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First Responder Training Transfer: Does Training Delivery Method Matter?

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HOMELAND SECURITY TRAINING TRANSFER:
DOES TRAINING DELIVERY METHOD MATTER?

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FIRST RESPONDER TRAINING TRANSFER: DOES TRAINING DELIVERY METHOD MATTER?

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DEDICATION

I dedicate this dissertation to my wife, Dr. Leah Shea Simpkins, and our three children, Gavin Keith Simpkins, Gabrielle Skye Simpkins, and Graham Shea Simpkins. Their unconditional love and support during my doctoral studies provided me the encouragement needed to make my doctoral dreams a reality.

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ABSTRACT

Technology-based training solutions are increasingly being utilized by organizations to achieve training objectives at lower costs as compared to traditional instructor-led training (ILT). This is especially true for the Nation's first responder agencies that continue to face difficulties related to expanding training requirements that are pitted against limitations in agency financial and human resources. Despite the proliferation in the use of technology-based training solutions, such as web-based training (WBT), there is little research within the first responder community as to whether WBT is as effective as ILT in enabling trainees to transfer essential knowledge, skills, abilities (KSAs) from a training course to daily job settings.

This study addressed this research gap through secondary data analysis of ILT and WBT courses developed by the Rural Domestic Preparedness Consortium (RDPC), a Federal Emergency Management Agency (FEMA) training provider, and subsequently delivered to first responders in rural communities across the United States. The secondary data analyzed within this study was originally obtained through the RDPC Level 3 Course Evaluation Program, which evaluates the training effectives of delivered courses. Although the RDPC program captures training transfer-related data for its courses, a comparative analysis of training delivery method has not been completed. Therefore, this analysis enabled the determination as to whether training transfer within the first responder community is affected by the training delivery method as well as other trainee characteristics (e.g., responder discipline and geographical region). Overall, the research findings suggest that training transfer is unaffected by training delivery method (ILT and WBT within this study) within the first responder community.

The study results are important for first responder agencies in light of budget limitations, which tend to be exaggerated in small and rural areas. For example, the results illustrate that first responder agencies can utilize cost-effective WBT and experience no drop-off in training transfer. This finding provides justification to training providers, such as the RDPC, to invest in WBT course development and expanded delivery mechanisms to help provide training in more effective and efficient ways, which is important in small, rural, and remote communities. Lastly, this research provides valuable insight for both the first responder and academic communities by presenting information to help ensure the right trainee takes the right training at the right time for the right investment.

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LIST OF ACRONYMS

ANOVA	Analysis of Variance
ASTD	American Society for Training and Development
AWR	Awareness
CD	Compact Disc
CDP	Center for Domestic Preparedness
DHS	U.S. Department of Homeland Security
ED	U.S. Department of Education
EM	Emergency Management
EMI	Emergency Management Institute
EMS	Emergency Medical Services
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ERS	Economic Research Service
ESL	English as a Second Language
FEMA	Federal Emergency Management Agency
FS	Fire Services
FLETC	Federal Law Enforcement Training Center
GA	Government Administrative
IBM	International Business Machine
ICS	Incident Command System
ILT	Instructor-Led Training
KSA	Knowledge, Skills, and Abilities
LE	Law Enforcement
LMS	Learning Management System
MAA	Mutual Aid Agreement
MGT	Management
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NDPC	National Domestic Preparedness Consortium
NIMS	National Incident Management System
NLETC	Nebraska Law Enforcement Training Center
NPS	Naval Post-Graduate School
NTED	National Training and Education Division
OTH	Other
PER	Performance
PH	Public Health
PSC	Public Safety Communications
PSS	Private Sector Security
RDPC	Rural Domestic Preparedness Consortium
ROI	Return on Investment
SPSS	Statistical Package for the Social Sciences
THIRA	Threat and Hazard Identification and Risk Assessment
TLO	Terminal Learning Objective
U.S.	United States
USCG	U.S. Coast Guard

USDA	U.S. Department of Agriculture
USFA	U.S. Fire Academy
WBT	Web-Based Training

CHAPTER I

INTRODUCTION

Following the tragic events of September 11, 2001 and the hurricane season of 2005, preparedness, response, and recovery training within the first responder community became a significant national priority at the federal, state, and local levels. Training within the first responder community is unique because emergency response occurs in a complex and dynamic environment in which critical decisions must be made with the knowledge that there is no single correct answer, action, and/or solution (Moskaliuk, Bertram, & Cress, 2013). Ultimately, the provision of relevant, timely, and effective emergency preparedness and response training to individuals within the first responder community is a critical issue because they protect and save lives and property through action, which is the main objective of any emergency response (Mendonca, Beroggi, Gent, & Wallace, 2006). Further, their actions, judgements, and behaviors are a result of the training they have received (and their inherent intuition developed through training and experience) that is subsequently utilized in emergency situations, which is especially true for low-frequency, high-consequence events (e.g., major earthquakes) (Atherton & Sheldon, 2012; Mendonca et al., 2006).

The first responder community is currently facing difficulties related to expanding training requirements that are pitted against limitations in financial and human resources. Complicating this fact is that a one-size-fits-all approach cannot be applied to the first responder community because of different disciplines across the community (e.g., fire, law enforcement, and emergency management), different roles across and within disciplines and individual agencies, and different backgrounds, experiences, and skills

within individuals. Further, training must now be modernizing in terms of development and delivery in order to be applicable to and motivate the new generation of digital learners that are entering the first responder community workforce (Spain, Priest, & Murphy, 2012).

To combat future incidents and disasters, the U.S. Department of Homeland Security (DHS) and the Federal Emergency Management Agency (FEMA) are continuously providing support to the Nation's first responders through national initiatives, such as the National Planning Frameworks (DHS, 2014), National Preparedness Goal and the Core Capabilities (DHS, 2011b), National Preparedness System (DHS, 2011c), Whole Community Approach (DHS, 2011d), and the National Incident Management System (NIMS) (DHS, 2008). In addition to these initiatives, DHS and FEMA also provide training programs and support to the Nation's first responder community through FEMA's National Training and Education Division (NTED) and its federal training partners. Although the training programs and support offered by NTED have provided beneficial training to countless first responders at no charge (all training is provide tuition free), many of the training programs are comprised of multiday, resident-based courses focused on large, metropolitan areas. This presents a hardship to first responders in rural and frontier communities and other agencies with limitations since they face unique challenges that are not present in large, urban, and well-funded agencies (e.g., inability to travel because of lack of backfill, training content does not address rural/frontier aspects). To combat this, DHS and FEMA and its federal training partners have mechanisms to provide training to rural and frontier first responders, such as through distance learning training courses (e.g., web-based training [WBT] courses).

Despite the commonly associated benefits of and the continual rise in the use of distance learning, a larger question remains whether distance learning courses are as effective at transferring critical knowledge to a first responder's workplace as traditional instructor-led training (ILT) courses.

