and rescue (US&R). This section will describe each of these four emergency response disciplines.

Emergency Medical Services

EMS is a branch of medicine that provides acute out-of-hospital care in a field environment such as in the streets at an accident or crime scene or in a person's home. Services are provided by paramedics, emergency medical technicians (EMT), and other certified emergency responders. EMS also supplies ambulance transport to a hospital or other medical services center. The State of Connecticut Department of Mental Health and Addiction Services states that EMS provides services

. . . to accident victims and patients suffering from severe acute illness and psychiatric emergencies. Services include the detection and reporting of medical emergencies, initial care, transportation and care for patients *en route* to health care facilities, medical treatment for the acutely ill and severely injured within emergency departments, and the provision of linkages to continued care or rehabilitation services (p. 4).

Depending on the jurisdiction, a municipally-run EMS is often part of either the fire services or police department, though not always. In addition, private ambulance services run EMS services. While on a call, EMS personnel are in communication with an emergency room physician who helps guide the EMTs and paramedics in stabilizing the patient while in the field and during transport to the medical facility.

Fire Services

The primary mission of fire services is to extinguish fires. A common statement heard among fire fighters is "You put the wet stuff on the red stuff." On the surface, it

appears quite simple; however the job of the firefighter is complex, difficult, and dangerous. The International Association of Fire Chiefs (IAFC) states:

The fire service is the only entity that is locally situated, staffed, trained and equipped to respond to all types of emergencies. The fire department responds to natural disasters such as earthquakes, floods, tornadoes and hurricanes as well as to man-made catastrophes such as hazardous materials spills, arson and terrorism. As such, America's fire service is an all-hazard, all-risk response entity. (IAFC, Overview of America's Fire Services, n.p.)

As an all-hazard, all-risk response entity, fire services interact in many areas of specialization. For a more complete description of areas of fire services specialization, see Appendix C, extracted from IAFC, Overview of America's Fire Services, which identifies and describes these specialized areas. The descriptions provided in Appendix C clearly show the vast amount of domain knowledge needed by fire fighters in a variety of different areas. Throughout a fire fighter's career, skills are practiced regularly during training evolutions. The purpose of these training evolutions is first and foremost to keep fire personnel safe—"everyone comes home"—then to save lives, save property, and protect the environment.

Law Enforcement

The United States Department of Health and Human Services (HHS), Administration for Children and Families Health and Human Services (ACF) defines legal, law enforcement, or criminal justice personnel as people employed by a justice agency "including law enforcement, courts, district attorney's office, probation or other community corrections agency, and correctional facilities." (United States Department of Health and Human Services, 2006, p. 90). These justice agencies can be local, State,

tribal, or Federal. In addition, law enforcement covers a variety of fields such as crime prevention, control, and investigation, and includes occupations such as police officer, sheriff, crime scene investigator (CSI) and other forensics technicians and experts.

The mission of law enforcement is to maintain public and social order. To accomplish this mission, law enforcement agents and agencies are empowered to use various methods of coercion. The primary method of enforcement is through talking with the individual(s). This is the least forceful and preferred method available to law enforcement personnel. Talking a person or group to a peaceful resolution is the best technique for protecting the safety of all parties involved, including the law enforcement personnel. When necessary, though, law enforcement officers are empowered to the legitimate use of extreme force.

Law enforcement incorporates many different entities including police departments, U.S. Marshalls, U.S. Border Patrol, constables, and sheriff departments. The participant in this study who comes from law enforcement is a retired police officer from a large, metropolitan police department. Police officers are trained in community affairs, crime prevention, investigations, collection of physical evidence, narcotics enforcement, forensic science, law, youth relations and many other areas of need.

Urban Search and Rescue

In the early 1980's a new type of emergency response team was starting to develop in Florida that was trained for search and rescue (SAR) operations in collapsed buildings. These elite teams were known as urban search and rescue and came out of the technical rescue disciplines. FEMA (Federal Emergency Management Administration)

took note of Florida's urban search and rescue concept and in 1989 "established the National Urban Search and Rescue (US&R) Response System as a framework for structuring local emergency services personnel into integrated disaster response task forces" (FEMA, 2007a). Since its inception in 1989, the National US&R Response System has grown to 28 FEMA certified US&R teams (see Appendix D and Table D.1).

FEMA describes US&R activities as follows:

Urban search-and-rescue involves the location, rescue (extrication), and initial medical stabilization of victims trapped in confined spaces. Structural collapse is most often the cause of victims being trapped, but victims may also be trapped in transportation accidents, mines, and collapsed trenches.

Urban search-and-rescue is considered a 'multi-hazard' discipline, as it may be needed for a variety of emergencies or disasters, including earthquakes, hurricanes, typhoons, storms and tornadoes, floods, dam failures, technological accidents, terrorist activities, and hazardous materials releases. The events may be slow in developing, as in the case of hurricanes, or sudden, as in the case of earthquakes (FEMA, 2007b).

US&R teams include highly trained personnel from a variety of responder disciplines though US&R draws most often from fire services. Specialized teams on a US&R task force include disaster search canine specialists, medical specialists, hazardous materials (hazmat) specialists, water strike teams, structural engineers, logistics specialists, search specialists, rescue specialists, heavy lifting and rigging specialists, and many other areas of focus. Appendix E provides position requirements for three US&R specialist positions and demonstrates the depth and breadth of training and experience needed to qualify for a US&R task force position. In addition, Appendix E shows the level of understanding task force members must have across specializations.

Participant Descriptions

The participants in this study represent all four response disciplines. Table 4.1 provides a summary of the participants and the roles they play within the emergency response disciplines.

Table 4.1. Summary of participant qualifications.

Participant	Yrs of service	Response Discipline				Leadership
		EMS	Fire	Law	US&R	
Jim	23	✓	✓		✓	<ul style="list-style-type: none"> • Retired fire chief • Instructor—both fire services and US&R • Serves on a national level standards board • Head of a FEMA level US&R team who is also responsible to the State’s Governor for all State deployed search and rescue operations within Texas
Charles	34	✓	✓		✓	<ul style="list-style-type: none"> • Retired from fire services • Instructor—both fire services and US&R • Serves on a national level standards board • Develops curriculum for delivery at local and national level • Developed, from scratch, communications section for US&R team • Participated in development of regional technical rescue team • Founding member of US&R team

Table 4.1. Continued

Participant	Yrs of service	Response Discipline				Leadership
		EMS	Fire	Law	US&R	
Ray	22	✓	✓	✓	✓	<ul style="list-style-type: none"> • Retired from law enforcement (rank of detective) • Instructor—both law enforcement and US&R • Develops curriculum for delivery at local and national level • Six years on Emergency Services Unit for New York Police Department • US&R Logistics Team Manager

Participant One: Jim Johnson

Background

Jim Johnson is a 41 year old Caucasian male who, until five years ago, lived his entire life in a small, rural Midwestern town. When he retired from the fire services in Ohio, Jim took a position in Texas, where he is currently the director of a state emergency response asset that includes 39 full-time employees and 210 task force members. Jim stands about 5'11", is of medium build, maintains his hair in a buzz-cut, and is extremely neat in his person and office environment. His office can be characterized by "everything has a place and everything in its place." The same thing can be said about how Jim organizes his electronic files, both email and documents. His work habits are well-organized. Jim keeps a small notepad near him at all times to jot down his thoughts and impressions and his work calendar is carefully maintained by

both himself and his administrative assistant. He also keeps a daily list of prioritized Action Items.

Upon first meeting Jim, one immediately recognizes that this is a man accustomed to being in a command position. Yet one never feels overwhelmed by him. Rather, he puts people at ease with his openness and obvious interest in them. Jim is so relaxed with who he is as a person that he has no need to grandstand. In addition, Jim possesses a deep, quiet spiritual grounding that he expresses in his actions towards and belief in other people. This spiritual grounding is particularly poignant when he is working with victims, even those who are clinically dead. In these situations, Jim continues to talk to the victim as he believes they may still be able to hear everything said around them.

As a youth, stability characterized Jim's home life and community. The town in which he grew up and lived most of his adult life has changed very little with the population staying at around 2,600 people. The county itself has also seen little growth. The backdrop of Jim's daily life was pastures, croplands, forests, and wetlands. He described his childhood as having a "good friend structure" where he and his buddies "played actively" together and rode bikes. Jim's family, which included his mother, his father, and a younger brother, enjoyed camping and summer vacations were usually spent in Myrtle Beach, North Carolina. In addition to his immediate family, Jim has a large extended family that ranges throughout the United States (U.S.) and up into Canada. Interestingly, one of Jim's aunts on his mother's side is only 7 years older than he is! This closeness in age provided Jim with a unique relationship with his

grandparents and he talks about having a deep emotional bond with his grandfather. In addition, he stated with some amount of embarrassment that, in his mind, his grandmother is the “model of the perfect woman.” Jim described his grandmother’s typical day as getting the family up and out the door, followed by cleaning the house and watching a soap, after which she would get herself cleaned up and her hair done, then on with the details of her day outside the home. Jim’s embarrassment comes from the changes in women’s roles and activity within the greater world, a situation that Jim supports, nurtures, and mentors. Yet, still, his grandmother forms his image of the “perfect woman”. While he was describing this situation, Jim laughed, shook his head gently at his own dichotomous nature. It was quite apparent that he holds his grandmother in the highest esteem and has great love for her.

Jim feels he gets his drive, that “fire in the belly”, from his mother, Carol Johnson, who was a stay-at-home Mom. When he started high school, Mrs. Johnson entered the workforce as an administrative assistant in an optometrist’s office. The optometrist offered a specialization in behavioral optometry and she helped administer the procedures. Jim’s father, George Johnson, held a bachelor’s degree in education and served as director of human services for over 30 years at a liberal arts college known for its progressive programs. Sadly, just a few weeks after Mr. Johnson retired he was diagnosed with liver cancer and died about four months later at the age of 62 in February, 2006. His father’s early death got Jim thinking more seriously about his own future, the family he has with his wife and son, and how to better care for himself. He

responded by identifying where he can make improvements. Subsequently, Jim changed his eating and exercise habits and lost weight.

Throughout our conversations, Jim repeatedly credited his father with instilling him with his passion for building teams and developing strong organizations that serve people. As Jim points out about himself, he is “someone who builds up people.” This self-understanding emerged during his early teen years when “a switch went on” and he understood himself as a leader. Up to that point, Jim was a timid, unassuming boy who displayed no interest in or aptitude for leadership. He states:

I can look back, and if my mother were here to visit with you, she would tell you that growing up I could not make a decision. That, I remember going to the store and trying to pick something out and agonizing over the decision. And I was very passive. Very quiet. I was very nonaggressive. I was absolutely the counterpart to what I am today.

A switch went on. Probably, I don't know, 14 or 15? A switch went for me that just changed. I don't remember an event. I don't remember a purpose. But a switch went on. That, if there was a group that was together and we were trying to plan something, I would just absolutely get so frustrated and I would take charge, ‘Alright! Okay. This is what we're gonna do!’ I just became that type of person. I became a person who could help others find their capabilities.

Jim developed his quiet style of helping others find their capabilities through his participation in high school sports and band, where he played the tuba. In high school he played football and ran track specializing in sprints and the discus. As of this writing, Jim still holds the record for 100 yards in 10.9 seconds. He was also involved in a variety of other sports and extracurricular activities including scuba, piloting an airplane, and politics. But, whatever activity Jim was involved in, he had to help others and whenever he saw something amiss, he “had to make it right; had to help solve the

problem.” Through this process of helping others he also developed within himself. To these points Jim states:

Oftentimes, if someone was placed into a team lead type of position and couldn't work with others, I would very quietly work with them and help them be successful. And try to do that very quietly. I became very active in sports. That, again, I think helped as well because I had to realize that playing football that if you don't hit, you're gonna get hit. So I continued to learn that I had things to offer; that I could be a leader, I enjoyed being a leader.

It was hard to watch others fail. Not necessarily in my opinion. It was hard to see failure, in my mind. So it was more about the team winning or the team failing together. So if I were ever to take the lead, I always tried to take the lead in a team sense. That, 'Okay, folks, what do you think?' And take everybody's input and take that action. I don't think I was ever a dictatorial leader. I don't think I was ever, in that sense, autocratic, I thought I was someone who would build up people and gain consensus and the quickly take all of our strengths, bring them to power and execute them.

From those formative years Jim remembers two teachers who had a profound impact on his life, Mrs. Perl, his sixth grade teacher, and Mr. Craig, his 8th grade science teacher and high school track coach. Jim's eyes grew wide remembering Mrs. Perl ushering him into a more adult frame of mind: "She was the first person that ever called me Jim. I was Jimmy before that. She was the first person that called me Jim!" Mr. Craig played a large part in Jim's teen years. Jim remarked about his track coach, "He was larger than life. I'm a huge buff for World War II history, and he was World War II aviator. So there were a lot of connections at different levels." In addition, it was Mr. Craig who taught Jim that "being 10 minutes early is on time and on time is late." Like Mrs. Perl, Jim's track coach brought him to a new level of maturity through the use of a name: "When I graduated from high school, he called a group of us boys into his

office and told us we could call Nick. That was his first name!” Jim warmly remembers Nick as a “good mentor.”

After high school, two things happened concurrently: Jim began his professional career as an Emergency Medical Technician (EMT) in EMS, and he started college. Jim had a long standing interest in medicine and, while attending college, he seriously considered going to medical school to become a physician. He said that one of the reasons he went into EMS was to get applied experience in a medical field. As it turned out, he did not attend medical school, and in the process of making that decision, Jim, again, learned a lot about himself:

I always wanted to be a physician. I had my heart set on it for years and years. As I went through school, I was in that period of time that unless I wanted to go to a foreign country and speak a different language, it was a challenge for me to get into medical school. I don't think I applied myself as much as I could. I gave up. But in that process, I just realized that I had, I thought I had a gift, particularly. And of all things I have ever done, I was as good a paramedic as I could be.

Jim had the opportunity to attend Earlham College in Indiana and play football for the school. Instead, he chose to go to the college at which his father worked. A political conservative among liberals, Jim enjoyed and thrived in the atmosphere of debate and he learned to listen to an argument. During our conversations, Jim talked about how, during his college years, he learned to hear different points of view and the value of a good debate, knowledge, and experience. Jim commented that he always felt respected at college despite the political differences. It was during this time that he developed an interest in the psychology and sociology of people in organizations, an

interest that he continues to explore today. After four years, he completed his undergraduate program and graduated with a Bachelor of Arts degree in Management.

Jim met his future wife, Sarah, when he was 17 and she was 14 years old. When they met, he “just knew she’s the one for me!” Jim and Sarah have been married 16 years and they have one child. Sarah’s current role in life is as a full-time mother, wife, and homemaker. As their son approaches middle school, she has expressed an interest in exploring work outside their home. For now, though, this couple has agreed that Sarah’s most important job is mother. At one point Jim stated with a great deal of animation, respect, and resolve that “For now, Sarah’s most important job is mother to our son!” Jim and Sarah are a devoted couple who maintain a healthy focus on the emotional, psychological, physical, and spiritual health of all three family members. In an all too hectic modern world, this couple makes sure that they have time for each other. Jim states that when he’s at work, he’s at work, but when he’s at home with his family, that his family is his primary focus. He and Sarah find time to go out for coffee, and are, for the first time, teaming up to teach a Sunday School class. Their son and his friends are excited about Jim and Sarah teaching the youth Sunday School class, and are already asking if they are going to teach his class next year. The fact that a 12 year old and his friends are looking forward to his parents teaching their Sunday School class speaks to the strength and love of this couple.

Career

Career-wise, Jim progressed up through the ranks in the fire service, starting as an EMT and retiring as a Fire Chief. He became an EMT right out of high school as he

was entering college. After a couple of years as an EMT, Jim wanted to “also try this fire thing” and he went into the fire service as a firefighter while also maintaining his activities as an EMT.

Jim’s EMS and fire career took place in his rural community. As a result, when he was called out to an incident, he often knew the victim(s). This situation had an effect on defining and strengthening him personally and professionally.

As a young paramedic, Jim responded to a call involving Mr. Craig. When Jim arrived on the scene, he quickly recognized the signs and symptoms of an abdominal aortic aneurism. This is a significant event with a less than 40 percent survival rate if the aneurism ruptures in the stomach. His former teacher was actively bleeding and experiencing periods of unconsciousness. Faced with working on a man who he admired and respected, Jim focused himself, pulled together all that he knew, and aggressively worked the situation.

We got to the hospital and ended up saving him; being a part of that. When he regained consciousness; he was a cut up comedian; and he turned to the doctor and he said, ‘See! All that I taught him in science he learned.’ And, so he took all the credit for what I had done!

And that was a very rewarding experience, that a teacher that had been larger than life, that I had some small part in keeping him around for a little longer.

Through working this incident, Jim discovered something important about himself. That is that by keeping his head, by maintaining his confidence he could make a difference, and he built on this strength.

The worse the incident, I would get calmer. And I still feel that today. That if there is a stressful time, if there are ten things happening at once, that I’ve learned to adapt and thrive and that’s when I show what I’m

capable of. And so I think I've learned by that because I had confidence, I didn't lose my head, at that time. And I was able to make a difference.

In another early incident to which Jim responded, he was challenged to trust the power of the human spirit and compassion or trust solely the technology. He chose the human spirit and compassion and in so doing learned never to assume.

I for one believed that regardless of the patient's condition, you talk to the patient. And you have that dialogue because that dialogue was critical. That everything that you were doing to the patient, whether you were giving them an injection, starting an intravenous solution, you told them what was going on. You made sure that they were part of their own care. And I would do that even if we were called to a cardiac arrest. And someone was clinically dead. I would talk to the patient. I would often get jabs from my coworkers because, you know, well my golly they're dead! I always believed that they could hear, they could understand, and that was my way of working with them.

I had a particular call that was amazing that showed that to be true. We had a call that was a doctor's mother. She was in, she had cardiac arrhythmia. So basically her heart was doing every type of rhythm that was, you know, it was a student paramedic's dream because you could read every type of cardiac arrhythmia's, ventricular tachycardia. You could read all of these things.

Well she went into cardiac arrest in route. Well it was a very blizzardy sort of night. We had a firefighter that was driving for us. We hit a patch of ice as I was giving a medication intravenously. And I had talked to this patient. And I had talked to her over and over. And as I was giving this medication we hit a patch of ice. At that time one of the medications we would use in cardiac arrest was epinephrine. And we had the epinephrine it had a very long needle that we could give intracardiac. So if you had to give an IV you had to be careful with that needle. So it's about a six inch needle. And as I was giving it went through the medport and through my left ring finger. And the whole needle went through, went completely through. I have no idea how it didn't hit the bone but it went completely through. So I have blood all over the place; I'm holding my hand up; it looks like a horror movie. A Halloween horror movie. And my partner says, 'Jim, I'm sorry you're hurt. Pull the damn syringe out, I need your help!' I pull it out; I throw it down; I wrap a towel, we continue to work, I continued to work with the patient.

Well, we brought the patient back! And my partner and I went to see her, I think two days later, we were making a run to the hospital. And we went upstairs, to see Mrs. Smith and how's she doing.

We both walked into the room and we said, 'We're not sure that you remember us, ma'am. We're the paramedics that helped you.'

And she reached out and I went over and grabbed her hand and she said, 'Honey, how's your finger?'

But at that time she was clinically dead! But she described in detail what happened. And I thought 'I have to apologize for my language. I have to apologize.' But she could describe entirely to the detail of that particular event. And she was clinically, on the monitor, she was clinically dead. So, that reassured for me that I always talk with the patients. And that's a story that I like to share that I tell the new people. Don't ever assume.

This story about Mrs. Smith also speaks to Jim's spiritual nature; the quiet, gentle grounding in compassion and faith, respect and human dignity that clearly draws the line between the human experience and technology. Jim trusted his human knowing or intuition rather than the technology and showed the power of the human spirit.

Jim's career progression in the fire services included "everything from fires, to hazardous materials, to rescues." He was involved in "a number of very small incidents all the way through military plane crashes that were very large scale national events."

Jim found all these experiences rewarding but felt the need for more challenge beyond the automated way in which many incidents are handled. He noted:

It was again a rewarding time, but I felt like that it was somewhat automated in how we dealt with those things. We had protocol, we had procedures. And I felt like that was an easy time, I guess, dealing with fires. Because you pull the hose, you hook it to a hydrant; you put wet stuff on the red stuff.

At one point in his career, Jim worked in fire investigations. This was an interesting challenge for him "because [he] had to really think and recreate the fire; [he]

had to deal with evidence.” In addition to the fire investigations, Jim headed the fire prevention and fire safety bureau. In this capacity he “worked with other fire inspectors inspecting current facilities. We would be involved in the planning of new facilities; how to protect them better; how to know to respond.” But what Jim enjoyed most was working with the children:

Probably the best part was working with kids; fire safety education opportunities. We would do National Fire Prevention Week each year. We would go to schools. We would put on programs. We would teach the young kids how to stop, drop, and roll. How to acknowledge how fires start; how fires go out. We would always correlate that with our arson piece that you don’t start fires and if you do that there are consequences. So don’t experiment.