This study attempted to answer this general question through secondary data analysis of ILT and WBT courses developed by the Rural Domestic Preparedness Consortium (RDPC), a FEMA federal training provider, and subsequently delivered to first responders in rural communities across the United States. Since 2010, the RDPC has captured information from trainees regarding application of knowledge, skills, and attitudes (KSAs) that have been transferred and/or applied to daily job settings. A comparative analysis between delivery methods, however, has not been completed. Therefore, this study provided insight into whether training transfer within first responders is affected by the training delivery method as well as other trainee characteristics (e.g., responder discipline and geographical region). Overall, this research provides valuable insight for academia, first responder agencies, and FEMA by presenting information to help ensure the right trainee takes the right training at the right time for the right investment.

What is Training Transfer?

Knowledge transfer is considered the ultimate aim/goal teaching and/or training (McKeough, Lupart, & Marini, 1995; Leberman, McDonald, & Doyle, 2006). Therefore, successful and effective training transfer to the job is a very critical issue/concern to any training program (Ford, Quinones, Sego, & Sorra, 1992). Though the beginnings of transfer research date to the early 1900s, the most frequently cited definition and/or

model of training transfer today is Baldwin and Ford's (1988) seminal work that reviewed all transfer research through the late 1980s, which resulted in a fundamental transfer model (Burke & Hutchins, 2007; Blume, Ford, Baldwin, & Huang, 2010). Utilizing Baldwin and Ford's (1988) research, the central definition and tenants of training transfer are as follows.

> The degree to which trainees effectively apply the knowledge, skills, and attitudes gained in a training context to the job. For transfer to have occurred, learned behavior must be generalized to the job context and maintained over a period of time on the job. (Baldwin & Ford, 1988, p. 63)

More simply stated, training transfer is the ability of a trainee to apply KSAs learned during a training course to their daily job setting, or from one situation (e.g., the training course) to another situation (e.g., workplace) (Hoyt, 2013; Kaiser, Kaminski, & Foley, 2013; Freeman, 2013). Therefore, transfer results in the trainee practicing what they learned from the trainer (MacRae & Skinner, 2011). Outside the training spectrum, some see transfer as part of daily life as individuals apply their formal learning (e.g., primary, secondary, post-secondary education) to new events or situations throughout their life (Macaulay & Cree, 1999). Further, Fleishman (1987) contents that transfer can be assumed as a fact of life:

> Transfer of learning. . .is pervasive in everyday life, in the developing child and adult. Transfer takes place whenever our existing knowledge, attitudes, and skills affect the learning or performance of new tasks. Transfer of learning is seen as fundamental to all learning (p. xi).

Some even see training transfer as the "teaching and learning transaction between a knowledge provider and a knowledge receiver" (Lou, Shih, Tseng, Diez, & Tsai, 2010). Therefore, some see teachers are the enablers of transfer (Cree & Macaulay, 2000).

Types of transfer. The current literature is filled with discussions on various types of transfer. Though many of these various transfer types are important in structuring research, such as primary and secondary educational research, the totality of the various transfer types offers an overly complex view of the transfer concept. For example, the transfer types described within the literature include:

- Near/far transfer (Larsen-Freeman, 2013; Blume, Ford, Baldwin, & Huang, 2010; Cree & Macaulay, 2000; Macaulay & Cree, 1999; Leberman et al., 2006; Kirwan, 2009),
- High-road/low-road transfer (Larsen-Freeman, 2013; Perkins & Salomon, 2012),
- Vertical/lateral transfer (Blume et al., 2010; Kirwan, 2009),
- Positive/negative transfer (Larsen-Freeman, 2013; Cree & Macaulay, 2000; Macaulay & Cree, 1999; Schwartz, Chase, & Bransford, 2012; Leberman et al., 2006),
- Literal/figural transfer (Kirwan, 2009),
- Simple/complex transfer (Leberman et al., 2006), and
- Automatic/mindful transfer (Leberman et al., 2006).

A cursory review of the current transfer literature illustrates that near/far transfer is the most commonly discussed and simplest transfer typology (Leberman et al., 2006). Although the near/far transfer typology is simple, it can be effectively used as a starting point for further comprehension of the transfer concept. For example, Haskell (2001)

believes that one must move beyond the simple near/far aspect of transfer and identify other levels to fully understand transfer. Therefore, Haskell (2001) provides a six-level scale to illustrate the transfer concept and to aid in comprehension, which is shown in Table B1[1]. A seventh level (Level 0) has been added to the scale to illustrate failed transfer (or inert knowledge), which is knowledge that is not transferred/applied when appropriate (Whitehead, 1929).

Transfer model domains and factors. The most extensively cited transfer framework continues to be the Baldwin and Ford model (Kirwan, 2009). The Baldwin and Ford model includes three domains (Training Inputs, Training Outputs, and Conditions of Transfer) and associated factors that can impact training outcomes and transfer (Ford & Weissbein, 1997). These factors include Trainee Characteristics (ability, personality, motivation), Training Design (principles of learning, sequencing, training content), Work Environment (support, opportunity to use), Learning and Retention, and Generalization and Maintenance (Baldwin & Ford, 1988). As suggested by Baldwin and Ford (1988), the specific factors within the Training Inputs domain can affect transfer. For example, "generalization and maintenance are dependent upon learning and retention of the training material, but that they can also be affected directly by trainee characteristics and work environment factors" (Kirwan, 2009, p. 12). Therefore, it is no surprise that much of the transfer literature focuses on the three factors within the Training Inputs domain: Trainee Characteristics, Training Design, and Work Environment. To summarize this research, Burke and Hutchins (2007) synthesized the literature that addressed the three training inputs, which resulted in the identification of specific variables that affect transfer and their level of empirical support. From the 170

[1] All figures appear in Appendix A. All tables appear in Appendix B.

articles reviewed, Burke and Hutchins (2007) identified 31 factors that have received research attention in regards to their relationship with transfer, which were subsequently categorized into four specific research support levels. Table B2 provides a summary of the outcomes of the research.

Transfer estimates. In light of all the research on the transfer concept, one may ask how much training is actually transferred to a trainee's daily job setting. Although one would hope that high percentages would be present because of the personal, financial, and other expenses associated with training, the actual truth fails to provide much hope. Ford and Weissbein (1997) stated there is so-called "transfer problem" in training programs because "much of what is trained fails to be applied in the work setting" (p. 22). In terms of financial expenses, Baldwin and Ford (1988) estimates that approximately 10% of what is spent on training courses and programs results in training transfer whereas Saks (2002) provides a higher estimate of 50%. On the individual side, Saks (2002) estimates that close to 40% of trainees do not transfer knowledge immediately after training and a staggering 70% fail to transfer one year post-training. Overall, the common and accepted belief is that only 10% to 30% of new KSAs provided during training are ultimately transferred back to the trainee's daily job setting and maintained over a significant period of time (Baldwin & Ford, 1988; Kirwan, 2009, Burke & Hutchins, 2007; Broad & Newstrom, 1992; Tannenbaum & Yulk, 1992; Brinkerhoff & Gill, 1994; Brinkerhoff & Montesino, 1995; Saks & Belcourt, 2006). These percentages are considered a "dismal return on investment," which is of significance to both employer and employee (Thompson, Brooks, & Lizarraga, 2003, p. 539).

Telecom Revolution and the Rise of Online Training

Although distance learning has been around for over 100 years (Galusha, 1998), the inventions and omnipresence of the Internet today has fundamentally changed distance learning (Howell, Williams, & Lindsay, 2003; Thirunarayanan & Perez-Prado, 2001; Shachar & Neumann, 2010). No longer are distance learning courses comprised of the postal mail correspondence courses of yesteryear (Galusha, 1988), but rather a variety of formats that include live virtual classrooms, individualistic self-paced courses, immersive role-playing/gaming simulations, and smaller-scale rapid/on-demand courses (Blanchard, 2009). Marking 25 years of change associated with the Internet, the Pew Research Center released a report in February 2014 declaring that the "Internet has been a plus for society and an especially good thing for individual users," such as trainees (Rainey, Fox, & Duggan, 2014, p. 25). Many have also considered the advancement of online training and education as part of the telecom revolution that has been caused by the Internet boom over the past few decades (Martin, 2012; Shachar & Neumann, 2010; Shachar & Neumann, 2003; Bell, 1998; Schmeeckle, 2003). The telecom revolution has also had profound and transformative impacts beyond just individual trainees to institutions, including first responder agencies, which have been forced to adjust to the revolution in the span of just a few years. In fact, the impact of the telecom revolution on first responder agencies has been quite possibly more significant than in other public sectors as it presents both new opportunities to achieve greater efficiencies in some areas such as training, but also new threats enabled through use of the Internet (e.g., fraud and theft, conspiracy, crimes against children).

The so-called telecom revolution is not a figurative word, but rather an appropriate adjective for how distance learning (e.g., WBT, computer-based training, etc.) is changing training and education. Current statistics on the continual rise of distance learning illustrate its growth and breadth in a relatively short amount of time (less than 30 years) in both industry and higher education. For example, industry statistics illustrate that the percentage of companies utilizing distance learning technology to facilitate training has increased from 8% in 1999 to 27% in 2004 (Sitzmann, Kraiger, Stewart, & Wisher, 2006). Further, about 75% of the distance learning courses were WBT courses. This is consistent with similar estimates that reveal close to 30% of corporate and industry organizations have moved to distance learning formats (Peters, Barbier, Faulx, & Hansez, 2012). Further, the distance learning industry revenues have continued to expand immensely. For example, distance learning revenues were approximately $12 billion in 2007 and reached approximately $17 billion in 2009 (Joo, Lim, & Park, 2010; Blanchard 2009), which is over a 41% increase. Estimates expect distance learning revenues to be close to $24 billion by the end of 2014, which is a 100% revenue increase in seven years (Blanchard, 2009).

In addition to industry, higher education has felt the pressure to move to and offer education online (Tucker, 2001; Thirunarayanan & Perez-Prado, 2001; Motteram & Forrester, 2005; Martin, 2012). The pressure on higher education institutions to move educational opportunities online is created by the need to (1) be more cost effective in light of shrinking public funding, (2) reach new student populations to increase enrollments, (3) improve access for non-traditional students, (4) meet student demand for online courses, and (5) ultimately increase profits for the institution (Tucker, 2001;

Thirunarayanan & Perez-Prado, 2001; Motteram & Forrester, 2005; Martin, 2012). Further, a survey of chief academic leaders from over 2,800 higher education institutions across the United States revealed that close to 70% agreed that "online learning is critical to their long-term strategy" (Allen & Seaman, 2013, p. 4). This view is reflected in the changing statistics for online higher education students from 2007 to 2011. In 2007, there were there were approximately 3.9 million higher education students who took at least one online course (Martin, 2012). This is in comparison to 6.7 million in 2011, which is a 72% increase (Allen & Seaman, 2013). Overall, as of 2011 approximately 30% of higher education students are taking at least one online course (Allen & Seaman, 2013). In addition, the growth rate of online enrollment continues to outpace overall higher education enrollment by a large margin (Allen & Seaman, 2013). From 2002 to 2011, the annual growth rate for online enrollments was 17.3%, while the growth rate for overall enrollments was 2.6% (Allen & Seaman, 2013).

The numbers above illustrate that one form of distance learning, WBT, is and will be part of professional training in the future (Schmeeckle, 2003), which is now "mov[ing] away from unstructured on-the-job training systems to more formal, structured training programs" (Ford et al., 1992, p. 511). Therefore, it is no surprise that WBT is now an accepted and favored training delivery method within industry, government, higher education, and even the military (Spitzman et al., 2006; Martin, 2012). Some even content that web-based training and education is considered to be "compatible with the way students now prefer to learn" (Thirunarayanan & Perez-Prado, 2001, p. 131) and incorporates the "principles of modern learning pedagogy" (Tucker, 2001, p. 1). Some experts even predict that traditional instructor-led education classes will cease to exist in

the future (Shachar & Neumann, 2010). Lastly, the comments are echoed in the first responder community. For example, Dr. Denis Onieal, former superintendent of the U.S. Fire Academy, has been quoted as stating, "Now is the time for us to embrace the future and improve our education through distance learning" when announcing a new online training system (American Society of Safety Engineers, 2007, p. 20).

Advantage and disadvantages of web-based training and education. Despite its growth, use, and acceptance, there are well-known and significant advantages and disadvantages to web-based training and education. The current literature that highlights and provides deep analysis into these advantages and disadvantages is voluminous. In order to present this research in an easily comprehendible format, Table B3 provides a comprehensive list of the commonly associated advantages and disadvantages of web-based training and education obtained from various sources (Petty, Lim, & Zulauf, 2007; Hoyt, 2013; Kaynar & Sumerli, 2010; Beard, Harper, & Riley, 2004; Emerson & MacKay, 2011; Fenrich, 2006; Wehr, 1988; Harris & Gibson, 2006; Piccoli, Ahmad, & Ives, 2001; Dykman & Davis, 2008; Blanchard, 2009; Spitzman et al., 2006; Tucker, 2001; Galusha, 1998; Mugford, Corey, & Bennell, 2013).