I think the most rewarding times in the fire services were those time I got to work with kids. The community, if you will. And teaching them more about what their fire department was all about; what they should be proud of within their community; the things that were available to them.

At the age of 25, Jim became the youngest Fire Chief in the nation. Jim was taken aback when he was approached and offered the position. He was young, yet those in authority of hiring for this important position felt great confidence in Jim and convinced him to accept the job. He tells the story about how he made it work:

As I continued in the fire service, I just continued to have opportunity posed to me to promote. And we had a lot of growth within my department. We were a volunteer department that then became part paid; that became paid. We had a lot of growth and evolution. We had some challenges with leadership. And one day, I was asked at a very young age, was I willing to take it on. And I said ‘Sure.’ And I did it.

I look back into how I did it. And I took the, in most cases, the senior people that were in the department, that had anywhere from 20, and in one case 40 years of experience! And I made them a steering team, if you will. Together we ran the department. I may have won the rank, but I worked with each one of those individuals to make the department as strong as it was based on all our experiences. That I may have a gift, they

may have another gift, and together all together those gifts were stronger than they were separate.

It was at this point in his career that Jim's experiences in building strong teams and his interest in people and organizations paid off as he deftly handled the complexities of incorporating senior members into the process of developing the department.

Even though Jim had become a Fire Chief, his first passion was with EMS, and whenever possible he tried to maintain his EMS activities:

I still tried to run on the ambulance as much as I could, to keep my skills, because I did, in fact, love it so much! But, obviously, with the administrative burden it was still a challenge. Again, even though I come from a small department, a Fire Chief is a Fire Chief! In some cases, a small town is more politically laden than big cities. So I had battles and issues to deal with constantly but I always enjoyed my time with treating patients.

Jim's desire to maintain his skills as a paramedic comes from his passion for helping people where it matters most and despite his rank, his inner drive and values led him to participate as much as he possibly could with patient care. Throughout our conversations, he consistently referred back to EMS:

I think probably why I reference my paramedic experiences is because that's my foundation. I think that's where the patient always mattered first and foremost; whether it was a fire, whether it was vehicular crash. That always mattered. And even though I might have been the incident commander of an automobile accident, I was always first and foremost and last most a paramedic because the patient care was the most important thing.

Jim started his career by saving Mr. Craig, and near the end of his career with fire services, Jim responded to an incident involving Mrs. Perl.

I had an incident, it was actually one of my very last calls as Fire Chief, within the last several months on the job, we were called either just before or just after Christmas.

There was a fire at [Mrs. Perl's] house. A Christmas tree had caught fire, because the string, the tree had dried out. And she was home during the daytime, an early morning, 9, 9:30 in the morning, with her two grandkids. And the fire took off. She went after the two kids. We were called very quickly. Engine crews. I responded as the Chief. Got down. She was able to actually get back to the bedrooms where the kids were, handed them out through the window, then collapsed. We went in, brought her out, but she had died. Smoke inhalation and so, that was a challenge because she had meant a lot to me.

Jim's career involved people who impacted and influenced his life from childhood, and like bookends, he started and ended his career in fire services with people to whom he felt close. Not all incidents have a happy ending, even when the responder knows the person they are assisting. This situation, when one has done all one can do, has done all that training has prepared a responder to do and still the situation ends up sadly, is an emotionally difficult part of being an emergency responder.

Near the end of his career in fire services Jim just started getting weary. He mentioned that he felt like he had seen "one too many incidents" and it was "getting to" him. After 17 years of service in EMS and the fire services in Ohio, Jim retired at the age of 37.

It is unusual for a man of 37 years of age to have already experienced a full and successful career. For Jim, there was still a lot to do, but the question was what and where? Jim asked himself, "What is the next thing I want to do?" The answer was found in the very activities in which he had been involved all these years, search and rescue.

Jim has been in the forefront of the development of US&R teams. As noted earlier in the description of responder disciplines, US&R teams are elite search and rescue teams trained specifically for rescue operations in collapsed buildings. Early on in

the development of the US&R concept, some of the fire services in Ohio began building a team. The first attempts at getting a US&R team launched in Ohio ultimately failed, however shortly after another attempt was made and this time it worked out. When the first effort failed a group of fire chiefs saw an opportunity to get together and pooled their strengths in different areas including water rescue and technical rescue disciplines. Jim was involved in this second attempt at developing a State US&R team.

I was asked to not only bring my department's skill sets in, but to be part of that development opportunity. I worked the politicians. I worked with state government, to leverage all of those skill sets together. And Ohio was selected as a national team. So I got involved, just from essentially doing it on a day to day basis. But then bringing skills into the mix and being part of that.

In 1989, Ohio Task Force 1 was established as a State US&R team and in 1997 it became one of the 28 FEMA national certified teams.

As Jim was moving toward retirement, he turned his sights toward urban search and rescue. An opportunity presented itself in Texas where he became the Associate Director of an urban search and rescue unit and training facility. About a year after his arrival in Texas, the organization's Director retired and Jim was hired as his replacement, a position he currently holds.

Jim has been involved at all levels of US&R including training, going out on deployments, and leadership. With the exception of the Oklahoma City bombing in 1995, Jim has served on most of the major federal US&R deployments including 9/11 and Hurricane Katrina. Since his retirement from the fire service, he has devoted himself to furthering the US&R concept and serves in a variety of leadership roles within the discipline.

As of this writing, Jim is only 41 years old and well into his second career. Given his drive, focus, and interests, it is quite conceivable that he will enter into a third and very possibly a fourth career in the years ahead.

A Life's Canvass

Emergency response is not just a career. It is something that responders live, the experiences are intense and mold who the responder becomes as a person. When asked what it is like to be an emergency responder, Jim paused and then stated:

Very challenging. Very rewarding. Ah-h-h, very emotionally . . . rollercoaster. Um-m-m, and I think probably most of all, um, um, it leaves one with a sense of completion or a sense of self service. So again, emotionally charged, but I would say along a wide scale of emotions, day to day, week to week, month to month.

Jim makes the point that rewards can be immediate:

Essentially if you arrive at a fire, the fire will go out. If you arrive at a medical emergency you can see either the patient come back to life or the patient improve. So you are immediately rewarded for your efforts.

He adds that

most people who start out to be emergency responders have a drive to be . . . to make a difference, make a difference in lives—individually or collectively. They also yearn to be part of a group or a society. They want to belong to something, if you will, to a higher good.

Community is an important part of being an emergency responder. These people depend upon each other for their personal safety and lives, so building a strong social network and community interactions play heavily during both their on- and off-duty hours. Jim's career growth, from paramedic to fire fighter to fire chief to his current position as division director for an urban search and rescue unit and training facility, has

provided him the experiences to see and participate in the international community of emergency responders.

We are a very tight community because we live and work together. We share the same experiences. And certainly one of the things I've learned, as time has gone on, is it's the same world over. That the fire fighters in my small town are the same firefighters that are in Los Angeles, New York, Miami; that are the same firefighters that are in London, that are in Scotland, that the community is so similar that our fire trucks may be different colors; our signals or our codes on the radios may be a little bit different; but it's amazing how much similar our lives are.

In addition, he comments on the importance of station house humor as a means of relieving stress and building community:

One has to have broad shoulders! And part of that is there has to be an opportunity to relieve tension, there has to be an opportunity to relieve stress. So it's very much about comedy. It's very much about no joke is at any one person's particular expense. It's at everybody's expense. It's just your turn today.

Emotions are an inherent part of the experience of being an emergency responder. Every time an emergency responder goes to an incident, they are likely facing a situation in which emotions are running high on the part of victims and by-standers. In addition, the responders are dealing directly with the injuries, loss, and pain experienced by the victims and the horror experienced by the by-standers. Jim talks about tragedies defining a responder's career and the emotional "cement" responders use to keep going:

. . .the emotions tend to relate back to, or correlate back to, specific incidents. And whether they're of individual tragedy or mass tragedy, typically one will go back and define their career by incidents. That, I can remember the first fire I was in command of to incredible detail. I can remember probably most fatalities I came into contact with. I remember hearing people's last words. I remember rescuing animals. I remember rescuing children. I remember finding drowning victims. Again, even the details all these years after, is amazing.

Within our community we've been forced to push it deep down into our bellies. We've been forced to push it down, put a layer of cement; push it down, put a layer of cement. I had some particular difficulties in the later years of my career that was, it was kinda like I felt one too many incidents.

As seen in Jim's comments, an important aspect of being an emergency responder is maintaining command and control of oneself and the situation in order to "[get] through it" successfully for oneself and the victims. But once the incident is over, once the "getting through it" is behind the emergency responder, how is the responder, as a human being, affected? How does the responder process and handle the trauma they have witnessed and experienced? As a fire chief, Jim dealt with these issues not only for himself but for his entire department.

And I began to really recognize [the emotional stress]. What I found at the point in time, at least in my department at the time, a greater need for Critical Incident Stress Management. That was something that hasn't really been around that long, in mainstream, probably 15 years or so. And I see a lot more emergency responders use it to their success and benefit that it's okay to come back from a challenging incident to defuse it, is a term that they use, where immediately after that incident there are people to talk to both been at the incident and professional counselors. Then some days later, two to three days later, those people who were involved in the incident come together with professionals, discuss it in detail and encourage an emotional discussion. Sometimes that occurs, sometimes that doesn't because of the bravado, particularly in my experience with the fire service, the bravado of that. And then, if in fact that is the case and one knows it really does bother them, you can seek individual, one on one counseling.

I've seen all phases of those, and they've worked very differently for me. But I still think I have a lot of that that I have cemented. And that on occasion, or down the road sometime, it will continue to trouble me. You don't just do away with [the emotional impact].

Jim's ability for emotional control emerged early in his career:

Early in my career I had a number of incidents that I would actually have dispatchers yell at me because the incident, the gravity of the incident, would never be shown through my voice on the radio. The worse the incident, I would get calmer. And I still feel that today.

The daily stresses of a responder's life of training, waiting, and responding are the more easily observed and understood stresses, however Jim also speaks to another, deeper reality among emergency responders, that of emergency responders losing their lives. Emergency responders train and act in the safest possible manner in any given incident, however the truth is not all responders will survive.

Within the fire community, if 9/11 would have happened in Los Angeles, in Miami, in Chicago, firefighters would still be lost because if the building is on fire, firefighters are going to go in that building. And that's still something a lot of people need to understand, that we're going to lose emergency responders because that's the job that they do. You're not going to be able to prevent all of that; that's going to happen.

Emergency responders prepare through training and cross-training to create the safest possible environment within extremely risky environments, but in order to do so the responders themselves must be risk takers. Emergency responders know that they are risk-takers and train daily in order to reduce the risks to themselves and the victims during search and rescue operations. Jim states "that training is the foundation for all of us. Sometimes we see training as a routine or a must have compliance kind of a thing. But training is so critical that it just sets that foundation." He emphasized the importance of training in creating personal and team safety:

When you're in trouble either individually or with your crew, you always revert to what you learned in training. And the best training, the most appropriate training for the world sense, if you will, is what will carry

someone to safety. Or is going to make the difference in a particular incident for which they respond.

The fire service requires a vast amount of training in many different areas. Some basic skills in which all fire fighters receive training are driving and handling fire department pumping apparatus, tying knots, handling ladders, rope rescue, and emergency medical skills, to name a few. There are also numerous courses available in specialized areas such as hazmat, water rescue, technical rescue, and trench rescue. All these skills are trained through formal training experiences that are designed to meet National Fire Protection Association (NFPA) standards, thus ensuring continuity among fire departments throughout the nation. In regards to training, Jim would like a greater

focus on the real world opportunities and not talk theory as an end result but talk theory from the standpoint of opportunities, theory for foundation, but understand that there is a focus on practical application, and to try to replicate the real world as much as possible in a safe environment.

Due to the nature of emergency response, formal training experiences are not sanitized experiences. As Jim points out the fire training environment is “not a classroom and a paper cut’s the worst hazard one can receive. We’re in a fire training environment and a flash over can occur and I get burned. My air could run out.” He continues that the training environment needs to provide emergency responders with “real situations that face us each day.” The training facilities are made as safe as possible and the trainers train to safety, however the bottom line is formal training experiences are not without risk as the unexpected can happen at any moment.

Part of the training experience is to help responders understand the importance of being constantly aware of themselves, each other, and the environment. Training

experiences also provide opportunities to demonstrate and build the friendships and trust that develop among emergency responders, though these opportunities are generally unplanned. This situation is demonstrated in a story Jim tells about himself and Charles Case, another participant in this study.

Throughout their careers, Jim and Charles have partnered on many occasions as trainers. Jim talks about the trust and dependence upon each other in two training incidents in which they were involved.

There are things that take you by surprise. Personally, I was actually teaching a rope rescue course at one of our universities [in the basketball arena]. I was teaching with Charles and I had a device failure. I was absolutely within an inch of falling from the top of this facility to the floor. I had a carabineer that popped open and my rope came outside of it. And Charles came over and performed what we call a pick-off. He basically picked me off and brought me down to safety.

The students wanted us to recreate that. And we looked at them like they were nuts. They thought we were doing that do show them this is how you do a pick off. And we were like, no that was real.

[In another training incident] we were teaching a water rescue course one day, and again my training partner, Charles, positioned himself in a strainer at a dam and the dam had undershoots that were opened. So he got up on the strainer and fell off and actually got pulled into the dam. And I had to go rescue him, pull him out. And meanwhile the students are thinking we're doing a demonstration!

These situations have always taught me we have to be ready for the unexpected, but in most cases the students just didn't understand that things could happen really quickly even in training. If you're training in a swift water rescue environment; you're training on ropes 100 ft above the surface of the basketball court; or whatever. Things can go wrong.

In addition to the required formal courses, Jim talks about how informal, station house training helps solidifies skills to the point that even after years of non-use, these skills will be quickly accessed.

It's called recurrency training. We call it in-service training. When you're sitting around the fire station, you pass out a few sections of rope and you tie knots at the dinner table. You do that so it becomes automatic. And even though you lay those skills down, that at any given moment it's amazing how quickly they come back. I can go out and pick up a piece a rope and probably, without even thinking, tie knots. Or go out and fire up a heart monitor and push buttons and make it work even though it's been four years since I've been in an ambulance or a fire truck.

In the end, however, Jim reminds us that experience is the best teacher:

You have to balance experience with the training. My first Captain gathered all us new rookies up and took our books, at that time there were three books an inch thick each, and took them over and pitched them in the trash can, and said, 'Okay. You've learned the skill through the book. If you want to learn the skill, you listen to me and you watch those other people.'

And that was very poetic for me, because I felt that the on the job training was, in most cases, more valuable than the training I had learned in the classroom.

Jim adds to the importance of preparation and cross-training when he points out that it is critical for emergency responders to learn "that there are so many different ways to accomplish, in most cases, the same outcome; to think more three-dimensionally, to think more globally." As he states, one cannot always "put [situations] into a box and predict an outcome." Sadly, the events of 9/11 brought the demand for rethinking the underlying philosophies of emergency response. This soul-searching within the disciplines resulted in a paradigm shift throughout emergency services and brought the need for more global thinking to the forefront. Jim speaks eloquently to what he perceived that day and how radically and shockingly his perceptions changed.

One of the things that really ranked me with the World Trade Center was that certainly planes flew into that tower, and we knew that was a terrorist event, but I remember watching that incident and saying 'That's a high

rise fire. That's a high rise fire in the way that the New York Fire Department will deal with it.'

I never, ever would have dreamt those buildings would have collapsed, particularly as quickly as they did!

Obviously, the investigation after has shown how that happened. But at the time, I thought, 'Yes. That's a tragic event, but it's a local event.'

A number of the calls I received that morning asked, 'Well, are we going to deploy urban search and rescue task forces?'

No! Why would we?!?! I just absolutely did not see it! And I certainly share that opinion with several others. That, until we understood that the fire proofing was blown off when the planes came in, and we understood how the collapses in fact occurred, no one thought those towers were coming down! No one! We saw those as a high rise fire.

It is important to note that people from throughout the responder community did not even consider the possibility that the towers would collapse. An important element of being an emergency responder is openness and receptivity to the unexpected: looking for and not being astonished by the unexpected. Emergency responders are accustomed to the evolving nature of incidents and draw upon their vast array of domain knowledge to solve the problem as it emerges. Yet, 9/11 was so far out of the normal range of understanding that the incident caused radical shifts in thinking throughout the emergency response community and impacted the way problems are approached and solved. Jim states that the "approach to problem solving is more suspicious. We ask more questions." This suspicious approach to problem solving demands curiosity and communication among responder community disciplines, including communication across agencies and government levels. Jim describes how some things are done differently since 9/11.

Definitely intelligence. There's a lot more sharing of information between the Department of Defense, police officers, firefighters, and local terrorism task forces. There's much more pre-incident information.

There's much more preplanning being done. So that if you have a large event with a lot of people, there are preplans that if something goes bad this is the plan. Don't wait for something to go bad then make a plan.

We use sensors. We use technology that in most cases is invisible to the general public. We continually check the environment for chemical, biological types of things; radiological. There are a lot of invisible measures that are present in today's world that protect us all. So all those things with the training of emergency responders together, one can realize what to do in the safest and most effective way.

Preplanning allows emergency responders to think through potential issues, strategize, and decide upon various appropriate courses of action. This saves time and effort during an actual incident. The fact that emergency responders do more preplanning makes them more prepared and provides a framework within which the responder community can quickly access creative solutions during an incident. Again, Jim explains what this paradigm shift means:

I think, particularly now days, emergency environments used to be, if you will, canned responses. Now we have to think about secondary devices, we have to think about people who are creating incidents not only to hurt people or make a statement, but also to hurt the people who are responding.

A fire is not just a fire. An automobile accident is not just an automobile accident. An explosion is not just an explosion. And that's what we all have to realize within our community, we, emergency responses, although somewhat similar in basic nature, is very different than what they used to be. And that an incident that starts at a local level can very quickly become a state or national type of an incident.

Jim poignantly states: "I think that's where the routine is not the routine these days." If something is not routine, then you have to be ready to "think outside the box" and come up with creative solutions.

Summary

Jim is a man born to leadership. Outside of his wife and son, some of Jim's greatest rewards come from nurturing the untapped potential in other people. This speaks directly to his spiritual grounding. When asked what things about him as a person serves him well in the emergency response environment, Jim reflected:

I would hope that people define me as compassionate. I have a very big fire in my belly. I think I have a very overdriven, overdrive mechanism that I've learned over the years how to control that turbo. And when it fires and when it doesn't. But I have a hard drive. But I think I know how to control that. And show compassion. And show caring. And again I think I bring all those things together that at the right time make a difference.

The experience of being an emergency responder. For Jim, being an emergency responder is about compassion, service to others, community, teamwork, and trusting one's instincts. As he points out, "emergency responders have a drive to make a difference in lives; individually or collectively." He adds that "when people are in peril, emergency responders are going to attempt to make that difference." Responders "also yearn to be part of a group or a society." This society is seen in the relationships developed through close contact in the station house and shared experiences and training. As head of a FEMA level US&R team, Jim demonstrates the importance of this bonding as a community in his daily interactions with the staff. The ease with which he and the staff reflect upon past deployment experiences and the implementation of lessons learned along with the relaxed humor and good natured kidding about individual staff member's foibles creates an atmosphere of camaraderie that reflects a community and familial atmosphere. Most of all, though, Jim emphasized the pressure, strain, and

stress of being an emergency responder, the cementing of emotions from seeing the worst life has to offer, and the importance of the community of responders, their families, and Critical Incident Stress Management to maintaining the health of emergency responders.

Creativity. Jim's creativity is demonstrated in his management style and leadership. He continually meets and seeks out new challenges that will result in opportunities for collaboration with partners from diverse fields of endeavor. This has been demonstrated repeatedly. One project of note in which Jim is a key player is the Product Development Center (PDC), a Center of Excellence. The PDC brings together the expertise of engineers from various fields, experts in economic development, and emergency responders to help entrepreneurs, new and seasoned, navigate the maze of product development.

Another project that Jim collaborated with seemingly dissimilar groups resulted in the development and implementation of a hands-on experiential exercise for graduate students in the Masters of Business Administration (MBA) program at Mays Business School. During this day-long exercise, the MBA students are put through the paces of quick-decision making through an emergency response disaster scenario. Generally, few of the MBA students have military or emergency response experience, so the scenario and its associated taskings are unfamiliar and challenging. After being broken into teams, the students approach this day-long exercise, during which they rotate among several stations that address problem-solving and communication from various aspects. For example, at one station, the students divide into two groups—Alpha and Bravo—

with one group going behind a set of buildings so there is no visual contact between them, only radio contact is maintained. Alpha group has a map and, using the radios, gives search data to Bravo, who must create their own map from the instructions they receive. When the tasking is completed, Alpha and Bravo come back together and compare maps. The most important part of the discussion is how to improve communication and teamwork.