Problem Statement

Even after 100 years of research, the transfer concept is still an important, but challenging, issue for training and education because the literature that is rifled with inconsistent measures and findings (Day & Golstone, 2012; Blume et al., 2010). This has resulted in researchers constantly debating transfer concepts, which has resulted in an overly complex and dynamic view of the transfer process (Blume et al., 2010). Despite the variable literature, some see transfer as being neglected as training evaluation

research focuses more on effectiveness in terms of satisfaction and knowledge retention rather than if the knowledge can be generalized and applied outside of the training (Goldstone & Day, 2012; Peters et al., 2012; Ford et al., 1992). This is not, however, a surprising fact since training evaluations carried beyond simple training satisfaction measures (e.g., how well did a student like the class) and simple pre-/post-test learning measures are seldom completed (Kirkpatrick, 1994; MacRae & Skinner, 2011; Holton, 1996; Bhati, 2007). For example, the American Society for Training and Development (ASTD) reported that within corporate/industrial training programs, approximately 91% utilize training satisfaction measures, 54% utilize pre-/post-test learning measures, 23% utilize training transfer measures, and 8% utilize results or return on investment (ROI) measures (Sugrue & Rivera, 2005). This situation mirrors results from training review research and meta-analyses that consistently state that while a majority of training programs are evaluated through trainee reactions and learning, very few actually examine training transfer to the job (Ford et al., 1992; Arthur, Bennett, Edens, & Bell, 2003; Bhati, 2007). Due to the nature of transfer and the lack of research surrounding it, some view transfer as something that is extremely difficult to achieve and prove (Goldstone & Day, 2012; Kaiser et al., 2013).

Why is transfer important? Despite billions of dollars are being spent every year on training programs, organizations are not sure how much learning employees transfer to their job (Blume et al., 2010). Therefore, transfer has received renewed focus since the 1990s to identify and research variables that influences transfer outcomes (Goldstone & Day, 2012; Peters et al., 2012). This is especially true with the emergence of the multi-billion dollar online training and education industry, and its recent emergence has offered

limited time to produce empirical studies (Schmeeckle, 2003; Petty et al., 2007). This situation led Figlio, Rush, and Yin (2010) to state that the "current state of this research is dismaying: More students are being exposed to Internet classes yet there is not satisfactory research demonstrating where such changes help, hinder, or have no effect on student learning" (p. 5).

Although there are many unaddressed issues related to transfer and WBT, two specific unaddressed issues relate to the Nation's first responders. First, there is a lack of transfer research outside of the academic and the corporate arena, such as the first responder community (Merriam & Leahy, 2005; Schmeeckle, 2003). This means there is little to no empirical evidence for groups who have unique and very applied training requirements, such as first responders, as to how much training is transferred or how to improve transfer if needed (Kaiser et al., 2013). Further, current transfer literature lacks research in applied or real-world settings (Schmeeckle, 2003; Peters et al., 2012; Saks & Belcourt, 1997). Some have criticized the sterile and laboratory nature of previous research in which very few research studies utilized research methods other than experimental (Schmeeckle, 2003). Therefore, researchers have suggested that in order to increase the credibility of transfer research, it needs to be conducted in real-life settings that have all the restraints and randomness of the natural world (Richey, 1998). The goal is to move away from the current trend of overly using convenient samples and begin to structure research that results in highly-contextual explanations (Schmeeckle, 2003).

In addition to a lack of transfer research among nonacademic and non-corporate populations (e.g., first responders) in applied settings, there is also a lack of transfer research that specifically compares transfer in relation to WBT and ILT (Schmeeckle,

2003). This is somewhat because of the over focus on the effects of organizational factors on training transfer, which has resulted in the neglect of examining the effect that training delivery methods may have on training transfer (Petty et al., 2007). Considering the shear amount of online training that takes place today and the lack of research, more comparison research is needed to fully understand learning mechanisms and how training delivery methods may affects knowledge transfer (Joo et al., 2011). Due to the inherent unknowns due the state of research, this situation illustrates a need for comparative transfer research.

Purpose of Study

The purpose of any study is to acquire knowledge to address inherent issues of a particular problem or question. Naturally, the purpose of this study stems from the problem statement above. Specifically, there is lack of understanding and research regarding the following aspects of WBT and ILT as they relate to training transfer:

- Lack of transfer research and understanding among nonacademic and non-corporate populations (e.g., first responders) in applied settings (Merriam & Leahy, 2005; Schmeeckle, 2003; Kaiser et al., 2013; Peters et al., 2012; Saks & Belcourt, 1997; Richey, 1998); and
- Lack of transfer research and understanding that specifically compares transfer in relation to WBT and ILT (Petty et al., 2007; Schmeeckle, 2003; Joo et al., 2011).

Therefore, the purpose of this study was to gain valuable comparative insight into WBT and ILT transfer in order to provide a particular community, in this case first responders, the information they need to determine which training delivery method for specific courses and/or training needs may be better for their employees based on their unique

circumstances. This information is extremely important as WBT continues to expand and become more commonplace and accepted.

Research Questions

Despite the "challenging [and] contentious" aspect of transfer research (Day & Golstone, 2012, p. 153), this research attempted to shed new light on this important issue in relation to WBT and ILT. This new light was energized by the attempt to answer the following questions. The first question provided the overall foundation for the research while the additional questions further refined the focus:

I. Are there differences in transfer between training delivery method (WBT or ILT) within the first responder community?

A. Responder Disciplines (see Figure B6)

1. Are there differences in transfer between responder disciplines within ILT?
2. Are there differences in transfer between responder disciplines within WBT?
3. Are there differences in transfer between responder disciplines trained via different delivery methods?

B. Geographical Regions (see Figure A1)

1. Are there differences in transfer between geographical regions within ILT?
2. Are there differences in transfer between geographical regions within WBT?

3. Are there differences in transfer between first responders from different geographical regions trained via different delivery methods?

From the questions above, one overall hypothesis and seven sub-hypotheses were defined that were tested through this study:

- Overall – Hypothesis #1
  - Null Hypothesis: There is no difference in transfer between training delivery method (WBT and ILT) within the first responder community.
  - Alternative Hypothesis: There is a difference in transfer between training delivery method (WBT and ILT) within the first responder community.
- Responder Disciplines – Hypothesis #2
  - Null Hypothesis: There is no difference in transfer between responder disciplines within ILT.
  - Alternative Hypothesis: There is a difference in transfer between responder disciplines within ILT.
- Responder Disciplines – Hypothesis #3
  - Null Hypothesis: There is no difference in transfer between responder disciplines within WBT.
  - Alternative Hypothesis: There is a difference in transfer between responder disciplines within WBT.
- Responder Disciplines – Hypothesis #4
  - Null Hypothesis: There is no difference in transfer between responder disciplines trained via different delivery methods.

    - Alternative Hypothesis: There is a difference in transfer between responder disciplines trained via different delivery methods.
- Geographic Regions – Hypothesis #5
    - Null Hypothesis: There is no difference in transfer between geographic regions within ILT.
    - Alternative Hypothesis: There is a difference in transfer between geographic regions within ILT.
- Geographic Regions – Hypothesis #6
    - Null Hypothesis: There is no difference in transfer between geographic regions within WBT.
    - Alternative Hypothesis: There is a difference in transfer between geographic regions within WBT.
- Geographic Regions – Hypothesis #7
    - Null Hypothesis: There is no difference in transfer between first responders from different geographic regions trained via different delivery methods.
    - Alternative Hypothesis: There is a difference in transfer between first responders from different geographic regions trained via different delivery methods.

Through the testing of the hypotheses above to answer the specified research questions, important and useful information was obtained that can be utilized by the first responder community to aid in their training to increase their communities' capabilities to plan for,

protect against, respond to, recover from, and mitigate the consequences of incidents and disasters.

Conceptual Framework

Since DHS and FEMA approve all courses before delivery by their federal training providers, the measurement utilized to indicate impact and/or success of an individual training course is *butts in the seats* (e.g., number of individuals who have completed the training course). As FEMA's federal training providers continue to assist first responders and their communities to plan for, protect against, prepare for, respond to, recover from, and mitigate the effects of incident and disasters, it is important to obtain information that will assist in ensuring the right student takes the right course at the right time. This data is essential to determine ways to maximize the funding of federal training providers as well as to increase the preparedness of communities by helping to ensure training is effective. This is extremely important as FEMA continues to incorporate the *Whole Community* approach thereby increasing the preparedness of everyone within a community, which includes the public sector, private sector, and the general public. A fuller understanding training transfer results in ensuring appropriate training information is presented to proper audiences that can be applied in the real-world, which helps to increase the overall preparedness of communities across the United States. For the purposes of this research, the study utilized two models to frame the study in order to analyze and compare training transfer between WBT and ILT.

Model #1 – Baldwin and Ford's transfer model. The first model is Baldwin and Ford's (1988) transfer model, which is the most extensively cited transfer model (Kirwan, 2009). Baldwin and Ford's transfer model includes three domains that include

factors that can impact training outcomes and transfer (Ford & Weissbein, 1997). Ford and Baldwin (1988) explain the transfer concept and their model through the use of six linkages between the domains and factors as presented in Figure A2.

Model #2 – Kirkpatrick's four levels of training evaluation. The second model utilized for this study is Kirkpatrick's (2006, 1996) *four levels of training evaluation*, as the transfer concept is fully engrained in this model as well. Kirkpatrick's model is commonly acknowledged as the standard methodology to effectively evaluate a training program since it is concise, easily understood, easily implemented, and provides actionable information (Holton, 1996). Overall, Kirkpatrick's model is designed to answer four basic, but important, questions: *Did they like it? Did they learn it? Will they use it? Will it matter?* (Simonson, 2007). Although the model by itself does not provide implementation information, its original intent was simply to clarify the evaluation process to enable commencement of an evaluation program (Kirkpatrick, 1996). Kirkpatrick's model can best be summed by reviewing each individual level, which is presented in Figure A3. Level 3 of Kirkpatrick's model is a quintessential example of the transfer concept. The model also shows the sequential linkage between learning and transfer, namely that learning must occur before training transfer can take place (Kirkpatrick, 1996, Kirkpatrick, 1967; Baldwin & Ford, 1988). Therefore, training transfer, according to Kirkpatrick (1960), is essential for the effectiveness and/or success of a training course and/or program. Other authors have similar thoughts in which they perceive Kirkpatrick's model and the Level 3 aspect as the most logical and practical method to frame training transfer research (MacRae & Skinner, 2011; Tamkin, Yarnall, & Kerrin, 2002).

Modified conceptual framework of study. Utilizing the Kirkpatrick and Baldwin and Ford models, a conceptual framework was developed to enable gathering of information to address the previously stated research goals and questions for this study. Specific elements of the Kirkpatrick and Baldwin and Ford models were utilized to develop a new, modified model (see Figure A4). To create the conceptual framework, two modified Training Inputs (Trainee Characteristics and Training Design) from Baldwin and Ford's model were used as well as Level 3 (Transfer) from Kirkpatrick's model. For Training Inputs, the following modified inputs were focused on per the defined research questions.

- **Trainee Characteristics:** Responder Discipline and Geographical Region
- **Training Design:** Delivery Method (WBT or ILT)

These modified inputs enabled necessary evaluation to determine if and how they affect transfer. Information for the Training Characteristics was obtained via student registration data that is collected for each training delivery (WBT and ILT) per FEMA requirements. For Kirkpatrick's model, data from the Level 3 course evaluation of an RDPC course were utilized to determine actual transfer post-training delivery. Overall, this conceptual framework allowed for a visual understanding of the research questions and its dynamics.

Significance of Study

Emergency preparedness, response, recovery, and mitigation are important capabilities every community in the United States must have. An illustration of this need can be found in disasters such as the 9/11 attacks, the hurricane season of 2005, the Joplin (Missouri) tornado, the West (Texas) fertilizer explosion, the I-35 bridge collapse, and

Superstorm Sandy. These are just a few of the many incidents, emergencies, and disasters that occur on a daily basis. Recently, the United States in 2014 experienced 45 major disaster declarations across 32 states and territories (FEMA, 2015). Therefore, the cadre of first responders at the local and state levels needs to be trained to ensure they can protect life and property at all times. This is why training transfer is a critical issue for first responder training because they ultimately save lives through action. These actions are a result of the training first responders receive and subsequently apply to situations they face.

Further, the need for emergency preparedness, planning, response, recovery, and mitigation capabilities is the same for both rural to urban America. For example, the vast majority of incidents are handled by local and state agencies, with very few incidents requiring involvement of federal management and/or resources. This shows that research into the training provided by the federal training partners within FEMA has significant importance. Therefore, this research assists in the effort to increase the preparedness of urban, rural, and frontier communities through the provision of valuable information related to first responder training. In addition, this research also benefits academia by producing information on training transfer within the first responder community, which is a topic that has not been thoroughly studied or commented on within the current research literature. Ultimately, this training transfer research explored and identified specific training inputs that have an effect on training transfer, namely training delivery method (ILT and WBT). This information can be used to help ensure that the right trainee is matched up with the right training that will increase their KSAs through effective training transfer.

Scope, Limitations, and Assumptions of Study

Training transfer is a very complex and dynamic concept. Further, multiple avenues exist to study transfer and the multitude of elements that may affect training transfer. This research, however, had a limited scope because if data limitations as well as to keep the research manageable. First, only the modified Training Inputs of Trainee Characteristics and Training Design of Baldwin and Ford's transfer model were evaluated. The Work Environment Training Input was not be evaluated. This is because data were not available to examine the work environment of the trainees within this project. Although the importance of the work environment's effect on training transfer is acknowledged, this missing aspect within the research was considered a limitation. For example, a trainee's data may show that he/she did not transfer knowledge, which may be because of work environment factors. The available data, however, did not capture this. Therefore, effects on training transfer can be the results of factors outside of those studied that are defined in the research questions.