Another station involves rescuing a victim from a train wreck. In this scenario a live victim is waiting inside an up-turned train with only one egress. This egress is narrow and difficult to navigate, especially with a victim in a rigid, basket-like rescue stretcher. Working as a team, the MBA students are timed on how long it takes them to solve the problem of getting the victim out of the train wreck without harming the victim. Again, after the tasking is complete, the team discusses their performance, recommendations for improvement, and an assessment of how they communicated. At first blush, one might wonder about the connection between emergency response and the future “captains of industry.” The connection is simple: emergency responders make quick, life and death decisions based on the best information at hand. Though MBAs are unlikely to be making literal life and death decisions, still they must learn how to gather information, sort through it rapidly, act, and deal with the consequences, good, bad, or indifferent. This day-long experiential, scenario-based exercise gives the MBA students a different twist into how they can approach a problem; in addition, it well as provides them with a deeper appreciation for the development of efficient, effective communication skills.

Training. Jim believes that his training has provided him with the tools to keep himself and his team members safe during the most extreme or unexpected circumstances. This personal safety allows him to act efficiently and effectively to save lives as well as minimize damage to life and property. As Jim points out he has had “just about every piece of training” there is available to EMS and firefighting personnel. The level, depth, and breadth of his training is seen not only in his practitioner certifications which include rescue in a confined space, trench rescue, swiftwater rescue, high angle rescue, structural collapse specialist, paramedic, incident command system series 100 through 800, and packaging and shipping of hazardous materials, but also through the courses in which he is certified to teach. Among his instructor certifications are Logistics Specialist, a variety of technical rescue disciplines, and rope rescue, to name a few. What stands out however, about Jim’s training is a comment he often makes about his father: “My father taught me how to listen to people; he taught me how to manage myself and others. I think that’s the greatest training I every received. He’s why I can help people today.”

Participant #2: Charles Casey

Background

Charles Casey is a 57 year old Caucasian male who has lived his entire life in a small Midwestern town in Ohio. Charles stands about 6’1”, is of medium build with thick, grey hair and he wears glasses that come with middle age. When you first meet Charles, you’ll probably be struck by his quiet intensity. It is apparent that he is intelligent and observant. Charles is soft spoken, articulate, and carries himself with an

ease born of self-understanding. Charles is easy to listen to as his thoughts are well ordered and expressed with quiet, confident emotion.

After 34 years in the fire services, Charles recently retired and is currently enjoying his family, working on his house, and continuing his activities in urban search and rescue. During his career, Charles was known for being a straight shooter, supportive of his colleagues and trainees, and someone who could be trusted to get the job done. As seen in his statement about the fire services as a career versus a job, Charles does not hold back when he speaks to an issue:

In many cases, in the fire service, people are driven to do the job because they have that desire to help. There are other people who take the job because it's exciting and I can make some money and I don't have to do that much work. I can sit around the station all day. If we get an alarm, I have to go, but it's not that often. I like to run into the fire and put the wet stuff on the red stuff.

That's when you find people that get into the career and make a career of it. Not just take it as a job. You find those people that throughout their career, throughout that span of years, it's a career because they have the same desires, and the same willingness to perform the job and the task at the end that they did in the beginning. Where those that take it as a job, will quite frequently, just pass through their years.

His primary expertise is in the field of electronics and communications equipment including listening devices used to locate victims during search operations. Charles is detailed oriented and is neat and orderly in his work habits, especially when working with the listening devices which demand focus and concentration.

Charles grew up in a moderately small Midwestern town approximately 40 miles from Dayton, Ohio. His hometown is a relatively stable area that, since the 1970s, has

seen a gradual decline in population to its current 55,000 people. The surrounding area is mostly croplands and pasture.

Charles' family consisted of his parents and two older siblings, a brother and a sister. The family's social life centered around regular church attendance and activities. Charles was in the church choir and participated in youth group activities. His father was a mechanical engineer and worked as a draftsman. His mother was the church secretary. Charles speaks of her fondly stating she knew everyone. He proudly described his mother as "the CEO of the church. If something needed to get done, she saw that it got done!" His mother passed in 2002 at the age of 86 and his father recently died at the age of 92. The community and neighborhoods were close knit. Charles described the neighborhood as typical of the post-World War II generation:

The generations of mine and yours and many others are such that I would disappear from the house at 8:00 o'clock in the morning on a summer morning and my parents knew that I was somewhere in the neighborhood but they knew I would be either home at noon for lunch or I would be at someone else's house or I would be home for dinner and in between they didn't need to worry about me because they knew the other kids in the neighborhood, the parents knew the other parents and all the other parents had full rights and authority to discipline me if something was wrong. And if I was disciplined by someone else's parents, you better believe I was going to be disciplined twice as bad by my own.

When talking with Charles it becomes quickly apparent that he has spent time thinking about his personal philosophies and has strong personal, professional, and social values. Charles credits his family and community with providing him with solid values and a strong work ethic. An incident that occurred when he was 11 years old exemplifies the importance of family and community in instilling values.

A friend and I, we'd been playing ball and we were in the woods. It was right next the high school where all the high school kids were playing. They had a little clearing they had made; they had some logs in a circle and a little fire pit. Well, we managed to find some matches there, light a little fire. We assumed that the fire would start to grow a little bit, but, ya' know, my buddy took his ball glove and threw it at it and put it out. The next thing I know, I took another match and threw it down. It starts to burn a bit; he takes and throws it and puts it out. This, kind of, was a game to us then. I lit it again, and as he's getting ready to throw it and put it out, I lit another one and threw it over behind him. Well, he puts the one out and by the time he turns around to the other, the other one had gotten into some light brush and started to spread and we couldn't get it out. So we took off running and I went over to his house and told his parents because they were closest.

They called the fire department because there was a fire down there. They said, "You need to go on home." So I went home and my parents asked me why I was home so early. Well, we were over there, the fire, what happened. I explained to them what happened.

My parents made sure that they explained to me that I was going to have to go over to the fire department and explain what happened. [light laughter] So I proceeded to walk with them, gradually nudging me and the fire was being put out; it was already extinguished by then.

There was a fire engine but there was also a car with a red light on it and everything; it was a real old type of station wagon. And they said, "We think you need to go over and tell him right there."

I didn't know who he was or anything. The front seat of this car is filled with this very massive man with a bald head. And I walked up to the side of the car and simply explained to him what happened. Then he explained to me why it shouldn't have happened and why I should never let it happen again.

Again, Charles credits his parents for his work ethic and drive to learn as well as his desire to help others while seeking nothing in return for himself.

Probably a couple of things that were, I guess I would have to say came from my parents. The willingness to help others with a lack of selflessness and willingness to dedicate time to a worthwhile cause without feeling like I had to get something back for that dedication.

And, likewise, an ability to understand and learn different techniques, different technologies, anything as simple as knowing how to change a tire, but also knowing how to repair a light switch, or repair a pipe on an engine. Knowing how to repair a valve assembly. It could be as simple as a bathroom faucet or the valve that controls a hose line that's an inch and a half in diameter. And understanding just the general mechanical aptitude.

Charles learned well the lessons about willingness to help others:

And so I've always, I guess I've always felt that, and I'll hear it from my wife, I used to hear it from my parents, 'You're just always helping everybody.' Somebody says well I need some help doing such-and-such, or I'm trying to figure out how to do this, my wife will say, 'You could be home painting a room. You could be cuttin' the grass. You could be doing whatever. But somebody calls and says, 'I'm trying to figure out how to do it.' And you're gone.'

And sure you may be back in a half an hour; you may be back in a couple of hours, but you have to stop what you're doing and help somebody. But that's just me. That's how I've always been.

A hallmark of Charles' character is his enjoyment of solving a problem, creating products, and effecting a change. Early in his training and career, Charles "took classes in breathing air certification to learn about the compression air process; putting the air into the air cylinders; the filtration process." As he learned about these issues he noticed that his department was paying an outside vendor "\$7.00 a piece to refill our oxygen bottles when they're a little over half empty. We have 30 to 40 percent of the oxygen left, but we pay somebody \$7.00 regardless of whether it is empty or partial!" He states, "I sort of scratched my head and wondered why we were paying someone. What if we turned the situation around and started filling them ourselves." Department administration informed him, "We can't do that." To which he replied, "Why not?" As is typical of a driven individual, Charles responded to the challenge.

So I turned around and designed a system and [told the company], ‘Build it.’ And the company built it, and here we are . . . let’s see that was probably in ’83, so 23 years later they’re still using the same system.

Charles’ personal drive and values have caused him frustration with what he terms the “Me Generation”. He observes that “There are so many people who come into the job now days . . . that do not have the willingness to dedicate the time without expecting something in return.” He adds, “It’s like everything is ‘I need the satisfaction now.’” Charles points to the fast pace of movie theaters, video games, and unrealistic demands on people, as fostering the shift from a strong work ethic to a “what’s in it for me” attitude. As he spoke, though, he brightened and commented:

Yet, there are places across America where people are not absorbed like that; people who are very focused on family life. M-m-m-m, even down around here! Some kids of people I know, when I met them, ya’ know, 10, 12 year old children, that have more manners than I can ever dream of kids back home! It’s a lifestyle. They’ve learned to live with and respect each other.

In addition to his strong work ethic, Charles has tremendous focus. His ability to identify and understand the details of a situation or system serves him well as an instructor, curriculum developer, and team member at an incident.

I just focus on what needs to be done . . . I’m focusing on all the details. So I miss out on a lot of what goes on, because I’m focusing on what needs to be taken care of this, well this does, and this does, and this does. So that’s just the way I work any type of event.

Charles was 25 years old when he married. His first marriage was short-lived, mostly due to youthful misunderstandings and the strain of the job and getting life going.

I had just gotten on the department shortly after we got married; and it was to a point that she didn’t know when to expect me home because I would get off duty at four o’clock but even when I got off duty there were

still other things that I was still doing to try and get as much out of a day as I could and then I would go home, and now I'm home.

Charles' second marriage created a blended family as his wife has a son and a daughter from a previous marriage. His wife works as a clerk/secretary for the local fire department. This marriage has lasted over 20 years and the children are now grown with families of their own. He has four grandchildren. The family is still close with his siblings living within eight miles of each other and his children and their families living about four miles from the family home.

Career

Through a class in high school Charles became involved in electronics and found that he enjoyed the field. After he graduated, he completed a two-year program in electronics at a technical school. He went to work for IBM and eventually wound up working for a communications company. His entry into the fire service was a fluke. His supervisor at the communications company was a volunteer firefighter who invited Charles to visit the fire station. He tells the story as follows:

While I was working for [the communications company], one of the guys, who was my supervisor, lived only about three blocks from me, and we worked 12 miles away. So we started catching rides with each other. Well, as we were coming home one day in his car, his little monitor radio goes off and he's telling me what it is, they've got a fire someplace, explaining what it's all about, and he said, 'Yeah! You oughta get on because you're real close to this one station right here. In fact, my neighbor, two doors down, is the captain at that station. I'll introduce you.'

So I'm getting out his car to get into my car ... and the guy's walkin' down the street, and he introduces me. And like okay. The guy says, 'You ought to come visit the station sometime. Just come down to the station.' So I went down, took a look around and said, 'Okay, I'll volunteer.'

Charles' entry into the fire service, though, turned out to be kismet.

So I went ahead and filled out all the paper work and the first day I show up, the first night was the night for their business meeting for that company. So as I enter the door, I walked up the stairs to the room upstairs, I step in and I'm looking around at people and the captain is introducing me to people and all of sudden I notice at the end of this table there's a very large man with a bald head!

The same man! So literally 14 years later, here's the same man [from his childhood fire experience]. Yeah, I got overcome by the moment and everybody asking me questions and everything, but I wasn't really looking at going into fire fighting as a career.

Getting into the fire services took determination and persistence. The first time Charles took the Civil Service Exam, he did so just to find out if he could pass the test. He did well, placing 82 out of approximately 500 people. The city was looking to fill about 20 spots, so his ranking did not place him high enough on the list to receive an interview. About a year and a half later, Charles took the exam again and placed 17th. However the city was looking to fill only 15 spots! Charles was disappointed but went on as his life "had always been communications." At this point Kismet again set in.

One guy who took the job had been laid off from another department, about three months later they took him back. So they brought me and the guy ahead of me in and talked with us; they took him. Another firefighter, his brother and his father and his grandfather, had all been police officers someplace else. At a Thanksgiving dinner they just razed him so much about 'You made it as a firefighter, but you weren't able to make it as a cop!' So he took the test as at the police department and passed number one! He left the fire department and went to the police department which left an opening but the list had already expired. So the chief went to the civil service department and went, 'Look. I know the next guy on the list and I don't need to test another 500 people. The next guy on the list, I know is the one that I want.' Because the list had only expired by about a month, six weeks, whatever it was, they allowed him to go ahead and take me.

Prior to entering the fire services as a career, Charles had served as a volunteer fire fighter. This experience gave him training that many rookies might not have had upon entering the paid career path.

My first experiences at it were as a volunteer recruit . . . and when I got hired on as career I actually wasn't put into a recruit class right away because they knew I had a level of skill. It was in the same department so they knew everything about me. The focus was more on medical training. EMS [training] was probably the most difficult for me because I'd never been exposed to that. So they proceeded to put me through that. And once I had accomplished that, they went ahead and put me through another recruit school.

Charles' hobbies also came into play during his training and laid the groundwork for him becoming an instructor. As an experienced rock climber, Charles knows the full array of knots necessary to secure an individual during climbing and rappelling activities. During knot training in recruit school Charles "tried to play it low profile . . . [the instructor] would name a knot and I'd have it done and he'd be waiting for other people to start. And he'd call another knot out and I'd kind of fiddle around and wait." It quickly became apparent that Charles had skill with tying knots and the instructor took the opportunity to start developing the camaraderie and joking around essential to good teamwork.

After a while [the instructor] looked at me and said, 'Do you have it done yet?' Well, I'd hold it up. It was already done before he was finished saying it. And, so, it got to be a thing with him of 'Well, you think you're so smart! I betcha can't tie that behind your back.' So, I'd tie it behind my back. Well, then he'd say, 'I betcha can't tie it with your eyes closed. Or maybe you're peeking.' So he'd put a pillow case over my head. And I'd tie it. And then we had these gloves . . . we always called them 'clown gloves', but they were a heavy rubber glove with a wristlet . . . and he'd say, 'I betcha can't tie it with a pillow case over your head with those clown gloves on and behind your back.' And so I'd tie it. So everything he put to me with ropes and knots was like, 'Come up with something I can't

do!' [laughter] So that kind of laid the foundation for my teaching the other classes.

From that point, I developed a rope rescue program. I started going to school for different rope rescue training. I, m-m-m-m, expanded that to confined space; and from there went into water rescue operations, and trench collapse and building collapse and vehicle extrication. So it was just sort of a domino effect. Once it started, the rest just followed.

Like Jim, Charles was one of the original founding members of Ohio's federal US&R team, Ohio Task Force 1; however, he traces his involvement in urban search and rescue back to 1983 when he responded to a call requiring climbing and rappelling skills. The incident involved some workers who fell into a water tower while doing refurbishing work. During this rescue operation it became apparent that the local fire department had neither the equipment nor the capability to perform a high angle rescue. Charles, an avid rock climber, went home and got the appropriate equipment for the rescue including rope. Soon after this incident, Charles received permission from his department to acquire equipment for this type of rescue and develop a High Angle Rescue Team (HART). From there the department focused on developing its technical rescue capabilities, especially confined space rescues. In 1990, a group of fire fighters decided to expand their technical rescue skills into trench, water, rope, and collapse rescue operations. The costs, however, for these capabilities were higher than small and medium sized fire departments could afford, so expenses were shared by developing a regional team. As fate would have it, around this time the initial efforts to develop a State US&R team was encountering difficulties. There were efforts between the State's US&R team and a regional technical rescue team on which Charles served to bolster the US&R team. However, this did not work out and the team folded. Working with a group

of fire chiefs, the regional technical rescue team was successful in its bid to become a federal US&R team and was awarded \$500,000 to develop its equipment cache.

Charles became the training officer for the new US&R team and for five years oversaw the team's annual agility testing. During this time, the team grew and specialized units emerged. These specialized units included search, rescue, hazmat, communications, medical, and technical teams. The technical team is a multipurpose group of advisor level specialists such as structural engineers and heavy lifting and rigging experts. In 1997, Charles headed up the development of the communications section, developing everything from scratch. As he states, "I was one of the original 20 founding members, and I've been at it ever since."

Charles sums up his personal and professional drive best when he says:

I wanted certain accomplishments and I would go to school and I would move ahead and I just grew mentally in every facet of fire service that I could. Because the more I learned, the better I could do the job.

A Life's Canvass

Values are fundamental to Charles' life. This comes across strongly when he talks about emergency response as a "higher good." For Charles an important part of his experience as an emergency responder is "selflessness and willingness to dedicate time to a worthwhile cause without feeling like I had to get something back for that dedication . . . a willingness to dedicate the time without expecting something in return." He feels that this selflessness is at the core of what makes the responder community unique and talks about where those values begin in a person:

Your interest started long before you were old enough to realize what it was, almost to the point of if people were to look back into their younger

years of life, they'd probably find that their basic background and upbringing was such that they had very good values instilled in them at some point. And that consequently gave them the simple desire to not walk away from something when somebody is hurt, you stop to help. If somebody has a flat tire, you stop to help. When somebody is standing out in the rain with their thumb out, and it's pouring down rain, and you look at 'em and say, 'Okay, is it good to pick 'em up?' Well, you look at them, you do a quick evaluation, and you say, 'Okay, they don't deserve to be out there.'

It's the nature of the beast; the individual. You just generally want to help somebody.

He points out that it is not just selflessness that makes an emergency responder, one has to also have a certain drive:

People have to have a certain initiative or drive or else they won't survive. When I say won't survive, I don't mean that they won't physically survive or get killed or injured, but that they won't last in the occupation in the position. I think that's only because of the fact that you are either doing the job because you really want to, you have an interest in it.

This selflessness and drive work to form and meld the community among emergency responders. There is a willingness to step in and help where needed during an incident regardless of one's accomplishments or position in life. Charles describes this situation.

Before we were finished that day we had over 200 responders helping to locate [the victim]. In the process we had set up our command, and at one point we had media moving in, other people, just by-standers, and I walked out of the command trailer and went out and started moving traffic, ya' know, saw horses, basically, traffic barriers, orange cones, setting them out as a boundary.

And later on, someone asked, 'Why did you do that? Why didn't you give it to someone else?'

Why? It needed to be done. Why would it be beneath me to go out and do that?

There was a man who came up to help me, that man was a doctor, he was an emergency room physician. He picked up cones, barriers, and helped move 'em. We're two of the people who hold high ranking positions within that team, but we were out moving, setting up barricades! Why? Because it needed to be done! So everything kind of comes back to that.

This idea of selflessness and "it needed to be done" is a wonderful part of what it is to be an emergency responder. It also has its downside.

An incident occurred where a little girl fell into an excavation. Where some workers had excavated a trench, there was something with utilities or whatever it was, and after they left for the day some kids were playing around the area of the excavation and she fell in.

Responders came up to that location and it turns out that someone from the media had heard the call, the 911 dispatch, and they heard it on a scanner, and they happen to be close, and they arrived before the first piece of apparatus with the rescue personnel. And they were videoing the trench excavation. You could see people around the trench area, the sirens in the background, and the videographer pans over and you see the first responder equipment and three responders come off of it. And they grab their medical bag, and head off to the excavation area. And the next thing you see, they look down in, one firefighter jumps down in, and in about 15 seconds the lifeless body of the little girl, they pass her on up to the firefighters above. And they take her over and lay her on the ground and they're working on her. The camera pans over and the medic unit rolls up. They get up, get their cot, lay her on it, and they take off with her.

All of a sudden this camera focuses back on the scene where trench excavation is. There are two firefighters. The third firefighter isn't there. The third firefighter is still down in the trench. When the little girl fell into the trench, the firefighters came up to find her unconscious. Their assumption was that the little girl was unconscious because of the fall. But as it turns out the atmosphere down at the bottom of the trench could have been the reason for her being unconscious.

The trench is considered a confined space. It meets all the criteria. But it contains a hazardous atmosphere that took the firefighter's life. He went into a location with tunnel vision. He focused on one thing. The victim. Sixty percent of would-be rescuers that go into a confined space end up becoming victims and fatalities.

In the heat of the moment the responder forgot his training and saw only one thing—get to the little girl. And he did so at the expense of his own life. Keeping one’s emotions in check is difficult, but helps the responders save themselves so they can save others.

Charles discusses the emotional aspects of being an emergency responder and his own method of handling the chaotic situations to which he responds:

In some ways I sometimes think maybe my response to certain situations may appear to be cold; cold and callous, because I look at a situation overall. As I am approaching a situation, I look at it and think of all the processes that need to occur, everything that needs to happen.