Second, only Level 3 (Transfer) of the Kirkpatrick's model was utilized. Again, it was acknowledged that Levels 1 (Reaction) and 2 (Learning) are essential to Level 3 (Transfer). This is because if trainees do not like or do not learn through training, they are more likely not to transfer any knowledge to his/her daily job setting. Although the importance of the effect on training transfer by Levels 1 (Reaction) and 2 (Learning) was acknowledged, this missing aspect within the research was considered a limitation. For example, a trainee's data may show that he/she did not transfer knowledge, which may be because of a poor reaction (Level 1) to the training and/or acquiring little to no learning (Level 2) through the training. While Level 1 and 2 data did exist for the ILT courses

included in this research, only Level 2 data existed for the WBT courses (Level 1 data is recorded anonymously). Despite the existence and availability of Level 2 data for the training courses in questions, the inclusion of this data would have significantly expanded the scope of the research to a point where it would have become unmanageable. Again, this meant that effects on training transfer can be the results of factors outside of those studied that are defined in the research questions.

An additional limitation was the study participants. Although the focus was on first responders, the trainees who completed the courses utilized in this study constitute a subset of the first responder base. This unique responder base was rural first responders. Therefore, the study results have limited generalization to first responders outside of the rural domain. Further, there are even unique aspects within the rural first responder community that may also limit the possible generalization of the results to all rural first responders. For example, differences in geographical location (e.g., southwest versus northeast), rurality (e.g., rural versus frontier), and/or dominate industries (e.g., resource extraction community versus technology/academic community) have profound effect on rural first responder agencies. Additionally, the study participants were not a representative, random sample of rural first responders. Essentially, the study participants were considered a convenience sample, which was comprised of individuals who completed a specific training course during a defined timeframe. Further, the pre-assignment of participants into groups (e.g., training delivery method) created internal validity issues because of the necessary quasi-experimental, casual comparative research design.

Lastly, though the courses were marketed to rural first responders, trainees from urban areas are also included in the study participants. Although ILT courses are reserved for rural first responders, additional first responders from urban areas are allowed to complete the course if there are seats available after formal registration has closed for rural participants. In addition, the WBT courses do not have any controls as these courses are open for completion by anyone who is a U.S. citizen and at least 18 years old. Therefore, this introduced urban first responders as well as non-first responders into the research data, which further limited the generalization of the data. Despite the limitations above, the study results produced valuable information for all first responder agencies, both urban and rural, as well as academia.

Definitions of Key Terms

- **Asynchronous Learning:** A learning event where interaction is delayed over time. This delay allows learners to participate according to their schedule and also allows for a geographic separation from the instructor. (Baggett, 2012, p. 15)
- **Course**: A series of lessons related by a common goal for which student completion is documented. (FEMA, 2014c, p. 20)
- **Delivery Method**: Instructional methods used to present training, such as instructor-led training, web-based distance learning, online laboratory, compact disc (CD), books, etc. (FEMA, 2014c, p. 21)
- **Distance Learning**: A term encompassing all learning that takes place at locations remote from the point of instruction. Distance learning may take the form of an instructor-led course delivered via satellite or as CD or web-based training in which training is delivered via computer networks. Distance learning

may incorporate blended learning. Distance learning can also include paper-based materials delivered for self-paced learning such as correspondence courses. (FEMA, 2014c, p. 21)

- **E-Learning:** A broad term that covers a wide set of distance learning applications and processes such as web-based training and computer-based training. (FEMA, 2014c, p. 21)
- **Experiential Learning**: Experiential learning occurs when a learning activity having a behavioral-based hierarchy allows the student to experience and practice job-related tasks and functions during a training session. Any learning based on experiencing, doing, exploring, and even living can be termed experiential. (FEMA, 2014c, p. 21)
- **Federal Training Partner:** A diverse group of training providers who develop and deliver FEMA-approved training courses to first responders. These training providers include the National Domestic Preparedness Consortium (NDPC), RDPC, and the Naval Postgraduate School (NPS), among others. (FEMA, 2014f, ¶ 1)
- **First Responder:** Individuals who, in the early stages of an incident, are responsible for the protection and preservation of life, property, evidence, and the environment, including emergency response providers (emergency medical services, fire services, government administrative, hazardous materials, law enforcement, public safety communications), as well as emergency management, public health, clinical care, public works, and other skilled support personnel

(such as equipment operators) who provide immediate support services during prevention, response, and recovery operations. (FEMA, 2014g, ¶ 1).

- **Instructor-Led Training**: Instruction that is dependent on an instructor or facilitator; the term is often used to distinguish instruction led by an instructor from instruction that is self-paced and student centered. (FEMA, 2014c, p. 22)
- **Interactivity:** There are two types of interactivity, indicative and simulative. Indicative interactivity is typified by the use of button rollovers and site navigation. Simulative interactivity is interactivity that enables students to learn from their own choices in a way that provides some form of feedback. (Baggett, 2012, p. 15)
- **Internet:** An international network developed by the U.S. government and first used to connect education and research networks. The Internet now provides communication and application services to an international base of businesses, consumers, educational institutions, governments, and other organizations. (Baggett, 2012, p. 15)
- **Learning Management System (LMS):** A collection of E-Learning tools available through a shared administrative interface. (Baggett, 2012, p. 15)
- **Management Level (MGT) Training Course:** FEMA-sponsored training courses that are designed for managers who build plans and coordinate the response to a mass consequence manmade or natural event. (FEMA, 2014a, ¶ 1)
- **Mixed-Mode/Blended/Resource-Based Learning:** These terms interchangeably describe an approach to education that combines face-to-face and distance approaches to education in that an instructor or tutor meets with students (either in

a face-to-face mode or through a technological means) and a resource-base of content materials and learning activities are made available to students. In addition, some E-Learning approaches might be used. (Baggett, 2012, p. 15)

- **Mobile Training Delivery:** FEMA-sponsored training provided at or near the location of the agency that requests the training. (FEMA, 2014c, ¶ 1).
- **Online Training Delivery:** FEMA-sponsored self-paced training that is delivered in an asynchronous format via computer and Internet connection. (FEMA, 2014b, ¶ 1).
- **Rural:** A geographic location with a population under 50,000 and/or a population density of less than 1,000 persons per square mile (RDPC, 2012; Rural Assistance Center, 2007).
- **Synchronous Learning:** A real-time, instructor-led event in which all participants participate at the same time and communicate directly with each other. This learning may occur in a classroom setting and/or through technology. (Baggett, 2012, p. 16)
- **Training**: Planned activities which support and improve individual and organizational performance and effectiveness, such as on-the-job training, career development programs, professional development activities, or developmental assignments. (FEMA, 2014b, p. 24)
- **Training Transfer:** The degree to which trainees effectively apply the KSAs gained in a training context to the job. For transfer to have occurred, learned behavior must be generalized to the job context and maintained over a period of time on the job. (Baldwin & Ford, 1988, p. 63)

- **Web-Based Training:** Instruction is delivered over public or private computer networks and displayed by a web browser. (FEMA, 2014b, p. 24)