I do this in my personal life too, not just at work. My father had a stroke after his surgery. I walked in and my brother’s standing there with his wife staring at him; he can’t breathe. My sister’s standing there; my brother-in-law . . . everybody’s staring. I catch a nurse; ‘What’s going on? Why are you doing such? Why don’t you have oxygen on him? You know, when you put that oxygen on, it needs to be humidified, otherwise it will dry out.’

I just focus on what needs to be done.

So it’s not that I am cold about something. It’s that when the incidents occur, and when they’re going on, there are ways of getting through it. And those ways are for me to focus on things other than what is going on around us. I’m always looking at what else can be done as opposed to dwelling on the one thing that is a problem.

The emergency responder has to “get through” some unspeakable experiences and, while doing so, show compassion. A particularly horrifying and sad type of incident involves compression injuries, a situation in which the victim is crushed or severed and the only thing keeping them alive is the force of another object against their body.

Charles describes such an incident in which a young woman was trapped between her car and a tree. At first the responders thought the incident “was a technical rescue,” but as the rescue progressed they came to understand the severity of the incident.

There was a situation a number of years ago where a girl was driving a Corvette and she crashed the car. The Golden Hour¹ is always in everybody's mind. And as we got to the scene there were some police officers there, the girl was actually pinned between the Corvette and a tree. This was before Corvettes were all fiber glass, and there was a lot of metal. And the car was wrapped around the tree. And she was trapped between the car and the tree. Well, it basically severed the lower part of her body and the compression was maintaining the blood in the upper part of the torso.

I think it was her husband who arrived on scene and talked with her before we started to remove the car. Because that's what we had to do was remove the car from her. And it was fortunate that amount of time was there to allow him to arrive on scene. Because the moment we started to remove the car, the blood vessels to the lower part of her body started to bleed out and she died.

As Charles talked about this incident, he became somewhat detached and just spoke to the situation. His detachment, however, and choice words—"it was fortunate"—speaks strongly to how he deals with helping others looking for the good, even as they die. It is Charles' attention to details—what needs to be done next—that helps him "work any type of event" and "get through it."

In regards to working "any type of event", Charles points to the training emergency responders receive and how training needs "to be quality information." In addition to the quality of information Charles feels that training must be "delivered by a qualified individual . . . not a book smart person, but a book and experienced smart. If I had my choice between the two, I'd say give me the experience over book smart." Experience plays a critical role in identifying a qualified trainer because so much of one's development as an emergency responder is about mentoring, learning from those

¹ The Golden Hour is the time between the initial trauma and treatment at a medical facility. Survival rates are best for severe trauma victims who receive medical attention in the first 60 minutes of the event.

who have gone before you, and developing your own personal abilities and insights by emulating and adding to what has worked successfully.

Within the field of emergency response, it is common for personnel to train extensively and across domains. Charles reflects the wide array of interests, commitment, and curiosity found among emergency responders when he says that “wherever there was something I could take a class in, I kinda’ went that direction.” He also speaks to the vast domain knowledge and task competencies emergency responders develop with training and experience:

Regardless of whether you’re going into a burning building, going up to a car crash, going up to somebody who’s clutching their chest, or whether it’s responding to a tornado, digging through a rubble pile, trying to shore up a trench because someone is trapped, or in the case of the emergency responses of US&R, for me, it’s going and setting up the communications; I know what tasks need to be performed.

In addition to task competency, Charles brings up the important point that training not only prepares the responder to handle an incident as a team member but as a leader:

I guarantee you that if there’s an incident tomorrow and I’m the only person there who is confined space rescued qualified, I can direct the entire operation, I can set up every piece of equipment by myself, I can show people just enough how to work the equipment to make it happen, and I can effect the rescue.

Reflecting upon his experiences as an instructor, Charles talked about going a step further and incorporating the experience of being a victim into some of the courses he taught.

There were times [the trainee] was asked to be the victim that is packaged in the appropriate harnesses and hauled out of the [confined] space. That happens because if you never experience being a victim, you don’t know what a victim goes through. So everybody in my class will experience being a victim.

My Chief asked why and I said, ‘They have to understand what the victim goes through in order to better handle the victim and better treat them and care for them.’

Charles’ point is well taken. Victims are a factor in any rescue and can be as unpredictable as any other factor during an incident. Empathy for the victim beyond just basic human understanding helps the responder better prepare for the unexpected.

Training is the essential piece through which the emergency responder develops professionally. It is through the constant learning of new skills, development and refreshment of skills already acquired, and interaction with other responders in training and real life incidents that emergency responders develop professionally as individuals, team members, and leaders. Charles brings home this point with the message he gives his students at the end of training courses:

First of all, we didn’t cause this incident; we didn’t cause it to happen. They call 911 when everything else fails. So we get called when nothing else is working. When we [go to an incident], my intent is that every person that goes with me goes home safe; goes home alive, and not in a body bag; goes home uninjured. Because if they don’t, something happened that shouldn’t have.

Summary

Charles possesses deep core values of selflessness and giving from which springs his passion for his family, teamwork, and helping others. Professionally, his core values have been expressed through his activities as an instructor, colleague, curriculum developer, and responder. One last story says a lot about Charles, values, and command:

I was on leave, but there was a difficult call. I left the dentist’s office and as I rode my motorcycle passed my house, I stopped and picked up all the rope and gear I use for climbing and took it over to the General Motors plant where this water tower was. And as I pulled up, the guy at the gate questioned me, he said, ‘Ah-h-h, you can’t come in.’ ‘I need to come in.’

He said, 'No. We got an emergency going on.' 'Don't you see?' I said, 'Don't you see the badge?' He said, 'I'm sorry. There's an emergency going on.' I said, 'I'm on a bike. You either open that gate or I'm going to drive through the pedestrian gate.' And as I started to back up and head for the other gate, he opened it up.

Well, as I got off the bike, a police officer I knew was there, he started telling me what was going on. We had a chief that stood about 6'4" and you could see his helmet standing above this entire crowd. And I saw the helmet sort of moving toward me and the crowd was moving apart. Kind of like the parting of the waters. And he walked up to me and said, 'Did you bring anything?' I said, 'I have some rope and some equipment.' He said, 'Take whatever you have; go up to top, take charge.' He said, 'Whatever you need to do, get that man down.'

And so I climbed the ladder and got up about 30 feet and I turned around and looked at him and he said, 'Quiet! Quiet! I can't hear what he's saying!' And he walked up to the bottom of the ladder and I said, <whispering> 'When you care, you send the very best.' [laughter between the two of us] And so we climbed up and rescued the people.

The experience of being an emergency responder. Charles is clear about the experience of being an emergency responder—it is a lifestyle of helping others and keeping your own ego out of the way. Charles defines this lifestyle as someone who, even when they are off duty, will stop and help. He contrasts the lifestyle of an emergency responder with someone in the field who “just [makes it] a job”:

It's not only not passing by the car that's got a flat tire, or not just somebody that says 'Oh, there's an accident I'm going to get on my phone and call 911.' But there are a lot of firefighters out there that will say, 'I'm off duty, I'm not stoppin'. There's liability. There's risk. I could get injured. Something could happen and they turn around and point a finger at me.' So they go right on by. That's not a person who has an occupation; that's a person who just has a job, because they don't practice helping as a lifestyle.

Charles further states that emergency response is a career when the person has “the same desires, and the same willingness to perform the job and the task at the end that they did in the beginning.”

Throughout his 34 year career, Charles lived emergency response as a lifestyle. This was demonstrated when he was off duty and at a dentist’s appointment. At first he ignored the call on his radio, but as he understood the dire nature of the incident and that he was only one of a few people with the skills to address the situation, Charles cut short the dental procedure and went to the scene where he accomplished the rescue. Jim provided another example of Charles’ commitment to the lifestyle. Jim, who was a Fire Chief at the time, and Charles lived in different cities and were members of different fire departments. Charles was visiting Jim at his house one day when a call came in. Jim invited Charles along. Charles did not hesitate. He donned the bunker gear Jim loaned him and went out on the call.

Even though Charles is now retired from the fire services, his dedication to the lifestyle continues. He still lives in Ohio, however it is not uncommon to see him in Texas in the main US&R offices for the State working through communications issues of running wires, establishing satellite up-links, and participating in the life of the organization Jim currently manages.

Charles sums up his feelings about the lifestyle of emergency response when he says it is “the willingness to help others with a lack of selflessness and willingness to dedicate time to a worthwhile cause without feeling like I had to get something back for that dedication.”

Creativity. Charles is all about problem solving; he simply loves spending his time puzzling over a problem then coming up with the best solution. He described the initial steps he takes in problem-solving: “As I am approaching a situation, I look at it and think of all the processes that need to occur; everything that needs to happen.”

He demonstrated this ability early on in his career when he designed a system to refill the air bottles for the self-contained breathing apparatus. Charles scratched his head and looked the situation over and designed the refill system. He then went to the engineers and said, “Build it for me,” which they did. The system worked and has been in service for 23 years.

Training. Regarding training, Charles states, “Training as an emergency responder, for me, is on multiple levels, the first being fire response,” and from there, like Jim, the depth, breadth, and vastness of Charles’ training takes off. Again, like Jim, Charles is certified in just about every area of fire services training as well as specialized US&R training. He is also a certified instructor in a variety of areas, most notably communications and technical rescue.

Early in his career, Charles demonstrated how strongly he felt about training:

I started going to school to get certifications. And I wanted to have accomplishments. And with all the different classes I took initially, M-m-m, the EMS was probably the most difficult for me because I’d never been exposed to that. But from there it just became an on-going process because I took classes in breathing air certification to learn about the compression air process; putting the air into the air cylinders; the filtration process.

In addition, to his dedication to training, this statement speaks to Charles’ commitment to the lifestyle of an emergency responder.

Charles' creativity is also expressed in his curriculum development activities. In my position as instructional designer, I have had the opportunity to work on several curriculum projects with Charles. He puts a tremendous amount of care and thought into the best way to present complex material to the students. Charles' ability to identify steps in a process results in dynamic animated training materials. Feedback from students consistently praise his training materials as understandable and effective.

Participant #3: Ray Kelly

Background

Ray is a 45 year old Caucasian male who has lived most of his life on Long Island. He is 6'2" tall and has lively, intelligent eyes that sparkle when he talks. Ray is soft spoken, articulate, intelligent, and has the Irish "gift of gab." He has a wealth of knowledge on a variety of subjects including history, mechanics, politics, tactical and rescue operations, planning, training, and logistics. In addition, Ray can see an object or group of objects and immediately know how to put them together in a more efficient manner.

After 20 years on the New York City Police Department (NYPD) Ray retired. Even though Ray is only 45 years old, his family's reaction to the 30 hours they thought he was dead during 9/11 led him to finish his career.

After what transpired at 9/11 and what I saw on my wife's and daughter's face, right down there when I walked through the door it was like they saw a ghost! And of all the things I did in my career nothing ever bothered them as much as that day. Being shot at; I think I was up to four shootings by the time that came around, four or five. I almost fell off a roof once; I was jumped by a bunch of drug dealers. I wound up in the hospital a couple of times. That never really seemed to bother them. They

always chalked it up—mainly my wife, chalked it up—and that day they didn't. And when I saw them, that I chose, right then and there, I'm going to finish my career. Twenty years, I'm gone. I'm not going to put them through that again.

Ray is currently enjoying spending time with his wife, Carol, and their teenaged daughter. In addition, he is doing some consulting work in the construction industry and continuing his work with urban search and rescue.

Ray's intelligence is heightened by his natural humility, quick laughter, and clear insights into the human experience. These qualities are demonstrated whenever one talks with Ray. Of all the experiences he talked about and stories he told, one stood out because Ray was quick to bring forward that anyone who does something of great worth needs recognition. Ray proudly told the following story of a subway worker at the World Trade Center on 9/11 who risked himself and in the end saved an entire train of people:

But I know for a fact, that the subway train came through and the engineer on the train got 'em outta there before the buildings collapsed. So, and that goes very unrecognized.

He did not faze; he held the train at the platform long enough and he packed the train with people; overloaded the train, but ya' know what? He did what he had to do at that platform and he did his job. Above and beyond. And that never really made the paper and never really made the news. He's one of those forgotten heroes, if you will. Spur of the moment. 'Hey! Let me get these people the hell outta here!'

And shortly thereafter, when the buildings came down, when he was leaving the platform just clearing it, a section of the building came through, punched through the street and onto the subway track cutting that subway system in half.

So talk about providence. That subway train was supposed to come through. And get those people out of there. Or they would have all been crushed.

Ray was born in the Bronx. When he was quite young, his family moved to Long Island which, at the time, was moderately populated. Since the 1960s the area has experienced a lot of growth and now has a population of over 7 million people. Long Island is a suburb of New York City and is surrounded by water. It is connected to the mainland by a series of bridges and tunnels. Ray and his wife have a home on the south end of Long Island in a small hamlet.

Ray has three brothers and comes from a large, Irish/German Catholic family, many of whom have been employed by the NYPD.

I grew up in a family of cops. I'm fourth generation ever since my great grandfather came over from Ireland we've all been city cops. And I have three other brothers that are city cops. So it's a big family.

Yeah, its four generations so, to me, it seems that being raised in that type of atmosphere, being a cop seems like second nature. There was always the talk around the table, what happened there, what kind of job did you go on . . . which was good because it gave good support to the family.

In addition, his uncle was a hostage negotiator for NYPD.

Both of Ray's parents are still alive. His father, Patrick Kelly, is retired from the NYPD and came up through the ranks first as a patrol officer then to the Emergency Services Unit (ESU), then to narcotics. Mr. Kelly retired as a sergeant from the detective bureau. Ray's mother is a retired nurse. One of Ray's brothers has retired from NYPD while two of his brothers are still on active duty. Growing up, the family went to church on a regular basis with the boys attending Saturday morning catechism classes.

Shortly after Ray graduated from high school he entered the United State Marine Corps where he served as a combat engineer. His second oldest brother also served in the Marine Corps with their service time overlapping by about two years. After Ray

completed his four years of military service, he became an avionics technician in the aerospace industry. Along the way, he decided he wanted to become a police officer.

I always had, I guess if you will, that little bug in me to be a cop, probably because of the environment that I grew up in. My father was a cop; my uncle was a cop; my grandfather was a cop. Basically, I was surrounded by them. My father's brother is a doctor. Go figure! My father's youngest brother was killed in Viet Nam. So, his intent was, if he came home, to go to law school. He wanted to be a lawyer. So, I don't want to say it was forced on me, my father actually tried to talk me out of it.

'Son you don't want to be cop!'

'Yeah I do.'

And in a way, I'm glad I did what I chose to do even though I went against my father. I loved the career. I had fun doing it.

Ray was 21 years old when he married and the marriage continues strong to this day. When asked why he thinks his marriage has been so successful, Ray's entire demeanor changed. He became soft and his eyes light up. He stated simply and with great devotion, "I married somebody special." Ray talks about the adjustments his wife had to make being married to a NYPD cop:

It was hard for her to get used to the hours that I worked. And sometimes I wasn't there for the holidays because I was working. It was a little stressful. But being in the family, she always had someone to go to talk to that could and would understand. Because if there were questions—my wife, nobody in her family was any type of civil servant as far as firefighter or law enforcement. She would talk with my family; it made the career a lot easier.

He and his wife, Carol, have one child, a daughter currently in her mid-teens who is an accomplished equestrian. Ray and Carol have discussed moving to the Southwest, however their daughter's needs right now are central in the decision to move or to stay in New York.

Career

During his career with NYPD, Ray served a variety of commands. As a young officer, he worked as a housing police officer in a Police Service Area (PSA) where he “policed a certain area of projects”. While working the PSA, Ray would answer calls for assistance, worked family disputes, and kept a good open dialog going with the people living in the community. Ray described what the area was like when he was working his PSA:

At the time there was a big drug epidemic in the city and drug enforcement was key. During that time I arrested over 630 people [on charges of] attempted murder on a police officer to arresting an entire drug gang closing out over 30 homicides committed by the gang.

Later he spent two years in undercover narcotics. While Ray was working narcotics, a new housing rescue unit was started and he “chose to change [his] career and move[d] into that.” In 1994 he followed in his father’s footsteps and moved into ESU, a unique command within the NYPD rich with history.

The Emergency Services Unit began during the 1920s to combat Prohibition gangs. Six officers and one supervisor formed a squad who “were put on a truck, and they were known as a machine gun squad.” In 1930 the squad was named Emergency Services Unit. During the 1960s, ESU “really took leaps and bounds.”

During the '60's the city fire department pretty much had its hands full of fires. The older buildings were burning down. They were very, very busy. So [ESU] started taking on more and more rescue work, in addition to tactical work. And, now, [ESU] is kind of like an insurance policy the City has. While [the City] had rescue with the fire department, now [they] have rescue with the police department. And we handle everything from evidence search to auto extrication to emotionally disturbed people; less than lethal weapons to jumpers—people who want to jump off bridges

and buildings, we have specialized equipment to handle that—to tactical work. So it's a very vast, broad background.

The officers assigned to ESU are an elite group who must meet a strict set of criteria. Officers interested in assignment to ESU volunteer for duty and undergo a rigorous interview process just to be placed in training. Ray describes the range of training and abilities:

Everybody in the unit is an EMT. Has to be. If you're not certified, and the unit does train you, if you don't certify as an Emergency Medical Technician, you're transferred back to your old command. There are certain criteria you need to meet. And you are trained in all those criteria. Heavy weapons. Sniper. Scuba, rescue diver. EMT. HazMat [hazardous materials]. HazMat technician. So you need to pass that criteria. And it's all training afforded to you by the police department. You're taken out of the service for six months and trained. And they expect you to pass it. And, if you don't pass those criteria, you're sent back to your command.

Ray describes ESU's command function as follows: "When a civilian needs help they call 911, when a cop needs help, they call Emergency Services. It compliments the services the police can offer the public."

Ray's last command before he retired was in the Office of Emergency Management as the Officer Chief of Department where he served as liaison throughout the unit.

Ray became involved in urban search and rescue through his work with ESU. New York developed a US&R task force in 1993 through the NYPD. As Ray tells the story, in 1997 he was "shanghaied" into US&R.

I was inducted into logistics since I had a heavy background in equipment and maintenance of equipment and equipment inventory. And a friend of mine said they could use a good person on the team, not knowing he also meant logistics as well. I went on a deployment and then saw how I was shanghaied into logistics because nobody else wants it.

The terrorist attack on the World Trade Center (WTC) was a defining event in Ray's career and life. When the World Trade Center was hit by terrorists on September 11, 2001, Ray was on duty.

I was working the shop for the special operations section that morning. One of the guys comes in and says, 'Hey. A plane hit the Trade Center.' I thought because it's close to a small community airport, I thought it was a small commuter plane that hit the building. I didn't know it was a big airliner.

In the initial moments of the event, nobody, including emergency responders, realized the extent of the situation. Most emergency responders viewed the incident as a high rise fire, and prepared their response as such. Due to the impact and debris, communication systems were disrupted, though some garbled radio communications were getting through among New York's emergency response community. The television in the shop was on and the officers got information from local news reports. The shop in which Ray was working that morning contained the specialized equipment used by NYPD. With the communication systems being garbled, the officers were not sure what equipment would be needed; they also still did not know the extent of the incident. However, Ray and the other officers knew the equipment was needed and they acted.

Everything specialized comes out of this location, so we're gonna have requests coming in so we want to start getting equipment; what we will need to have on scene right away. So, soon as we got what we thought we would need on scene; which we wound up taking everything 'cause it just progressively got worse. We went into Manhattan. I was driving and because all of us were going to be at the incident, we took everything because if we have another job, we can respond with that equipment if needed for the scene.

Once the team arrived at the scene, it became apparent that the situation was well beyond a high rise fire. In fact, when the second building came down, the officers, like everyone else in the vicinity, ran for their lives.

So we get into Lower Manhattan and we stage the equipment and the first building had already come down and then where the staging equipment was, coming down the street off Fourth, when the second building came down. And boy! This kid ran fast! This kid ran SO fast! I hit the Hudson River and I couldn't even see.

Sometime early on in the incident, prior to understanding the extent of the situation, Ray called his parents and causally asked them to call his wife, "Tell her I don't know when I'm going to be home; plane hit the Trade Center." He continues, "That was the last they heard from me for 30 hours. And then the Domes flashed. And they thought I was dead." In fact, Ray's entire unit thought he was dead.

When the buildings dropped, my unit actually had me dead for two hours. Because when we got split up and I had to go around Lower Manhattan and come up and across, they thought I was caught in the building collapse.

As stated earlier, when Ray got home the looks on the faces of his wife and daughter told him it was time to wind down his career. The toll 9/11 took on his family while thinking he was dead was something he did not want them to go through again.

But it's the delay. Time's just clicking and clicking. And she's hearing neither positive nor negative. So, which means, I could be one of the missing because they say 'thousands are missing.' And that's all that's going through her mind.

And some friends of ours told me later, 'Your wife was walking around, just wandering around like a zombie. She wasn't sleeping.'

And that's what made me really decide that at 20 years; that put me over there.

It was six more years before Ray retired. During that time, he was involved in the clean-up of the WTC. Ray described the difficult job that needed deep human compassion.

Debris removal. Shifting through it. When, during the operations, when you come across remains of a human, you try to identify it, treat it with dignity, get the coroner down there and do whatever he had to do with the victim. And remove them from there to the morgue.

Yeah, I was involved in that for about eight months. And then when they removed that last beam from the site, I said my goodbyes to the guys that I worked with who weren't recovered and I've never been back since. That is where it ended for me.

About the end of his career with NYPD Ray speaks lovingly, “It was a fruitful career.”

A Life's Canvass

Woven throughout everything he said, Ray's gentle, direct manner conveyed the underlying theme of helping people. Ray pulls together the idea of the values and rewards involved with being an emergency responder when he points out that law enforcement is both “rewarding and exciting; a lot of good things; you get to help people.” Ray speaks plainly to his purpose:

Whatever the incident or the situation might be, people who are hurt and injured, they're looking for a little compassion, but that's what I'm there for. I'm not going to say, ‘Well. Oh well, tough.’ I'm there to help you.

He is equally clear as to what exactly compassion means to him as a law enforcement officer:

You have to maintain a very neutral line when you're dealing with folks. I'm not going to be compassionate but I'm not going to be abusive. I'm going to treat you the way you want to be treated, or the way you treat me. It's just a job and that's the way I've always looked at it. And if I can

help you, I will. But I'm not going to be compassionate to you, to where I'm going to cry along with you. And I'm not going to be uncompassionate. We're going to maintain a very neutral side of the fence. We're going to go away for a little bit and we're going to get through this.

I always treated everybody the same. If you want to be treated like a human being, then you treat me with respect. I've always maintained a thing of 'Look. I have a civil service title. Respect me for that. I'm trained to know the law on the street. I have a decision to make here; on what needs to be done and how we're going to get through this.'

It can be a difficult balancing act, compassionate yet neutral. New York City also brings with it special considerations as law enforcement works with some of the richest, most powerful people in the world as well as the poorest. Law enforcement officers need to be quick and flexible in their thinking and behavior:

As a police officer you're dealing with the richest of the rich or the poorest of the poor. So you have to deal with individuals differently so you constantly have to change your mental status and how you think, 'Well, ya' know, high society here; highly educated people here. And I'm dealing with, maybe they got out of high school, if they did.'

I remember one time, I was arresting somebody, they didn't even know how to sign their name! That's how uneducated that person was. So you can see the disparity between society. And you're dealing with different levels here.

Given the tremendous diversity among people in New York City, there are probably some personal characteristics that help a law enforcement officer be successful in their role. To this point Ray comments: "Being a laid back person. An actor! Mild mannered. Being open-minded. Cops are probably some of the biggest actors, or best actors."

Law enforcement brings with it a special type of reward that the officer might never know about or might learn about years later. An incident in Ray's early career involved an arrest of an older adolescent male who was sent to prison. Years later while

he was off-duty Ray noticed a young man watching him in a certain way that made Ray nervous. He did not recognize the person, but Ray had been a cop for a long time, and commented that this “might be somebody I arrested that’s mad at me!” The young man approached Ray and reminded him about the arrest which made Ray even more nervous. As it turned out, the young man thanked Ray for how he treated him during the arrest and afterwards; that it was Ray’s behavior toward him, the respect Ray showed and the calm way Ray spoke that helped turn his life around. The young man grew up, took responsibility, and ended up with a responsible job and family. After Ray told this story he laughed and shook his head saying, “You just never know!” About being a cop Ray says, “Overall it's rewarding because you're able to help people.”

Ray describes the emotional aspects of law enforcement as “90 percent boredom and 10 percent sheer terror. And it goes from one extreme to the next instantly, instantly.” The first shooting in which Ray was involved speaks to the dangerous environments in which emergency responders work, personal safety, how quickly an incident can occur, the split second decisions responders sometimes have to make, and the emotional issues they must live with as a result of the quick thinking.

First shooting I ever got into was with a 14 year old kid. I come walkin' out of a stairwell onto the floor and there's the kid standing there with a gun and he spins around with a gun in his hand! It was over in milliseconds but, I mean, it went from la-la-la, I'm going on patrol, checking the floor to 10 percent sheer, ya' know, that 10 percent sheer terror kicked in.

And to find out later on that it was a little 14 year old kid! If I had taken that kid's life, I would have had to live with that for the rest of my life. Shooting a 14 year old kid! But you know what? He was a threat. Age factors, looks, those hadn't even come into play yet! I went and did what I had to do.

The following statement made by Ray pulls together the understanding of personal risk and “sheer terror:” “You never know what is going to happen on the other end of the door when you make entry into a location or pull a cop that is wounded out of the line fire while being fired on.” Ray makes it clear that it is not just law enforcement that endures and reacts to the unexpected, fire service personnel also have their emotional challenges:

And the same for firefighters! It is a very stressful job! They can sit there the whole shift and not have anything and they can pull out to a high rise fire where people jump out of the windows on them. Because that's their only escape. To see people hit the ground is not something you really want to see. Or should see.

Ray points out the more gruesome aspects of emergency response may actually help prepare the responder for the major events such as the Oklahoma City Bombing or 9/11.

I was in the unit 5 to 6 years and from time to time you get called to these gruesome jobs . . . they had an odor, we investigate, it wound up somebody died in their house and finally somebody smelled the odor. You had to go in there and with dignity do what you had to do. We've had people hit by subway trains and dismembered; and car crashes; and a little of that gruesomeness if you will. I felt that seeing all that and dealing with all that through the [years leading up] to 9/11 sort of readied me for what you're gonna see during 9/11 and Flight 587.

Sadly, the “gruesomeness” of a subway incident is a fairly common event, sometimes 2 or 3 times a week. Ray talks about the suicides involving compression injuries in the subways of New York City:

Every week there's at least two suicides. The worst are the compression injuries where the person is crushed between a wall and the train; you know that the victim is going to die as soon as the train car is moved away from them; you hold the person's hand, try to contact family and friends to get down there to say their last good-byes, get a clergy person;

stay with the person as the train is moved back away from them and they die.

Staying with the victim and comforting them through their death takes a compassionate, caring person. Ray speaks to how hard these situations are on him:

Probably the hardest thing I ever did was when we have what we call a 'space case' in the subway system. And that's when a person is pinned between the subway car and the platform. And what that does it kinda like internally severs the body; sometimes it severs them in half. But what's keeping them alive is they're squeezed so tight that the blood isn't getting down there; it's holding it back up into the torso. But when let the train away from the body, take the pressure off of them, they're going to die immediately. The person can be sitting there talking to you one second and they're gone the next. That's probably one of the hardest things you can ever do because you have to be compassionate and you have to let them know . . . I can't lie to them. They have to know what's going to happen in the very near future. Not long term! The very near future. So you try to fulfill their last request

In addition to such calls, emergency responders are often involved in high stakes situation in which the responders risk their security, health, and lives. Ray speaks to one of the dangers of law enforcement:

When we handle emotional disturbed persons, we wear full tactical equipment; ballistic vest; tactical ballistic vest, ballistic helmet. Because in the past cops have gotten stabbed. And this gives you extra stab protection. So, we've had a cop get into a family offense; crash into one of these big mirrors on the wall; cut an artery and he died. So it can get very violent. This affords you more protection than just walking in there with a regular street vest. And you don't know if this person has any weapons on them.

The daily events that emergency responders see take an emotional toll on them.

Ray describes the importance and effectiveness of community among emergency responders in terms of keeping each other grounded and sane, internally defusing an incident.

Ya' know, I've thought about it. When you get back to the station house. To the general public it may seem cold. It may seem cruel. Yet it's how you maintain your normal mental state.

In emergency services, after a big job, we've always talked about it at the coffee table in our lounge. What did we do wrong? What could we have done better? It's always been . . . [the emergency services] unit has always been self-critical of ourselves. We want to critique what we did and let's learn from our mistakes so it doesn't happen again. And maybe we better prepare ourselves a little bit further for the next event that might happen or the next situation that might happen.

Our job at the end of the day is to get home the same way we came to work. And the real bad jobs? Yeah, you do joke about it but that is our . . . how do I put that? . . . that is how we maintain our good mental state, I guess? That is our counseling! That's our own counseling. And it's amongst our peers. So I can talk to them and they can understand what I'm talking about. Could I talk to my wife the same way? No. One is, she shouldn't have to hear it. Two is, she wouldn't understand. Because, and I don't want it to sound bad, she just wouldn't understand because she wasn't there. She's never been there.

The guys that we talk to, your peers, been around the block a couple of times, they know what it's about. And they do have units within the job that have counseling that is your peers.

They used to have a unit for cops who get in shootings. And your counselor is a cop that was in a shoot out. So they know where you're coming from. And they have the credibility. To sit there and say, 'Yeah! You're gonna' feel this.' They have a response about hostiles, because we've had a lot of cops who commit suicide on them. And being a cop probably gives you the best tool to commit suicide with because you have a gun and it's the easiest way out. We've had cops do it right in the station house. Yeah. And, to them, that was their only way out. I guess they thought that their world got so bad that they couldn't talk to anybody anymore. And it's a shame! And it shouldn't happen to anybody.

But, that's why we have what we call 'station house humor.' And you see cops pull practical jokes on each other. That's to lighten the atmosphere. Because it is a very stressful job. So, what happens? You have the fire house or station house humor. And you do make jokes about it. And you know what? It works. It keeps most of us sane. It really does.

Another aspect of the relationships among emergency responders is networking and exchange of information. Ray talks about this information exchange between himself, on the East Coast, and an emergency responder located on the West Coast.

And then you have the protesting people. They like locking themselves together with homemade locks and stuff like that! People get locked into all kinds of wang-dang things. So now you're tasked with going out there and removing the locks and getting them off the scene. Because they'll lock themselves together; they'll lock themselves to the building; it's a mess! It's a mess!

So I got a call from Jake asking, 'Hey! Have you ever seen this [situation before]? Do you know what to do with this?'

'Yeah, we've done it once [removed the homemade locks], and this is how we did it. And you can get them out; it's going to take awhile, but you can get them out.'

So, it's networking. Jake has asked me [about situations] and I send him some photos and tell him how it's done.

'Hey! We saw this out there. How do you do it?'

So I explained to him, 'Jake, I'll get you some pictures and get 'em out to you.'

So, it's just networking.

This information sharing among emergency responders demonstrates an interconnection and dependence upon each other as well as persistence in solving problems. Many emergency responders view themselves as problem-solvers who are persistent, generate ideas from various perspectives and inclusion of multiple disciplines; break through barriers, and refuse to quit. Ray speaks to these characteristics in terms of a team effort:

Because we didn't know how to do it! It was something new we ran into. And, and, and we have the mentality in that unit [ESU] of . . . 'we're it, when we're on a call! There's nobody else to call after us and we don't

walk away from the job! We're going to be the problem-solvers; we're gonna' figure it out.'

Most guys in that unit have a trade skill. Whether they're safe crackers . . . we've had licensed safe crackers in the unit; we've had licensed electricians. I was a mechanic . . . worked on heavy equipments, dozers and cranes and stuff like that, as well as aircrafts because I worked in the aerospace industry.

Ray's description of the ESU team as problem-solvers shows their enthusiasm for solving whatever problem or situation they are given. This determination becomes clearer in the stories of 9/11.

Ray was one of the first emergency responders on-site at Ground Zero the day of 9/11. He describes the challenges associated with the loss of equipment and the general understanding among emergency responders and vendors alike that you did whatever it took to get the job done.

So we lost a third of our running fleet in my unit. In PD, we lost 133 vehicles that day; when the buildings came down. One hundred and thirty-three vehicles! I mean, that's more than most towns' fleet, period! Fire lost 83 trucks.

So trying to get equipment so we could go into an operation was quite tough, quite challenging. And then you had to set up an accountability post; command post. And you had to set up a logistics section to run it and account for the equipment and do any rehab you could on the scene and get vendors in. And all the information was all up here <points to head>.

I just started calling people; calling who I could. I'm sitting on a street corner with a push button desk telephone because Verizon tied me into a thing and I'm sitting there on a street corner making phone calls to vendors! But I mean that's how it worked! We had to get it to work.

Soon into the response to the 9/11 incident, the emergency responders of New York City ran out of everything they needed to do their jobs of search, rescue, law enforcement, fire suppression, and medical support. The city was simply overwhelmed

by all the needs. Ray states, “We ran out of tools and equipment.” Despite the lack of resources, the emergency responders found ways to create what they might use from the damage:

We found vehicles pulled up into the collapse zone. We had found vehicles; most of them were damaged. We had to use equipment to pull the vehicles apart to get to usable parts. We made a good pile and a bad pile of equipment. What we could use and what we couldn't use.

In addition to the depth of shock and horror the city was confronting, losing emergency response resources to help the citizenry demanded an immediate and intense paradigm shift for the New York City emergency response community. For the first time New York City, rather than being the helper, had to ask for help.

We really needed help! First time I ever heard, ‘We really need help!’ In the city of New York? Because we're so resource rich, generally we're called for mutual aid and help other States and agencies. This time we're calling for aid. Never happened before!

Training also provides the opportunity for personnel to experience a bit of the reality what they will confront and helps individuals decide whether or not they are right for the job. Ray eloquently states the seriousness of training in this regard:

Training is an eye-opener, especially to new recruits; that may change their mind about being a cop, because you know what? [An incident] can happen any time, anywhere. And so people do decide, ‘Well, this isn't for me.’

It's not a game out there. You know you're playing with guns and some [perpetrators] are villains. You know it's not a game out there.

Ray adds, “Training should be more realistic. What needs to happen is you take the reality of what really happens out there and incorporate it into training. Then the new

guy going out is trained in a realistic world NOT the book world.” Ray explains that what happens out in the field doesn’t always translate well into text:

Sometimes certain things that are drawn together . . . when they're put into format and text don't blend well with realistic life as we see it on the street. And that's what most of these people are going to be dealing with—on the street.

Due to this difficulty in translating certain information into a text based format, Ray encouraged the use of tabletop exercises and scenario based learning. He explains that the power of these training methods lays in helping to prepare emergency responders for the unexpected.

In a real time disaster or planned event things don't always happen to the book. Everybody always wants to pound on the book [training manual] like it's a Bible. And it's not true. What brings that more into focus is having people with more experience [as instructors] to reinforce what is really going to happen out there. ‘It's listed in the book as A, B, C, but what's really going to happen is D, might come before A and you better be prepared for it because that's what happens.’

In the context of law enforcement, Ray provides an excellent example of the complexity of emergency response and the importance of providing training that incorporates “by the book” information and real world experience:

Just like, a perfect example, with law. You have courtroom law and you have street law. Me being a law enforcement, or police officer . . . me, I need to know and have knowledge of, good knowledge in memory of ‘Okay, this person broke the law. Now I have to do something about it.’

I have to know specifics. I need to know and identify . . . this person committed an assault on another person. I have a complainant. I have this [situation], now we take it back to the station house. Now I go through the penal law and identify what degree of assault did this person commit. And now it goes through the court system, and now you have the courtroom law.

You need to have the book training, or classroom training, but it needs to mesh into real time situations. So you have a better background versus ‘Oh well, this is only book stuff.’ You need to mesh some of that real time, real experiences from more senior people so it's more realistic to [the trainee] when they get out on the streets.

There is also a certain amount of frustration experienced with the process of developing and finalizing training curriculum.

Training is developed to a certain degree by the people who live and do the activities. It's when it's finalized; it's when it's polished in the finalization process it loses a lot of that. There are people making decisions when they're polishing it . . . and I'm not pointing to anybody in particular . . . that they lose that real grit, realistic value of it. Because the person who is [making the training materials decisions] never experienced the events and then makes a decision about removing the information. Or maybe the information isn't politically correct. So when you get the curriculum back, the information is gone! And the curriculum is already finalized and you can't change it. This happens especially in a big city.

Well, you know what? Crime on the street isn't politically correct. And neither is a major disaster politically correct. But we got to get through it. Well, you know what? Police work isn't nice. Firefighting isn't nice. It's down and dirty work.

The “grit” of emergency response is best conveyed by instructors who are also seasoned professionals within their responder discipline. Among emergency responders credibility earned from field experience and team work forms the foundation for successful training. Instructors with this field grit are highly valued by trainees. Lives are at stake—responders, victims, and by-standers—and being book smart does not tell the whole story; it is the person who dealt with a situation in the moment and learned from the experience who has credibility and is able to provide the best insights. Ray states:

There is some real-life stuff that you can't [write about] and [the information] goes by the experience of the instructor. Whether it's back at the police academy, the fire academy, anywhere; it's the credibility of

that person. How much experience they have, is what is going to bring [their credibility] to the surface.

Instructors with field experiences can quickly incorporate the most recent understandings into training without waiting for the training materials to be updated. Ray discussed the importance of taking “lessons learned” from incidents and turning them into training material “because we didn't know how to do it! It was something new we ran into.” He points out “lessons learned” applied directly to the curriculum provides “feed back to [the student] through the training.” He related a dramatic incident in which he was personally involved regarding training from lessons learned:

I've personally removed a meat grinder from a person's hand in the emergency room; the reason being because the hospital didn't have the equipment to cut that piece of metal off that individual's hand. So they called us [ESU] in and we pretty much did surgery in the hospital.

What prepared me remove a meat grinder was training! It had been done before. You got to understand people and machinery. Human beings and machinery do not mix.

It's happened in the past, so what they do is when something out of the norm happens they take it and turn it into training material. And [the surgery was] just a matter of the type of tool you use. What kind of blade you use. What do you do to protect the person on the other side.

Ray adds to this understanding of experience as the best preparation when he describes the day he witnessed Flight 587 fall from the sky.

In 20 years, generally most cops or firefighters will see one major disaster in their career. I saw two in two months which were the Trade Center and Flight 587.

587 I actually saw fall out of the sky. Because we were outside doing trainin' and we were across the bay from where the airport was and I just happened to look up and this plane just goes BOOM and hits the ground! It was almost like disbelief! I said, ‘Hey! Did you just see . . . ? Uh! Did we just SEE what we just SAW?!?!’

And then when it finally clicked it was like, ‘Holy shit!’

So we were like the fourth vehicle on scene and when we got there it was . . . well, the plane just went straight into the ground, it just kind of opened up, spit bodies out all over the place; on the street; into trees. Stuff like that. So, I just equate that with the time since I've been on the job with readying me for the destruction of 9/11 and two months after that, Flight 587.

In addition to credibility of the instructor, Ray offered that training should not overwhelm the person:

Some things you just can't write about because it's so much information. How much can you put into the instructor guide? Or student guide when it becomes too much? We can talk about it faster versus putting it in print.

You don't want to discourage someone by handing them a book that's five inches thick. They'd sit there and like they see Title 49, you hand them . . . and you see their face, and it's ‘Oh my God! What did I just get in to?’ And it's culture shock and you don't want to do that to a person.

With a study guide you want to give [the trainee] enough information but not too much where it discourages them. For example, my rule book on my job was literally seven inches thick! And I had to know that from cover to cover!

Summary

Ray is a man who exemplifies that special something that puts him a cut above the rest. He possesses a sharp and agile mind and a genuinely humble spirit. From my perspective, Ray's humility comes from knowing himself so well that he does not hide anything from himself, thus he is a man comfortable with who he is. Ray has spent his life in service to other people in a large, complex city full of national and international figures; the richest of the rich and the poorest of the poor. Yet he never lost sight of a simple, basic human right—the right to dignity—and he afforded it to everyone irrespective of their station in life.

Ray is full of laughter, light, and insight. At one point he mentioned, with laughter, the realities of a large city:

In a city of that size, it's seven and a half million population with another two and a half million population commuting per day in and out of the city, so at any given time you can have to 10 million people in that city, something's bound to go wrong. Something's bound to go amiss!

The experience of being an emergency responder. Like Jim, Ray speaks to the experiences of being an emergency responder as about compassion, service to others, community, teamwork, and trusting one's instincts. He also talks about the rewards and stresses of the job. He clearly states that his job is not to be compassionate, yet his actions speak to his compassionate nature. This theme runs throughout Ray's stories, the most poignant of which is the great depth of strength and compassion he displays when dealing with victims of compression injuries. Ray explains to these victims simply and directly that they are only alive because a vehicle, or some other sturdy object, is preventing them from bleeding out. He gently, but without mincing any words, tells the victim they are going to die, not in some unknown future but as soon as the object is moved away from them; he makes arrangements for the victim's family and/or clergy to arrive; he stays with the victim, holding their hand and looking into their eyes as the vehicle is moved away and the person passes. This is compassion; this is strength of character.