CHAPTER II

LITERATURE REVIEW

Due to the omnipresence of the Internet in today's globally-connected world, much research has been completed on numerous facets of WBT. The most prevalent facet that has received the most attention is comparisons between WBT and ILT. These studies, however, historically have had a limited focus on Levels 1 (Reaction) and 2 (Learning) within Kirkpatrick's model. Specifically, researchers have examined individuals' feelings (Level 1) about WBT in comparison to ILT and compared measurements of learning (Level 2) achieved through the course. Since most training evaluations never progress beyond reactions and learning, it is not surprising that the same result extends into published literature as well. Therefore, there is an absence of transfer literature in relation to a comparison of WBT and ILT. As discussed in the *Problem Statement* and *Purpose of Study* sections, the research on transfer is voluminous, but is primarily focused on examining those Training Inputs, Training Outputs, and Conditions of Transfer that affect the ability of an individual to transfer acquired knowledge post-training. For example, Perkins and Salomon (2012) summarizes the current transfer literature by stating the "common motif is not *whether* significant transfer of learning can occur but *under what conditions of learning*" (p. 248). In addition, the current transfer research has focused primarily on corporate and academic populations, with research methodologies utilizing (laboratory) environments and/or convenience samples that are insulated from outside influences that are beyond control. Further, there is a lack of empirical comparison research that examines if transfer is more prevalent with ILT or WBT. Overall, this research aimed to fill the current gaps in the transfer

literature by focusing on two specific areas: (1) transfer within nonacademic and non-corporate populations (e.g., first responders) in applied settings; and (2) transfer comparison in relation to WBT and ILT.

Despite the research gaps above, important transfer research and WBT/ILT comparisons have been completed. This research is fundamental for a complete understanding of the transfer concept as well as an understanding of the WBT/ILT comparison. An example of this is Baldwin and Ford's (1988) transfer research from which they produced their transfer model that has become the most widely cited model within the literature. In order to present the necessary research related to this study, the literature review is broken into separate comparative research sections. This breakdown provides a linear understanding of the knowledge basis from which this research was founded. The linear, comparative literature review progresses through the following three sections:

1. WBT and ILT effectiveness research;
2. WBT and ILT transfer research; and
3. WBT and ILT transfer research in nonacademic and non-corporate populations.

Overall, the comparative research above is a roadmap that provided direction and established boundaries for the research to ensure the scope of the research remained manageable.

Comparing the Effectiveness of WBT and ILT

Within the linear, comparative literature review, it makes the most sense to start with research that compares the effectiveness of WBT and ILT. The reason for this is twofold. First, understanding the *no significant difference* phenomenon (Bernard et al.,

2004; Spitzman et al., 2006; Allen, Bourhis, Burrell, & Mabry, 2002) is vital to illustrating that the study is based on an understanding that the learning effectiveness of WBT and ILT are the same. Second, the amount of comparative WBT and ILT research is voluminous and continues to expand. The volume and continuous expansion of WBT and ILT comparative research has created a problem. Namely, while "researchers have attempted to synthesize this continually growing body of literature," they are challenged by the fact that "the research base is diverse, incorporating studies that span the range of research design and methodology" (Bethel & Bernard, 2010, p. 231, 232). This has not, however, discouraged researchers from attempting to synthesize the WBT and ILT comparative research through the use of meta-analyzes.

Meta-analysis is a systematic and comprehensive method to summarize and compare empirical literature in a quantitative manner (Allen et al., 2002). Therefore, it is no surprise that the WBT and ILT comparative literature contains multiple meta-analyses. For example, between 2000 and 2009 a total of 15 comparative meta-analyses were completed (Bethel & Bernard, 2010), which is over one meta-analysis per year. Further, these meta-analyses reviewed tens to several hundreds to even over a thousand of published studies (Bethel & Bernard, 2010). Due to this in-depth review, one would logically ask what conclusion did the meta-analyses reach? The result is further support of the *no significant difference* phenomenon, meaning there is no significant difference between the learning effectiveness of WBT and ILT (Bethel & Bernard, 2010). Other meta-analyses post-2009 has drawn the same *no significant difference* result (Kaynar & Sumerli, 2010) as well as singular published research that has examined multiple angles ranging from the commonly and conveniently used U.S. higher education classes

(Neuhauser, 2002; Tucker 2000; Bunn, Fischer, & Marsh, 2014; Hoyt, 2013; Piccoli et al., 2001; Tucker, 2001) to unique evaluations involving things such as English as a Second Language (ESL) courses (Thirunarayanan & Perez-Prado, 2001), virtual classrooms in Italy (Papa, 2001), and courses at a vocational education and training center in Spain (Soblechero, Gaya, & Ramirez, 2014). Lastly, even overall general distance education research is consistent with this finding. For example, Shachar and Neumann's (2003) review of distance learning research from 1952 to 1992 revealed that learning outcomes showed no significant difference between distance education and traditional classroom education. Even the ASTD has acknowledged that the *no significant difference* is the common assumption (Sitzmann, 2005).

Despite the acknowledgement of the *no significant difference* phenomenon, there are research studies within the literature that are in conflict with the phenomenon and do illustrate a difference (Shachar & Neumann, 2003). Unfortunately, this has "creat[ed] a mixed and confusing situation" within the WBT and ILT comparative literature (Shachar & Neumann, 2003, p. 4) and provides ammunition for those proponents of a specific training delivery method. For example, proponents of WBT have held a U.S. Department of Education (ED) meta-analysis in high regard and is a commonly cited resource since its release. Released in 2010, the ED report examined 176 empirical studies on online learning that were published between 1996 and July 2008. These 176 empirical studies were selected from an initial review of 1,132 abstracts because they meet three conditions that were set forth: (1) contrasted an online to a face-to-face condition, (2) measured student learning outcomes, and (3) used a rigorous research design (ED, 2010, p. ix). Overall, the meta-analysis revealed that online learning students performed slightly better

on average than those receiving traditional classroom instruction (ED, 2010). Another interesting result was that blended learning techniques outperformed online instruction (ED, 2010), which has been noted in other published research (Figlio et al., 2010). Obviously, a report and its results from the ED carries some weight. Other studies have suggested there are differences in the effectiveness of online education and classroom instruction. For example, a meta-analysis reviewed 125 experimental and non-experimental studies from 1990 to 2009 found that online education students outperformed classroom instruction students approximately 70% of the time (Shachar & Neumann, 2010). Conversely, other research has proposed that classroom instruction is overall more effective as well as more effective for males, lower-achieving students, and Hispanic students (Martin, 2012; Figlio et al., 2010; and Emeson & MacKay, 2011; Ramlogan & Sweet, 2014).