Ray also participates in the tight community and humor found throughout the responder community. An example of this community, humor, and bonding occurred on the first day of a three day committee meeting when, during lunch, Ray locked his keys in the car! For the next 40 minutes, several of the men, both fire fighters and law

enforcement officers, tried, unsuccessfully, to break into his car. There were many creative suggestions on how to solve the problem, much laughter, valiant efforts, and ultimate failure in the endeavor. Over the course of the next two days, Ray was the focus of many comical statements and good natured ribbing; he even punned on himself. Charles was also a member of this committee and took pictures of the “attempted break in;” he developed a slide show which was shown during the closing remarks of the meeting. To this day, Ray’s locking his keys in the car and the resultant “group activity” is spoken about with great amusement.

Creativity. Ray’s creativity was evident during several incidents, one of them being the incident described above regarding him locking his keys in the car. During this group problem-solving activity Ray suggested using a coat hanger to reach the keys on the dashboard and push the button; this attempt resulted in the keys on the car floor. He and another person also worked in tandem, having each successfully hooked the latch inside the car. One pushed the latch while the other pulled; again, a great idea, but it didn’t work.

During his years on the job, Ray had many opportunities to act creatively. Examples of his creative problem-solving abilities can be seen when he was asked by the surgeons in an emergency room to remove a meat grinder from the victim’s hand. The hospital did not have the tools available to safely extract the man’s hand so they asked the Emergency Services Unit of NYPD to help. Ray looked over the situation, discussed it with the surgeons and other ESU officers; they came to a decision on how to proceed, and Ray was actually the person who removed the meat grinder. In addition to

participating in surgeries, Ray also was involved in removing “protester people” from homemade locks. As he points out, “People get locked into all kinds of wang-dang things!” and generally in a busy, public place. It was part of Ray’s job to figure out how to unlock these homemade contraptions and remove the protestors without doing them any damage.

Another particularly poignant time during which Ray worked creatively was the immediate hours directly after the 9/11 attacks on the World Trade Center. Ray described the breakdown of the communications systems and not knowing what was going on because of being “outside the communication bubble.” His team went into “rescue slash tactical” mode and started pulling equipment and vehicles into “bad piles and good piles.” They sorted through what was usable and scavenged from what was damaged to create usable items. Throughout those early days of 9/11, Ray and his team made do with what was at hand, and created new, make-shift tools to get the job done.

Training. Ray is passionate about the training of emergency responders. He agrees with both Jim and Charles that consistent and timely training keeps responders safe so they can help the public. Like Jim and Charles, Ray is certified in a vast number of areas including emergency medical technician, hazmat, heavy weapons, sniper, scuba, and logistics. In addition, he is a certified trainer in many areas. As with Charles, I have worked with Ray on a variety of curriculum projects. He is thoughtful, insightful, and spot-on with the information that needs to be included in each project.

Experience in the field is also critical to the enhancement and success of training programs. Going back to the time when Ray removed a meat grinder from a man’s hand,

he states he knew how to do it because of “training! It had been done before.” He points out the importance of taking unusual field experiences—lessons learned—and turning them into training materials.

Training prepared Ray to deal with hazardous materials situations that were also crime scenes. In a criminal investigation, maintaining the chain of custody of evidence is top priority and police are trained in appropriate techniques. Ray was involved in a homicide where the victim was submerged in a hazardous material that needed to be neutralized before retrieving and decontaminating the corpse. Usually, hazmat is handled by fire services, however members of ESU in New York are also trained as hazardous materials specialist. In this situation, Ray’s training provided him the necessary skills and understanding to handle the hazmat situation appropriately while also maintaining the chain of custody of evidence.

CHAPTER V

SUMMARY AND CONCLUSIONS

Emergent Themes

In reviewing all the unitized data, four themes emerge:

1. Emergency responders have the ability to maintain human dignity for themselves and any victims in the midst of exceptionally emotional and stressful situations.
2. Emergency responders want training that reflects the reality of the incidents in which they will engage.
3. There is a deep sense that community is necessary among emergency responders.
4. If someone is to make emergency response a career rather than a job, they must possess a dedication and commitment to a lifestyle of selflessness.

Emergent Theme 1: Emergency Responders Maintain Human Dignity in the Midst of Exceptionally Emotional and Stressful Situations.

People who work in the field of emergency response are subjected to intensely emotional situations and stress. Emergency responders are constantly facing the unknown and unexpected during sustained engagements as events unfold during the incident. While responders are working the incident, they are expected to contain and control their emotions in order to maintain command and control of an incident. In addition, the decisions they must make impact not only themselves, but also any victims,

the victims' families and friends, the surrounding community, and possibly policies, regulations, and established laws. In the case of law enforcement, the decisions law enforcement officers make also impact the perpetrator(s) and their families and friends as well as the justice and penal systems.

Adding to the stress emergency responders experience is the fact that decisions are often made with a great deal of urgency. For example, when a law enforcement officer enters a situation and some type of weapon suddenly appears, the officer must rapidly assess the level of danger and decide upon a course of action. Whatever the decision and action, there is the possibility of fatal consequences. More often, the results are much less than lethal. The decisions made by EMS personnel and fire fighters, though generally not of a defensive nature with other people, are still made under time pressure associated with the particular injuries. EMS personnel are evaluating an injured person and working remotely with the emergency room physician to stabilize and transport the victim to medical facilities. Fire fighters are making decisions during search, rescue, and fire fighting events which may have to be made quickly with the best knowledge at hand.

Irrespective of the responder discipline, emergency responders maintain their personal dignity as well as the human dignity of any victims, even when the victim is deceased. Daily working in an environment which demands skill in handling human emotions and being always prepared to respond in the best possible manner in the moment to unexpected events leaves the responder ripe for stress related physical and emotional health issues.

As demonstrated by the participants in this study, an important characteristic of emergency responders is emotional resiliency. Day in, day out, emergency responders enter into situations that they may or may not be able to make better. They do all that they are trained to do, all they are humanly capable of doing to reduce and/or prevent suffering, but the reality is that emergency responders cannot always prevent injury or loss of life and find themselves in situations in which they hold and comfort dying people. This takes courage and, if a responder is to have a long and productive career as well as a productive and stable personal life, the emergency responder, as a person, must find ways to sustain themselves emotionally. In the case of the participants in this study, their devotion and dedication to their families, and their families' devotion to them and their special calling as emergency responders provided a strong foundation for resiliency.

*Emergent Theme 2: Emergency Responders Want Training that Reflects
the Reality of the Incidents in Which They Will Engage.*

Scenario-based training is the method of training delivery preferred by the participants in this study. Jim speaks to the need for practical application that is best provided by scenarios. He states that theory is important as a foundation but that training needs to “focus on practical application; and to try to replicate the real world as much as possible in a safe environment.”

Within an incident, situations are constantly emerging that often do not happen according to the training manual. This is especially true in large scale incidents such as an earthquake, flooding, or a terrorist attack, as well as planned events (i.e. parade,

World Series). Emergency responders train for the unexpected by developing their skills and understandings of that which is constant. Thorough knowledge of how to respond to the known constants of an incident, such as a high rise fire or crowd control, occurs through grounding in theory, field based training using scenarios, mentoring, and instructor credibility.

In training, the credibility of the instructor is of paramount importance. A seasoned professional who has experienced first-hand a variety of incidents can speak with authority to the realities of “book learning” versus real life flexibility and ingenuity that occurs in the field. A credible instructor with years of real time experience offers solutions that have worked in regards to the unexpected. The anecdotal exchanges between instructor and student also helps build community, camaraderie, and sets the stage for developing and encouraging strategies for problem solving.

The bottom line for emergency responders in regards to training—keep it real.

Emergent Theme 3: A Deep Sense of Community Is Necessary

Among Emergency Responders.

Emergency responders work in a highly stressful environment. Fire fighters can spend days without any calls, then suddenly they have to drop everything and move into action. Ray reminds us that in law enforcement, the officers go “from one extreme to the next instantly” with “90 percent [of the job] boredom” and the other “10 percent sheer terror.” In short, life in the field of emergency response goes from quiet to full out adrenalin pump with very little in between. This situation stresses not only the individual responder but the responder community as well.

To survive both personally and professionally, a deep sense of community and participation in community building activities are a central part of a responder's life. Team building is on-going using station house humor, meal planning and preparation, formal training experiences, and recurrency training in the station house as opportunities to bond.

Emergency responders develop tight communities because they depend upon each other for their very lives. Every fire fighter must be confident that every other fire fighter, irrespective of where they work and/or train, has all the same basic competencies required of fire fighters. The same situation exists for law enforcement and US&R members. The amount of cross-training done by emergency responders is another source of team building and trust. Due to the cross-training, responders tend to move easily among positions during an incident. This shift within and between teams becomes natural over time and demonstrates the sense of trust, dependency, and skill among responders.

Networking is another form of community expressed by emergency responders. During training as well as incidents, responders learn who to call to find possible solutions. This networking exists beyond an individual's unit or department and actually extends to others across the nation and, sometimes, internationally.

Emergent Theme 4: The Emergency Response Career Is Living

a Lifestyle of Selflessness.

Given the emotionally difficult and oftentimes gruesome experiences emergency responders deal with, people who make emergency response a career must possess a

deep dedication and commitment to a lifestyle of selflessness. Charles explains this dedication and commitment as “the nature of the beast. You just generally want to help somebody. In many cases, people are driven to do the job because they have that desire to help.” Responders who express a special personal satisfaction with their jobs also have a gift for working with people and, for some responders, their careers are an expression of their sense of selflessness, a “willingness to dedicate time to a worthwhile cause” without expecting anything in return.

The participants in this study demonstrated the depth of their humanity by how they cared for people in distress. Being human means reaching out to others, even in the most dire of circumstances. Responders, as represented by Jim, Charles, and Ray, deeply understand the human spirit and demonstrate it by continuing to talk to victims that are clinically dead, being honest with a person involved in an accident who is about to die and holding eye contact with the person until they pass, and, in general, putting themselves at risk to save another person. All jobs have risks, and emergency responders know that sometimes a member of the responder community will be seriously injured or die in the attempt to help another person. Taking calculated risks is part of the job and not all of it can be eliminated or prevented. Knowing the risks and still making the choice to serve others demands commitment and dedication.

Summary

The following questions guided this investigation and will guide the summary of findings:

1. What is it like to be an emergency responder?

2. How does creativity manifest itself in the emergency response environment?
3. What role does training play in developing emergency responders?

Question 1: What Is It Like to Be an Emergency Responder?

Being an emergency responder is emotional, exciting, stressful, challenging, full of the unexpected, and rewarding. Jim describes some of the more immediate rewards: “Essentially if you arrive at a fire, the fire will go out. At a medical emergency you can see either the patient come back to life or the patient improve. So you are immediately rewarded for your efforts.”

During an incident emergency responders are dealing with the complex interactions of various emotions while resolving difficult and often sad situations. Commonly, emergency responders develop the ability to maintain dignity during these times filled with stress and emotion. Being an emergency responder is synonymous with being a good problem solver. EMS, fire fighters, and law enforcement officers have a broad sense of awareness to detail while interacting with many different factors all at the same time. Victims, by-standers, weather, needed and existing resources, and both known and emergent events challenge responders to put into action all their training.

Being an emergency responder is also having a desire to be part of something bigger than yourself. Jim states that responders “yearn to be part of a group or a society. They want to belong to something, if you will, to a higher good.” This “society” translates into a tight community where humor is important to developing a “family trust” and trust and experience develop credibility of the individual responder and establishes a network of friends, colleagues, and mentors.

At its best, being an emergency responder is about community, selflessness, humor, compassion, and service to others. Ray sums up what it is like to be an emergency responder: “Overall it's rewarding because you're able to help people.”

*Question 2: How Does Creativity Manifest Itself in the
Emergency Response Environment?*

Creativity is manifested through people, process, and environment with a resulting product. These products may be tangible or intangible (Lubart, 1994). In the case of emergency responders, “product” can be represented in a variety of ways: a life that is saved; a building that is either saved or damage limited to the point that the building is recoverable; or when law enforcement is successful at containing an emotionally volatile situation and reestablishes calm. Another way to view product is as a well organized response that integrates essential parts including the expertise of well-trained, seasoned professionals, machinery and tools, and financial resources. Many emergency responders have the ability to look beyond what is and envision and bring into reality what might be. Given these understandings of product, creativity can be seen throughout the field of emergency response.

Commonly during an incident, especially a large scale incident, events constantly evolve and emerge creating a situation in which emergency responders continually face a new operational environment. The ability to quickly adapt to new circumstances and put the “problem into a manageable context” (Csikszentmihalyi, 1996a) is characteristic of emergency responders. This adaptability to ever changing situations also points to responders’ tolerance for ambiguity as well as their receptivity and openness to the

unexpected. The incident scene frames the environment and the fluidity of events within the incident demands receptivity and openness to new solutions. Flexibility and adaptability characterize emergency responders and the elaborative thinking it takes to resolve the incident as safely as possible. Ray's description of the initial hours of 9/11 demonstrates the characteristics of flexibility, persistence, courage, and adaptability:

I'm sitting on a street corner with a push button desk telephone because Verizon tied me into a thing and I'm sitting there on a street corner making phone calls to vendors! <laughter> But I mean that's how it worked. We had to get it to work. But we pulled vehicles up into the collapse zone. We had found vehicles; most of them were damaged. We had to use equipment to pull the vehicle apart to get to [what we could use] . . . and we made a good pile and a bad pile of equipment. What we could use and what we couldn't use.

Another characteristic of creative people is that they are risk takers. Incidents within emergency response often demand a "performance of high stakes" during which the responders are risking "security, health, and even life in the service of a mission" (Gardner, 1993). Due to the intense training that emergency responders receive, they are able to quickly assess a situation and take only the calculated and necessary risks.

The process of creativity within an emergency response environment is seen through preparation, that is, training. The consistent review and development of skills makes the skills automatic thus freeing up the responders' minds allowing them to deal with the unpredictable elements of a situation. Responders also cross-train and often an individual responder will have expertise in multiple areas. When confronted with the urgency of decision making and action, skills are automatic allowing the responders to quickly pull from multiple domains and arrive at unique solutions to unique occurrences.

In addition, when emergency responders implement a solution, they are constantly moving through the cycle of creating, assessing, recreating, assessing, and recreating.

In short, the improvisational skills of emergency responders to events, which are often emergent and creative in their own right, demonstrate a depth of creative force through the handling of complex, high-risk situations with persistence, endurance, and determination.

Question 3: What Role Does Training Play in Developing Emergency Responders?

Emergency responders are passionate about their training. They know that what they learn and practice during training evolutions forms the foundation of their professionalism, provides opportunities to learn new skills or hone already established skills, reinforces safety considerations, and will save their lives and the lives of other people. In addition, during training sessions emergency responders are actively building their community, networking, and solidifying their trust of each other. Charles speaks to these points:

Jim and I were just talking about [a training incident and I said], ‘I think about what we did when we were training and I think about that one time I was doing a demonstration for some students and the next thing you know I saw something that had happened and a piece of equipment was failing.’ And he says, ‘Before I could even say anything about it you were down by my side, you had me secured and you literally saved my life!’

Training provides the foundation for safety and quick responses by helping emergency responders to develop automatic responses to situations. Scenario-based training allows the emergency responders to experience elements of unpredictability during the training in order to lessen unpredictability at the response site. Charles states,

“You just respond and having the ability to recognize the situation and respond to it without formulating a plan and it just becomes automatic.”

For both instructors and students, training is an opportunity to exchange stories about real-life situations and how they were solved in the field. This exchange of stories and solutions strengthens the community of emergency responders and encourages the flow of ideas through discussions. In addition, when responders confront a situation, they often remember the people with whom they have trained and call them for input.

Training is essential to the development of not only the individual emergency responder but also the community of responders. Training is a critical component in developing trust among the emergency responders, increasing confidence in performing skills quickly, effectively, and safely as well as building and strengthening the network of problem solvers. When Ray was asked what prepared him for many of the unusual situations he confronted during his career, he responded, “Training! It had been done before.”

Conclusions

Throughout this study, several observations and themes emerged about emergency responders—who they are as individuals and as a group, how they manifest creativity, and what they want in their training. The observations regarding these three issues are tightly intertwined and support the literature on creativity.

The research literature speaks to problem finding and problem solving as important elements of creativity (Wallas, 1926; Csikszentmihalyi, 1999; Gardner, 1993). Emergency responders are first and foremost good problem finders and problem-solvers.

In addition to their ability to solve problems, they are able to identify and define problems, then put them into manageable contexts.

This study also shows that responders are continually engaged with the stages of control—preparation, incubation, illumination, and verification (Wallas, 1926). The responder community's ability to find and solve problems ties in with preparation, which is identified in the literature as a critical element of creativity (Wallas, 1926; Gardner, 1993; Amabile, 1996; Boden, 2004). As individuals and a group, emergency responders tend to have a wide variety of interests which they actively pursue and then develop appropriate skills. When a particular interest strikes a responder's fancy, then it is common for the responder to develop higher level understandings and skill sets in that domain. This active pursuit of a variety of interests points to flexibility, adaptability, and a sense of curiosity and drive to explore. The participants in this study all point to the importance of training. It is the constant training to respond effectively to known situations that provides the basis for responders to automatically and quickly adapt and combine skill sets as an incident unfolds in unexpected ways.

Incubation takes place during times away from the problem. One finding of this study is that the sense of community, playfulness, and humor among responders helps provide relief from the serious work they do. This relief provides time for incubation which supports the responders in their ability to see solutions across domains—illumination—and encourages improvisation. During an incident, responders are constantly verifying the accuracy of their solution which feeds back into the problem solving task through the stages of control.

In his discussions on creativity, Maslow (1963, 1965) stated that the survival of societies may depend upon people who are comfortable with and enjoy change. In addition, he pointed out the need for people who are at ease with improvisation and who are “able to face with confidence, strength and courage a situation of which he has absolutely no forewarning” (1965, p. 4). The very nature of emergency response calls for an adaptable type person, however, as Jim Johnson pointed out, the September 11, 2004 attacks on the World Trade Center and the Pentagon irrevocably changed the responder community. Since that time emergency responders have understood that the “new normal” is one of uncertainty. No call can be viewed as simply a standard call; there might be something more than meets the eye going on. The vast array and amount of domain knowledge, individually and as a group, allows responders to come up with unique solutions to difficult problems under dire circumstances. An oft heard motto among responders is “Improvise, adapt, and overcome.” The responder community might provide a model for developing the type of people spoken about by Maslow.

This study also found support for Csikszentmihalyi’s (1996b) personality characteristics of the creative person. All the participants in this study display a great deal of physical, mental, and emotional energy sustained over long periods of time while appearing fresh, engaged, and enthusiastic. They are also extremely playful people, especially Ray Kelly, while maintaining focus and discipline; all three participants have the qualities of doggedness, endurance, and perseverance as identified in Csikszentmihalyi’s work. Another quality of creative people displayed by the participants is that of naiveté. These three men are all well-seasoned professionals, savvy

about life and hardened, without losing their humanity, by their careers; yet it is common for each of them to ask the simple question, without embarrassment or fear of ridicule, that pierces to the heart of the matter or demands a new vision.

Csikszentmihalyi also talks about creative people being rooted in a sense of reality while having imagination. This study's participants are all well grounded in reality with active imaginations and understandings of people that comes out in their playfulness and humor. As Jim stated, the humor is not at any one person's expense within the team; everyone gets a turn at being teased. Another characteristic of the creative personality is passion and self-objectivity. These men are extremely passionate about their work yet objective and dispassionate; they review their own actions and thoughts without a sense of undermining themselves. They are also conservative people who are rebellious; each of them have taken on the system, stood his ground, and facilitated change. But most of all, the participants in this study are "remarkably humble and proud" (p. 68) at the same time. There is no arrogance to either their humility or their pride.

Emergency responders, and the responder community as a whole, tend to be creative; they are problem finders, problem solvers, immensely enthusiastic, playful, and caring individuals. However, from my observations, what pulls it all together for the field of emergency response is the deep sense of community, trust, and networking capability among responders. It is the humanness and desire to help other people that ultimately brings the satisfaction and rewards to those career professionals.

An integral part of being a successful emergency responder is the longing to be part of something more than what one person can be; as Jim says, a calling to a “higher good.” It is the team that is greater than the sum of its parts, and that is exactly why many of the people in emergency response go into the field. This calling to a high good also plays strongly into the creative verve of the responder community.

Future Research

Reviewing the themes and observations from this research project suggests several areas rich in possibilities for future research. Some areas of explorations follow:

1. The three participants in this study are all leaders in multiple areas in the field of emergency response. These three men grew up in strong, intact families and, in their adult lives, have maintained those ties as well as developed and maintained strong families of their own.

Research topic: How important are strong, healthy family relationships to the development of leaders in emergency response and with the deterioration of the family unit over the last 30 years, how is this impacting the quality of the emerging leadership?

2. All three participants have credited their wives with their ability to advance professionally. They also all commented on the stress their careers have put on their families but also spoken about their family’s devotion to the man and his calling.

Research topic: Explore the stories of the wives. How the wives and family

units function to support and strengthen a responder personally and professionally.

3. Creativity is seen throughout the field of emergency response; in the people, in the process the people go through in addressing emergency situations; and in the environment.

Research topic: An in-depth exploration of creativity within the context of emergency response.

4. The participants touched on challenges to developing training curriculum.

Research topic: What are the obstacles to developing training for emergency responders? How might dynamic assessment be used in training to develop and assess the creativity of potential emergency responders early in their careers? How might oral histories be incorporated into training to provide the needed perspective of experience?

5. Stress is a major part of the experiences of being an emergency responder.

Research topic: Would enhancing creativity skills promote the emotional health of emergency responders? Is there a relationship between the level of creativity of an emergency responder and their emotional health? How might creativity training be used to inoculate the emergency responder against the stress of the job? How can creativity training and strategies be integrated in Critical Incident Stress Management?

REFERENCES

- Abd-Allah, Umar Faruq. (2006). *Innovation and creativity in Islam*. The Nawawi Foundation. Retrieved April 8, 2006. from <http://www.nawawi.org/downloads/article4.pdf>
- Abra, J. (1988). Skinner on creativity: A critical commentary. *Leonardo*, 21(4), 407-412.
- Abuhamdeh, S., & Csikszentmihalyi, M. (2004). The artistic personality: A systems perspective. In Robert J. Sternberg, E. L. Grigorenco, and J. L. Singer (Eds.) *Creativity: From potential to realization* (pp. 31-42). Washington, D.C. American Psychological Association.
- Al-Hayani, Fatima Agha. (2005). Islam and science: Contradiction or concordance. *Zygon*, 40(3), 565-576.
- Amabile, T. M. (1983). *The social psychology of creativity*. New York, NY: Springer-Verlag.
- Amabile, T. M. (1996). *Creativity in context: Update to the social psychology of creativity*. Boulder, CO: Westview Press.
- Amabile, T. M. (1998). How to kill creativity. *Harvard Business Review*, (September-October), 77-87.
- Amabile, T. M. (2001). Beyond talent: John Irving and the passionate craft of creativity. *American Psychologist*, 56(4), 333-336.

- Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of Management Journal*, 39(5), 1154-1184.
- Arieti, S. (1976). *Creativity: The magic synthesis*. New York, NY: Basic Books, Inc.
- Association for Humanistic Psychology. (2008). *Humanistic psychology overview*. Retrieved June 1, 2008 from <http://www.ahpweb.org/aboutahp/whatis.html>
- Beaudin, Rebecca H. (2005). "And God created...": Creativity in Islam. *International Journal of Kurdish Studies*. Retrieved April 8, 2006 from http://www.accessmylibrary.com/coms2/summary_0286-12665261_ITMS
- Boden, M. A. (1995). Creativity and unpredictability. *Stanford Electronic Humanities Review*, (4)2. Retrieved on January 13, 2006 from <http://www.stanford.edu/group/SHR/4-2/text/boden.html>.
- Boden, M. A. (2004). *The creative mind: Myths and mechanism* (2nd edition). London: Routledge.
- Boring, E. G. (1961). *Psychologist at large: An autobiography and selected essays*. New York, NY: Basic Books.
- Boring, E. G. (1971). Dual role of the Zeitgeist in scientific creativity. In V. S. Sexton and H. K. Misiak (Eds.), *Historical perspectives in psychology: Readings* (pp. 54-65). Belmont, CA:Brooks/Cole.
- Burt, G., & van der Heijden, K. (2003). First steps: Towards purposeful activities in scenario thinking and future studies. *Futures*, 35: 1011-1026.

- Csikszentmihalyi, M. (1965). *Artistic problems and their solution*. Unpublished doctoral dissertation, University of Chicago.
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety: Experiencing flow in work and play*. San Francisco, CA: Jossey-Bass Publishers.
- Csikszentmihalyi, M. (1988). Society, culture, and person: A systems view of creativity. In Robert J. Sternberg (Ed.) *The nature of creativity: Contemporary psychological perspectives* (pp. 325-339). New York, NY: Cambridge University Press.
- Csikszentmihalyi, M. (1990a). The domain of creativity. In M. A. Runco and Robert S. Albert (Eds.), *Theories of Creativity* (pp. 190-212). Newbury Park, CA: Sage Publications, Inc.
- Csikszentmihalyi, M. (1990b). *Flow: The psychology of optimal experience*. New York, NY: HarperCollins.
- Csikszentmihalyi, M. (1993). *The evolving self: A psychology for the third millennium*. New York, NY: HarperCollins.
- Csikszentmihalyi, M. (1996a). *Creativity: Flow and the psychology of discovery and invention*. New York, NY: HarperCollins Publishers, Inc.
- Csikszentmihalyi, M. (1996b). The creative personality. *Psychology Today*, July/August, 36-40.
- Csikszentmihalyi, M. (1997a). Flow and evolution. *The NAMTA Journal*, 22(2), 36-58.
- Csikszentmihalyi, M. (1997b). Flow and creativity. *The NAMTA Journal*, 22(2), 60-97.

- Csikszentmihalyi, M. (1999). Implications of a systems perspective for the study of creativity. In R. J. Sternber (Ed.), *Handbook of creativity* (pp. 313-335). New York, NY: Cambridge University Press.
- Csikszentmihalyi, M. (2000). *Beyond boredom and anxiety: Experiencing flow in work and play* (25th anniversary edition). San Francisco, CA: Jossey-Bass Publishers.
- Csikszentmihalyi, M. (2004). Stalking a new world order. *New Literary History*, 35, 339-348.
- Csikszentmihalyi, M., & Csikszentmihalyi, I. S. (Eds.) (2006). *A life worth living: Contributions to positive psychology*. Oxford, England: Oxford University Press.
- Epstein, R. (1991). Skinner, creativity, and the problem of spontaneous behavior. *American Psychological Society*, 2(6), 362–370.
- Erlandson, D. A., Harris, E. L., Skipper, B. L., & Allen, S. D. (1993). *Doing naturalistic inquiry: A guide to methods*. Newbury Park, CA: Sage Publications.
- Fahey, L. (2003). How corporations learn from scenarios. *Strategy & Leadership*, 31(2), 5-15.
- FEMA (Federal Emergency Management Agency). (2007a). Urban Search & Rescue. Retrieved March 14, 2008 from <http://www.fema.gov/emergency/usr/about.shtm>
- FEMA (Federal Emergency Management Agency). (2007b). Urban Search & Rescue. Retrieved March 14, 2008 from <http://www.fema.gov/emergency/usr/>
- Ford, J. K., & Schmidt, A. M. (2000). Emergency response training: Strategies for enhancing real-world performance. *Journal of Hazardous Materials*, 75, 195-215.

- Friedman, S. (1994). *The genesis of humanistic psychology. Association for Humanistic Psychology*. Retrieved June 1, 2008 from <http://www.ahpweb.org/aboutahp/Freidmanspeech.html>.
- Furnham, A., Batey, M., Anand, K., & Manfield, J. (2008). Personality, hypomania, intelligence and creativity. *Personality and Individual Differences, 44*, 1060-1069.
- GAO. (2005). *Department of Homeland Security: Strategic management of training important for successful transformation*. Washington, DC: GAO-05-888.
- Gardner, H. (1993). *Creating minds: An anatomy of creativity seen through the lives of Freud, Einstein, Picasso, Stravinsky, Eliot, Graham, and Gandhi*. New York, NY: BasicBooks.
- Gardner, H. (2006). *Multiple intelligences: New horizons*. New York, NY: BasicBooks.
- Getzels, J. W., & Csikszentmihalyi, M. (1966). The study of creativity in future artists: The creiterion problem. In O. J. Harvey (Ed.), *Experience, structure, and adaptability* (pp. 349-368). New York, NY: Springer.
- Getzels, J. W., & Csikszentmihalyi, M. (1967). Scientific creativity. *Science Journal, (September)*, 80-84.
- Getzels, J. W., & Csikszentmihalyi, M. (1968). The value-orientation of art students as determinants of artistic specialization and creative performance. *Studies in Art Education, 10*(1), 5-16.
- Getzels, J. W., & Csikszentmihalyi, M. (1969). Aesthetic opinion: An empirical study. *Public Opinion Quarterly, 33*, 34-35.

- Getzels, J. W., & Csikszentmihalyi, M. (1976). *The creative vision: A longitudinal study of problem finding in art*. New York, NY: John Wiley & Sons.
- Giorgi, A. (2000). Psychology as a human science revisited. *Journal of Humanistic Psychology, 45*(2), 204-217.
- Giorgi, A. (2005). Remaining challenges for humanistic psychology. *Journal of Humanistic Psychology, 40*(3), 56-73.
- Goetz, J. P., & LeCompte, M. D. (1981). Ethnographic research and the problem of data reduction. *Anthropology and Education Quarterly, 12*, 51-70.
- Goldstein, K. (1934). *The organism: A holistic approach to biology derived from pathological data in man*. New York, NY: American Book Company.
- Gruber, H. E. (1981). On the relation between “aha experiences” and the construction of ideas. *History of Science 19*, 41-59.
- Guilford, J. P. (1950). Creativity. *American Psychologist, 5*, 444-454.
- Gundry, L. K., Rickul, J. R., & Prather, C. W. (1994). Building the creative organization. *Organizational Dynamics, (Spring)*, 22-37.
- Hesiod. (nd). *Theogony*. Retrieved May 17, 2008 from <http://www.sacred-texts.com/cla/hesiod/theogony.htm>
- International Association of Fire Chiefs. (nd). *About the fire service*. Retrieved October 4, 2008 from <http://www.iafc.org/displaycommon.cfm?an=3>
- International Association of Fire Chiefs. (nd). *America's fire service*. Retrieved October 4, 2008 from <http://www.iafc.org/associations/4685/files/fireservice.pdf>

- Ismail, M. (2005). Creative climate and learning organization factors: Their contribution towards innovation. *Leadership & Organization*, 26(8), 639-654.
- Jourard, S. M. (1963). Objectives outlined. *Phoenix*, 1(1), 1. Retrieved May 30, 2008 from http://www.ahpweb.org/pub/newsletter_archives/archive_pdfs/1963-69/12-63.pdf
- Kaufmann, G. D. (1988). Problem solving and creativity. In Kjell Grønhaug and Geir Kaufmann (Eds), *Innovation: A cross-disciplinary perspective* (pp. 87-137). London: Norwegian University Press.
- Kaufman, G. D. (2007). A Christian view of creativity as God. *Dao*, 6, 105-113.
- Kim, Y-Y, Oh, S., & Lee, H. (2005). What makes people experience flow? Social characteristics of online games. *International Journal of Advanced Media and Communication*, 1(1), 76-92.
- Kim, K. H. (2007). Exploring the interactions between Asian culture (Confucianism) and creativity. *Journal of Creative Behavior*, 41(1), 28-53.
- Lincoln, Y .S. & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.
- Loewe, P., & Dominiquini, J. (2006). Overcoming the barriers to effective innovation. *Strategy & Leadership*, 34(1), 24-31.
- Lowell, A. (1985). The process of making a poem. In Brewster Ghiselin (Ed.) *The Creative Process: Reflections on Inventions in the Arts and Sciences* (pp. 110-112). Berkeley, CA: University of California Press.

- Lubart, T. I. (1994). Creativity. In R. J. Sternberg (Ed.), *Thinking and problem solving* (pp. 290–332). San Diego, CA: Academic.
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50, 370-396.
- Maslow, A. H. (1954). *Motivation and personality* (1st edition). New York, NY: Harper & Brothers Publishers.
- Maslow, A. H. (1958). Emotional blocks to creativity. *Journal of Individual Psychology*, 14, 51-56.
- Maslow, A. H. (1959). *Creativity in self-actualizing people*. In Harold H. Anderson (Ed.), *Creativity and its cultivation*. New York, NY: Harper & Row Publishers, Inc.
- Maslow, A. H. (1962). Lessons from the peak-experience. *Journal of Humanistic Psychology*, 2, 9-18.
- Maslow, A. H. (1963). The creative attitude. *The Structurist*, 3, 4-10.
- Maslow, A. H. (1965). The need for creative people. *Personnel Administration*, May-June, 3-6.
- Maslow, A. H. (1968). *Toward a psychology of being* (2nd edition). New York, NY: D. Van Nostrand Co.
- Maslow, A. H. (1969). Toward a humanistic biology. *American Psychologist*, 24(8), 724-735.
- Maslow, A. H. (1971). *The farther reaches of human nature*. New York, NY: Viking Books.

- Maslow, A. H. (1987). *Motivation and personality* (3rd edition). New York, NY: Longman.
- Matson, F. W. (1969). Whatever became of the Third Force. *AHP Newsletter*, VI(1), 1, 14-15. Retrieved May 30, 2008 from http://www.ahpweb.org/pub/newsletter_archives/archive_pdfs/1963-69/10-69.pdf
- May, R. (1959). The nature of creativity. In Harold H. Anderson (Ed.), *Creativity and its cultivation*. New York, NY: Harper & Row, Publishers, Inc.
- May, R. (1975). *The courage to create*. New York, NY: W. W. Norton & Company, Inc.
- McQuillan, J. & Conde, G. (1996). The conditions of flow in reading: Two studies of optimal experience. *Reading Pyschology*, 17(2), 109-135.
- Mendonca, D. (2006). Training for improvisation in emergency management: Opportunities and limits for information technology. *International Journal of Emergency Management*, 3(4), 348-363.
- Merriam, S. B. (1988). *Qualitative research and case study applications in education*. San Francisco, CA: Jossey-Bass Publishers.
- Meyer, D. K., & Turner, J. C. (2006). Re-conceptualizing emotion and motivation to learn in classroom contexts. *Educational Psychology Review*, 18, 377-390.
- Milgram, R. M. (1990). Creativity: An idea whose time has come and gone? In M. A. Runco and Robert S. Albert (Eds.), *Theories of Creativity* (pp. 215-233). Newbury Park, CA: Sage Publications, Inc.

- Millett, S. M. (2003). The future of scenarios: Challenges and opportunities. *Strategy & Leadership, 31*(2), 16-24.
- Mote, F. W. (1971). *Intellectual foundations of China*. New York, NY: Alfred A. Knopf.
- Moxley, R. A. (1997). Skinner: From essentialist to selectionist meaning. *Behavior and Philosophy, 25*(2), 95-119.
- Nakamura, J., & Csikszentmihalyi, M. (2003a). Creativity in later life. In R. Keith Sawyer, Vera John-Steiner, Seana Moran, Robert J. Steinburg, David H. Feldman, Jeanne Nakamura, and Mihalyi Csikszentmihalyi. *Creativity and development* (pp. 186-216). Oxford, England: Oxford University Press.
- Nakamura, J., & Csikszentmihalyi, M. (2003b). The motivational sources of creativity as viewed from the paradigm of positive psychology. In Lisa A. Aspinwall and Ursula M. Staudinger (Eds.), *A psychology of human strengths: Fundamental questions and future directions for positive psychology* (pp. 257-269). Washington, DC, US: American Psychological Association.
- National Urban Search & Rescue Response System. (2008). *Canine Search Specialist Position Description*. Retrieved on April 3, 2008 from <http://usar.tamu.edu/documents/Info/Canine%20Search%20Specialist%20-%202008%20PD.pdf>
- National Urban Search & Rescue Response System. (2008). *Structures Specialist Position Description*. Retrieved on April 3, 2008 from <http://usar.tamu.edu/documents/Info/Structures%20Specialist%20PD.pdf>

- National Urban Search & Rescue Response System. (2008). *Technical Search Specialist Position Description*. Retrieved on April 3, 2008 from <http://usar.tamu.edu/documents/Info/Technical%20Search%20Specialist%20PD.pdf>
- Neuringer, A. (2003). Creativity and reinforce variability. In Kennon A. Lattal and Philip N. Chase (Eds.) *Behavior theory and philosophy*. New York, NY: Kluwer Academic/Plenum Publishers.
- Neville, R. C. (2007). A comparison of Confucian and Christian conceptions of creativity. *Dao*, 6, 125-130.
- Nickerson, R. S. (1999). Enhancing creativity. In Robert J. Sternberg (Ed.), *Handbook of creativity* (pp. 392-430). New York, NY: Cambridge University Press.
- Noppe, L. D., & Gallagher, J. M. (1977). A cognitive style approach to creative thought. *Journal of Personality Assessment*, 41(1): 85-90.
- O'Donohue, W., & Ferguson, K. E. (2001). *The psychology of B. F. Skinner*. Thousand Oaks, CA: Sage Publications, Inc.
- Phoenix: Newsletter of the American Association for Humanistic Psychology. (1963). New Member Drive. *Phoenix*, 1(1), 3. Retrieved May 30, 2008 from http://www.ahpweb.org/pub/newsletter_archives/archive_pdfs/1963-69/12-63.pdf
- Piirto, J. (2004). *Understanding creativity*. Scottsdale, AZ: Great Potential Press, Inc.
- Poincaré, H. (1929). *The foundations of science: Science and hypothesis; the value of science; science and method*. New York, NY: The Science Press.

- Prose, F. (2002). *The lives of the muses: Nine women and the artists they inspired*.
New York, NY: HarperCollins Publishers Inc.
- Puccio, G. J. (1989). Rationale for the study of creativity: A review and summary. In
T. Rickards and S. Moger (Eds.), *Creativity & innovation yearbook* (pp. 13-26).
Manchester, UK: Manchester Business School.
- Ringen, J. D. (1993). Adaptation, teleology, and selection by consequences. *Journal of
the Experimental Analysis of Behavior*, 60, 3-15
- Rogers, C. R. (1954). Toward a theory of creativity. *ETC: A Review of General
Semantics*, 11(4), 249-260.
- Rogers, C. R. (1979). *Freedom to learn*. London: Charles C. Merrill.
- Rogers, C. R., & Stevens, B. (1967). *Person to person: The problem of being human, a
new trend in psychology*. Lafayette, CA: Real People Press.
- Rottman, S. J., Shoaf, K. I., & Dorian, A. (2005). Development of a training curriculum
for public health preparedness. *Journal of Public Health Management Practice
(November(Suppl))*, S128-S131.
- Runco, M. (2004). Everyone has creative potential. In Robert J. Sternberg, E. L.
Grigorenco, and J. L. Singer (Eds.) *Creativity: From potential to realization*
(pp. 31-42). Washington, D.C.: American Psychological Association.
- Runco, M. A. (2007). *Creativity: Theories and themes: Research, development, and
practice*. Burlington, MA: Elsevier Academic Press.
- Seligman, M., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction.
American Psychologist, 55(1), 5-14.

- Shaffer, J. B. P. (1978). *Humanistic psychology*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Shaw, M. P. (1989). The Eureka process: A structure for the creative experience in science and engineering. *Creativity Research Journal*, 2, 286-298.
- Skinner, B. F. (1965). *Science and human behavior*. New York, NY: The Free Press.
- Skinner, B. F. (1970). Creating the creative artist. In *On the future of art: Essays by Arnold J. Toynbee, Louis I. Kahn, Annette Michelson, B. F. Skinner, James Seawright, J. W. Burnham, and Herbert Marcuse*. New York, NY: The Viking Press.
- Skinner, B. F. (1972a). A lecture on 'having' a poem. In *Cumulative record: A selection of papers*, 3rd ed. (pp. 345-355). Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Skinner, B. F. (1972b). *Beyond freedom and dignity*. New York, NY: Bantam/Vintage Books.
- Skinner, B. F. (1974). *About behaviorism*. New York, NY: Alfred A. Knopf.
- Skinner, B. F. (1986). Is it behaviorism? *Behavioral and Brain Sciences*, 9, 716.
- Skinner, B. F. (1987). *Recent issues in the analysis of behavior*. Columbus, OH: Merrill Publishing Co.
- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.
- State of Connecticut Department of Mental Health and Addiction Services. (2008). *Regulations concerning the Department of Mental Health and Addiction*

- Services' general assistance behavioral health program*. Retrieved on October 4, 2008 from <http://www.ct.gov/dmhas/lib/dmhas/gabhp/gabhpregulations.pdf>
- Sternberg, R. J. (Ed.). (1988). *The nature of creativity: Contemporary psychological perspectives*. New York, NY: Cambridge University Press.
- Sternberg, R. J. (2001). What is the common thread of creativity?: Its dialectical relation to intelligence and wisdom. *American Psychologist*, 56(4), 360-362.
- Stickgold, R., & Walker, M. (2004). To sleep, perchance to gain creative insight? *TRENDS in Cognitive Sciences*, 8(5), 2004.
- Taylor, M. C. (2001). *The moment of complexity: Emerging network culture*. Chicago, IL: University of Chicago Press.
- Torrance, E. P. (1979). *The search for Satori & creativity*. Buffalo, NY: Creative Education Foundation, Inc.
- Torrance, E. P., & Safter, H. T. (1990). *Incubation model of teaching: Getting beyond the Aha!*. New York, NY: Bearly Limited.
- Torrance, E. P., & Safter, H. T. (1999). *Making the creative leap beyond*. Buffalo, NY: Creative Education Foundation Press.
- Uden-Holman, T., Walkner, L., Huse, D., Greene, B. R., Gentsch, D., & Atchison, C. G. (2005). Matching documented training needs with practical capacity; lessons learned from project public health ready. *Journal of Public Health Management Practice*, (November(suppl)), S106-S112.
- United States Department of Health and Human Services, Administration on Children, Youth and Families. (2003). *Child maltreatment 2001* (Washington, DC: U.S.

- Government Printing Office). Retrieved October 4, 2008 from
<http://www.acf.hhs.gov/programs/cb/pubs/cm01/cm01.pdf>
- van der Veer, Jeroen. (2005). *Shell global scenarios to 2005: Executive summary excerpts*. Retrieved: April 30, 2006 from
http://www.shell.com/home/Framework?siteId=royal-en&FC3=/royal-en/html/iwgen/our_strategy/scenarios/dir_scenarios_28022005.html&FC2=/royal-en/html/iwgen/leftnavs/zzz_lhn5_4_0.html
- Vich, M. A. (1963). Convention highlights. *Phoenix*, 1(1); 1. Retrieved May 30, 2008 from http://www.ahpweb.org/pub/newsletter_archives/archive_pdfs/1963-69/12-63.pdf
- Vinacke, W. E. (1952). *The psychology of thinking*. New York, NY: McGraw-Hill Book Co., Inc.
- Wallas, G. (1926). *The art of thought*. London: Watts.
- Weiming, T. (2007). Creativity: A Confucian view. *Dao* 6, 115-124.
- Weisberg, R. (1986). *Creativity: Genius and other myths*. New York, NY: Henry Holt & Co.
- Wesson, K., & Bonlwell, I. (2007). Flow theory: Its application to coaching psychology. *International Coaching Psychology Review*, 2(1), 33-43.
- Westwood, R. & Low, D. R. (2003). The multicultural muse: Culture, creativity and innovation. *International Journal of Cross Cultural Management*, 3(2), 235-259.

- Williams, W. M., & Yang, L. T. (1999). Organizational creativity. Robert J. Sternberg (Ed.), *Handbook of creativity* (pp. 373-391). New York, NY: Cambridge University Press.
- Zussman, R. (2004). People in places. *Qualitative Sociology*, 27(4), 351-363.

APPENDIX A

INTERVIEW PROTOCOL

1. Tell me what it is like to be an emergency responder?
2. What things about you, as a person, serve you well in the emergency response environment?
3. Think about other people in emergency response. What characteristics do they exhibit that tells you someone is going to be a cut-above, among the best? Describe to me a person you feel will do well in emergency response; respond well to the varied circumstances they face on the job.
4. What things about your training have served you well?

APPENDIX B

CHARACTERISTICS OF THE CREATIVE ATTITUDE

The characteristics of the creative attitude are displayed by people “who are able to go confidently into tomorrow not knowing what will come, not knowing what will happen, with confidence enough in ourselves that we will be able to improvise in that situation which has not existed before” (Maslow, 1963, p. 4).

1. **Giving up the past**—Entails seeing something through one’s own eyes rather than how one was trained to see it.
2. **Giving up the future**—This is the art of totally listening or totally looking at what is currently present.
3. **Innocence**—The person who possesses a creative attitude tends to be receptive in an undemanding, nonjudgmental way.
4. **Narrowing of consciousness**—The narrowing of consciousness if when one becomes much less conscious of everything other than the matter-in-hand (*less distractible*)” (p. 8).
5. **Loss of ego: self-forgetfulness, loss of self-consciousness**—This person is “less critical and editing, less evaluating, less selecting and rejecting, less judging and weighting, less splitting and analyzing of the experience” (p. 8).
6. **Inhibiting force of consciousness (of self)**—Creativity can sometimes be inhibited by the consciousness of self though a certain type and level of self awareness is necessary for creative inspiration.
7. **Fears disappear**—When a person is in a posture of creative attitude, their fears, anxieties, depressions, conflicts, ambivalence, worries, and problems in general disappear.
8. **Lessening of defenses and inhibitions**—People with a creative attitude tend lack inhibitions, that is, they are less guarded and are less defensive.
9. **Strength and courage**—Strength and courage is demonstrated through a “stubbornness, independence, self-sufficiency, a kind of arrogance, strength of

character, ego strength” (p. 8) in which the person experiences less of a need “for defense and self-protection, less guardedness, less need for artificiality, less fear of ridicule, of humiliation and of failure” (p. 8).

10. **Acceptance: the positive attitude**—A person with a positive, accepting attitude is so immersed in the moment that judgment and criticism disappear. There are no blocks against the matter-at-hand which now simply flows upon the person.
11. **Trust vs. trying, controlling, striving**—Trust in oneself and the world; it is the knowledge that one can effectively improvise in when confronted with novelty.
12. **Taoistic receptivity**—Understanding of the matter-in-hand in “its own nature and its own style” (p. 9).
13. **Integration of the B-cognizer (vs. dissociation)**—The quality of integration of the entire person “unified, all of a piece, one-pointed, totally organized in the service of the fascinating matter-in-hand” (p. 9).
14. **Permission to dip into primary process**—The ability to access the unconscious.
15. **Esthetic perceiving rather than abstracting**—Perceiving that goes beyond seeing the matter-in-hand as simply abstract, but, rather, seeing the reality of it from all perspectives.
16. **Fullest spontaneity**—So fascinated with the matter-in-hand for its own sake that one is able to interact with it spontaneously.
17. **Fullest expressiveness (of uniqueness)**—The matter-in-hand is an end in itself.
18. **Fusion of the person with the world**—Best understood through the metaphor of “If you want to draw a bird, you must become a bird.”

APPENDIX C

JOB TASKINGS AND AREAS WITHIN THE AMERICAN FIRE SERVICES

Source: International Association of Fire Chiefs, *America's Fire Service*

Fire suppression

. . . fire fighters combat fires daily in residential, industrial, commercial and wildland settings. Each scenario requires specialized training, equipment, and varying levels of resources . . . communities have become more dependent on the fire service requiring more fire fighters to cross-train to cover an increased variety of threats/hazards to which they respond.

EMS

Many fire departments require that fire fighters be trained to the Emergency Medical Technician–Based level, with many fire fighters training to the paramedic level. This allows fire departments to provide life-saving procedures such as advanced cardiac care and the administration of drugs.

Hazardous materials

Hazardous materials response requires specially trained hazmat technician to have the knowledge of a chemist in addition to fire fighting skills. In addition, hazardous materials technicians train for weapons of mass destruction (WMD) preparedness and response. Hazardous materials incidents can range from small, such as a fire in a private pool house where chlorine is stored, to a large train derailment that spills anhydrous ammonia, gasoline or some other hazardous or flammable substance.

Code enforcement

In many jurisdictions, the fire department is charged with enforcing building, occupancy and fire prevention codes. This involves enforcing the laws that prohibit the existence of conditions deemed to be a hazard to

public health, safety and welfare. Code enforcement officials conduct inspections to ensure that a building is in compliance with local and state ordinances. The fire marshal's office is usually responsible for code enforcement.

Wildland fires

Most of the large wildland fires that make the news occur in national forests, parks and other federal lands. Many fire fighters who are active in wildland fire fighting are employees (some contract employees) of the federal government—U.S. Forest Service, Bureau of Land Management, National Park Service and the Bureau of Indian Affairs. Specialized fire fighting teams—hotshot crews, smokejumpers, aviation crews, engine and hand crews—are the backbone of wildland fire defense in America. However, the use of local structural fire agencies to supplement federal deployment is common and without their response, the federal and state resources would, in many cases, not be sufficient to control the incident.

Wildland/urban interface

As people continue to build in wilderness areas, the threat of the wildland/urban interface grows. Also adding to the risk are communities located in forested areas. Fire departments that traditionally train and fight structural fires are now required to train and respond to wildland/urban interface fires.

Fire prevention and education

Most fire departments have some type of fire prevention and education program. These outreach programs allow the fire department to educate the public regarding fire prevention and life safety issues. Programs include smoke alarm campaigns, fire safety for school children, public access defibrillation, CPR and first aid training for citizens, flu shot clinics targeting at-risk populations, citizens' fire academies are examples of the many creative public education programs provided today.

Technical rescue

Technical rescue covers most of the unimaginable emergencies: victims caught in a flash flood (swiftwater rescue), window washers trapped 20 stories high (high angle rescue), motorists trapped in crushed, overturned cars and trucks (vehicle extrication), people trapped in collapsed buildings (collapse rescue). Technical rescue also may include trench

rescue, confined space rescue, scuba diving, open water operations and air rescue.

Urban search and rescue

[Urban search and rescue] is a framework for structuring local emergency services personnel into integrated disaster response task forces. Urban search and rescue involves the location, rescue (extrication) and initial medical stabilization of victims trapped in confined spaces. Structural collapse is most often the cause of victims being trapped, but victims also may be trapped in transportation accidents, mines and collapsed trenches. Urban search and rescue is considered a multi-hazard discipline, and it has proven to be effective in a variety of emergencies and disasters, including earthquakes, hurricanes, typhoons, storms and tornadoes, floods, dam failures, technological accidents, terrorist activities and hazardous materials releases.

Aircraft rescue and fire fighting

Airport fire departments are responsible for aircraft rescue fire fighting, emergency medical response, hazardous materials response, fire prevention inspections, pre-emergency surveys, fire extinguisher inspections, cardiopulmonary resuscitation (CPR) training, automatic external defibrillation (AED) training and more. The Federal Aviation Administration (FAA) requires fire fighters to be in place on the runway for a declared aircraft emergency within three minutes of notification. These fire fighters must have knowledge regarding the types of aircraft arriving/departing, maximum number of passengers possibly inside, location of emergency exits on the aircraft, and location of critical systems on the aircraft that could increase the danger to passengers exiting the aircraft if it was on fire.

Arson investigation

In many jurisdictions, the fire department is charged with arson investigation, usually through the fire marshal's office. Fire marshals are special law enforcement officers with the power to arrest suspects.

Federal and military fire protection In addition to fighting fires on military bases and federal installations, federal fire fighters provide emergency medical service response, respond to hazardous materials situations and inspect military bases and other federal facilities. Many federal and military fire departments have mutual aid agreements with local fire departments. The federal fire service is also charged with the

protection of critical military infrastructures, which require special knowledge, handling and security clearances.

Explosive response and investigation

Many fire departments also deploy bomb squads, traditionally housed under law enforcement. Whether under the command of the fire department or law enforcement, the bomb squad technicians and investigators work closely with both public safety entities. Bomb squads respond to all incidents involving explosive materials, incendiary devices, improvised explosive devices, accidental explosions, bombings and related matters.

Industrial fire and safety

Fire is a serious risk in an industrial setting. Industrial fire and safety personnel are private fire and emergency service responders that provide firefighting, hazardous materials, rescue and emergency medical response to fixed industrial sites, and they often forge mutual aid agreements with surrounding jurisdictions to ensure adequate protection of their facilities. They must have in place extensive preplanning, up-to-date Material Safety Data Sheets, evacuation plans, and use of the latest technology in fire protection systems to minimize the risk and extent of damage caused by fire or chemical release. In addition, there are extensive government regulations from OSHA (Occupational Safety and Health Administration) and the EPA (Environmental Protection Agency), as well as stringent insurance guidelines that industrial fire and safety agencies must follow. Industries that are typically protected by industrial response teams include everything from petroleum/chemical plants, food processing plants, and large-scale manufacturing plants. These industries must deal with a number of potential threats that include hazardous materials, fires, confined space emergencies, and even terrorist incidents.

APPENDIX D
LOCATION OF FEMA US&R RESPONSE SYSTEM
TASK FORCE TEAMS

Figure D.1. Map Showing Locations of FEMA US&R Task Force Teams
[<http://www.fema.gov/emergency/usr/locations.shtm>]



Table D.1. FEMA US&R Task Force by state, identification number, and sponsoring organization.

State	Identification Number	Sponsoring Organization
Arizona	AZ-TF1	Phoenix, Arizona
California	CA-TF1	LA City Fire Dept.
	CA-TF2	LA County Fire Dept.
	CA-TF3	Menlo Park Fire Department
	CA-TF4	Oakland Fire Dept.
	CA-TF5	Orange Co. Fire Authority
	CA-TF6	Riverside Fire Department
	CA-TF7	Sacramento Fire Dept.
	CA-TF8	San Diego Fire Dept.
Colorado	CO-TF1	State of Colorado
Florida	FL-TF1	Miami-Dade Fire Dept.
	FL-TF2	Miami Fire Dept.
Indiana	IN-TF1	Marion County
Maryland	MD-TF1	Montgomery Fire Rescue
Massachusetts	MA-TF1	City of Beverly
Missouri	MO-TF1	Boone County Fire Protection District
Nebraska	NE-TF1	Lincoln Fire Dept.
Nevada	NV-TF1	Clark County Fire Dept.
New Mexico	NM-TF1	State of New Mexico
New York	NY-TF1	NYC Fire and EMS, Police
Ohio	OH-TF1	Miami Valley US&R
Pennsylvania	PA-TF1	Commonwealth of Pennsylvania
Tennessee	TN-TF1	Memphis Fire Dept.
Texas	TX-TF1	State of Texas Urban Search & Rescue
Utah	UT-TF1	Salt Lake Fire Dept.
Virginia	VA-TF1	Fairfax Co. Fire & Rescue Dept.
	VA-TF2	Virginia Beach Fire Dept.
Washington	WA-TF1	Puget Sound Task Force

APPENDIX E

**POSITION TITLES AND SELECTED REQUIREMENTS FOR
THREE US&R TASK FORCE POSITIONS: CANINE SEARCH
SPECIALIST, TECHNICAL SEARCH SPECIALIST, AND
STRUCTURES SPECIALIST**

Appendix E.1. General Requirements for All Task Force Positions

1. Must be able to meet the physical requirements of the sponsoring agency with or without accommodations.
2. Must be available on short notice to mobilize within six hours of request and be self-sufficient for at least 72 hours for a response assignment of up to 10 days in austere environments.
3. Must be capable of improvising and functioning for long hours under adverse conditions.
4. Must maintain current inoculations for Diphtheria/Tetanus (or Tetanus only if there is a contra-indication to Diphtheria), Hepatitis A and B, Measles/Mumps/Rubella (if born after 1957), and Polio.
5. Must be able to function safely at heights and on or around rubble.
6. Must be aware of the signs, symptoms and corrective measures of critical incident stress syndrome.

7. Must understand and adhere to safe working practices and procedures as required in the urban disaster environment.
8. Must have a working knowledge of the FEMA and BHR/OFDA (USAID) US&R Response Systems and organizational structures, operating procedures, safety practices, terminology, knowledge of all TASK FORCE/SAR TEAM equipment, and communications protocols.
9. Must have successfully completed the First Responder Awareness Level for Hazardous Materials as per OSHA Standard 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response.
10. Must be currently certified in at least Standard First Aid.
11. Must be currently certified in American Heart Association Cardiopulmonary Resuscitation - Basic Life Support.
12. Must have a working knowledge of the Incident Command System.
13. Must understand the needs of and provide support to their counterparts within the Task Force/SAR Team for specific operations, techniques and application of tools and equipment.
14. Must possess training and experience in personal safety in US&R environments.

Appendix E.2. Description of Duties: Requirements for Canine Search Specialist

(National Urban Search & Rescue Response System, 2008a)

The Canine Search Specialist is primarily responsible for supporting the Search function with the canine resource. He/she is also responsible for the care and welfare of

the canine during mission deployment. The Canine Search Specialist reports to the Search Team Manager.

The Canine Search Specialist must have:

1. Practical knowledge of general search strategy and tactics.
2. Practical knowledge of the technical aspects of search theory.
3. Practical knowledge of the theory and techniques of searching collapsed structures.
4. Practical knowledge of canine first aid.
5. Current certification as a FEMA Canine Search Specialist Team.
6. Successfully completed the FEMA Canine Search Specialist Course.

The Canine Search Specialist must:

1. Have experience as a task dog handler/trainer (police, SAR, guide, etc.).
2. Have an understanding of canine search operations including team size, check and recheck procedures, and observer responsibilities.
3. Be competent in canine search handling.
4. Completed Basic Rescue Module consisting of Confined Space (entrant), Basic Rope Rescue, and Trench awareness.

The Canine Search Specialist must:

1. Be able to support the search team with the canine resource.
2. Be able to operate safely in adverse environments, including swift water.
3. Be able to interpret canine behavior and report those results.

4. Be able to assist in additional Task Force activities that may arise during a mission.
5. Be able to account for, maintain and utilize issued equipment.
6. Be able to assist the medical specialist in canine care.

Appendix E.3. Description of Duties: Requirements for Technical Search Specialist

(National Urban Search & Rescue Response System, 2008b)

The Technical Search Specialist is responsible for performing the search function of the Task Force/SAR Team incident operation. The Technical Search Specialist reports directly to the Search Team Manager.

The Technical Search Specialist is responsible for:

1. Searching structures in US&R environments or other locations indicated in the mission assignment using appropriate technical search equipment and techniques.
2. Documenting locations of alerts and, if possible, triaging the status of victims for rescue.
3. Adhering to all safety procedures.
4. Assisting other search and rescue resources.
5. Accountability, maintenance, and minor repairs for all issued equipment.
6. Performing additional tasks or duties as assigned during a mission.

The Technical Search Specialist must have:

1. Completed the FEMA US&R Technical Search Specialist Course.

2. Be proficient in the operation and maintenance of all FEMA US&R Technical Search equipment and maintain proficiency as technology changes.
3. Knowledge of the capabilities and operations of the canine search component.
4. A practical knowledge of search strategy and tactics.
5. A practical knowledge of the theory and types of building construction and collapse.
6. Knowledge of the technical search equipment included in a TF equipment cache
7. Successful completion of the Structural Collapse Technician course is desirable but not required.

The Technical Search Specialist must:

1. Be proficient at performing basic electronic trouble shooting, in the field.
2. Be proficient in the operation of selected technical electronic search equipment in the disaster environment and have a thorough familiarization of the manufacturer's manuals and technical publications, as provided.
3. Be proficient in applying search tactics, strategy, and procedures at collapse sites.
4. Be proficient in land navigation and site mapping.

The Technical Search Specialist must:

1. Possess the ability to assess structural integrity, hazards and victim medical condition through the use of technical search equipment.

2. Must demonstrate proficiency at the technical rescue skill sets.
3. Have the ability to be flexible, improvise, share information and resolve conflict.
4. Be able to effectively communicate orally and in writing all findings.
5. Be able to operate in all natural and manmade disaster environments.

Appendix E.4. Description of Duties: Requirements for Structural Specialist

(National Urban Search & Rescue Response System, 2008c)

The Structures Specialist is responsible for performing the various structural assessments for the task force during incident operations. The Structures Specialist reports directly to the Planning Team Manager.

The Structures Specialist must have:

1. Completed the FEMA/USACE Structural Specialist Course.(StS1)
2. Completed Basic Rescue Module (Appendix A) consisting of Confined Space (entrant), Basic Rope Rescue, and Trench awareness.
3. Knowledge of Garmin GPS (or compatible) including Computer Interface - the down-loading and up-loading of maps.
4. Knowledge of how Rescue Specialists are trained to perform Breaching and Breaching, Lifting and Moving, and Shoring Construction. It is recommended that Structure Specialists complete Structural Collapse Technician course, as presented by own Task Force, in order to obtain this knowledge

5. Knowledge of the appropriate types of structural hazard reduction methods for various types of collapsed structures
6. Knowledge of victim access methods, and of safe rescue practices and procedures
7. Comprehensive knowledge of building materials, to include:
8. Current and past design and construction techniques for wood, masonry, concrete, and steel.
9. Knowledge of the behavior of structures under adverse loading conditions.

The Structures Specialist must be/have:

1. Currently licensed as a Professional Engineer specialization in structures or Equivalent as Sanctioned by the FEMA US&R Technical Sub-committee.
2. A minimum of 5 years experience in structure design and analysis to include evaluation of existing structures, field investigation or construction observation experience.
3. Capable of setting up and using various monitoring and other tools available in the US&R equipment cache

The Structures Specialist must be:

1. Able to identify features that allow for the determination of the condition of structures subjected to adverse loading from natural and man-made disasters.
2. Able to identify vertical load and lateral force resisting framing systems and identify the critical elements within those systems.
3. Able to identify failure indications of building materials.

4. Able to identify building features that could provide entry or access to victims such as ducts, shafts, etc.
5. Able to recommend practical solutions for US&R operations in compromised structures.

VITA

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