Despite the disagreement above regarding the effectiveness comparison between WBT and ILT, there is agreement in relation to other aspects. For example, it has been noted that WBT is more effective than ILT within courses that utilize asynchronous learning (Sitzmann, 2005; Bernard et al., 2004), while synchronous learning methods favor ILT (Bethel & Bernard, 2010). In theory, WBT is more effective than ILT when students have more control over their learning environments such as pacing, content, and sequencing, which shows value for modularized asynchronous distance learning and on-demand education and training (Spitzmann, 2005). Therefore, the opposite is true in which ILT is more effective than WLT within courses that utilize synchronous learning (Sitzmann, 2005; Bernard et al., 2004), which can take place in a normal classroom or

through a myriad of distance learning technologies (e.g., video teleconference training) (Baggett, 2012, p. 16).

In summation, the effectiveness comparison of WBT and ILT is a topical area that has received much attention because of the ever expanding sphere of distance learning. Despite the continued growth of WBT and the ever-increasing technologies that support it, the research literature is dominated by the *no significant difference* phenomenon as well as a literature that is seen as mixed and confusing. Although the comparative WBT and ILT literature has issues, one of its strengths is the sheer amount of research that has been completed over the years that helps to provide a proper understanding, which has focused on academic and corporate audiences. Unfortunately, the same cannot be said for comparative training transfer research related to WBT and ILT training transfer as well as the first responder community.

Comparative WBT and ILT Transfer Research

Overall, there is an absence of transfer literature in relation to a comparison of WBT and ILT. As discussed in the *Problem Statement* and *Purpose of Study* sections, the research on transfer is voluminous, but is primarily focused on examining those Training Inputs, Training Outputs, and Conditions of Transfer that affect the ability of an individual to transfer acquired knowledge post-training (Petty et al., 2007). This result lead Perkins and Salomon (2012) to summarize the current transfer literature by stating the "common motif is not *whether* significant transfer of learning can occur but *under what conditions of learning*" (p. 248). A review of training research by Ford et al. (1992) drew a similar conclusion in which "most investigations of training success have measured the amount of learning that has occurred by the end of a training program

rather than on the job performance [transfer]" (p. 511-512). Again, this is not a surprising fact since training evaluations carried beyond Kirkpatrick's second level are seldom completed (Kirkpatrick, 1994; MacRae & Skinner, 2011; Holton, 1996; Bhati, 2007). For example, research by the ASTD (2005) revealed that less than a quarter (22.9%) of benchmarking organizations (e.g., the industry leaders in training) utilize transfer measures (Level 3) within their training evaluations. This is compared to 91.3% who utilize Level 1 (Reaction) and 53.9% who utilize Level 2 (Learning) measures in their training evaluations (ASTD, 2005). This situation is also found in the literature. For example, a review of over 600 field-based training evaluation studies by Arthur et al. (2003) noted that training transfer was evaluated in only a limited number of the studies.

Due to the issues above, a comprehensive and empirical "efficiency comparison of the two instructions in a specific context is not available in the literature" (Schmeeckle, 2003, p. 206). This does not mean that research does not exist; rather the empirical literature is limited for this specific topical area. An in-depth search through periodical databases produced multiple studies that compared transfer results between various forms of distance learning (including WBT) and ILT. Despite the literature's limitation, the results mirror the *no significant difference* phenomenon in the WBT versus ILT effectiveness literature. Specifically, all of the research articles obtained that compared training transfer between distance learning and ILT courses found that there was no significant difference in transfer. This result was noted in studies that compared transfer between ILT and various distance learning modalities, such as:

- Blended learning (Lim, Morris, & Kupritz, 2007; Talib, Onikul, Filardi, Simon, & Sharma, 2010);

- CD-based training (Petty et al., 2007);
- Internet broadcasted training (Umble, Cervero, Yang, & Atkinson, 2000; Jain, Agarwal, Chawla, Paul, & Deorari, 2010);
- Online education (Hoyt, 2013; Lim, Morris, & Kupritz, 2007);
- Online professional training (Moule, Albarran, Bessant, Brownfield, & Pollock, 2008);
- Self-directed training (Weiner et al., 2011); and
- Virtual training (Rose et al., 2000).

In addition, these studies utilized a diverse group of participants, which included the following populations:

- Industrial employees (Petty et al., 2007);
- Mental health professionals (Moule et al., 2008);
- Nurses (Weiner et al., 2011; Jain et al., 2010);
- Pediatric residents (Talib et al., 2010);
- State and local public health employees (Umble et al., 2000);
- University staff (Rose et al., 2000); and
- University students (Hoyt, 2013; Rose et al., 2000; Lim et al., 2007).

Further, the number of participants ranged from a low of 31 to a high of 312. Although the literature above is diverse, a specific community is not present, which was the focus of this research.

First responder comparative WBT and ILT transfer research. If the comparative literature on WBT and ILT is limited, one could assume that the comparative literature on first responders is further limited. Although there are many

unaddressed issues related to training transfer and WBT, one of the main issues that remains is a lack of transfer research outside of the academic and the corporate arena (Merriam & Leahy, 2005; Schmeeckle, 2003). This means there is little to no empirical evidence for groups who have unique and very applied training requirements, such as first responders, as to how much training is transferred or how to improve transfer if needed (Kaiser et al., 2013). Further, current transfer literature lacks research in applied or real-world settings (Schmeeckle, 2003; Peters et al.; Saks & Belcourt, 1997). Some have criticized the sterile and laboratory nature of previous research in which very few research studies utilized research methods other than experimental and/or convenience samples (Schmeeckle, 2003). Therefore, researchers have suggested that in order to increase the credibility of transfer research, it needs to be conducted in real-life settings that have all the restraints and randomness of the natural world for which first responder training would provide a necessary environment (Richey, 1998). The goal is to move away from the current trend of overly using convenient samples and begin to structure research that results in highly-contextual explanations (Schmeeckle, 2003). Training within the first responder arena is perfectly suited for this since an emergency, incident, or disaster is a very complex and dynamic event that has "no single 'correct' solution" (Moskaliuk, Bertram, & Cress, 2013, p. 210). Therefore, training regardless of whether it is WBT or ILT must focus on building upon a first responder's current training foundation to foster effective action in future situations (Cleveland, 2006).

Despite the evident issues above in the transfer literature, there are comparative studies that focus on first responders. For example, an in-depth search through periodical databases produced three studies that compared transfer results in first responder

populations. Only one responder discipline, law enforcement, was represented in the research with one study each on local, state, and federal law enforcement agencies. Studies within the law enforcement community are not surprising since it is one of the most, if not the most, researched first responder disciplines. The results from two of the studies mirror the *no significant difference* phenomenon in the WBT versus ILT effectiveness literature. Specifically, one study compared transfer outcomes of a training course presented in WBT and ILT formats to 101 local and county-level trainees at the Nebraska Law Enforcement Training Center (NLETC) who were split evenly between the two training delivery methods (Schmeeckle, 2003). The second and more recent study compared transfer outcomes of a training course presented in virtual environment and ILT formats to a state police agency within Germany (Moskaliuk, Bertram, & Cress, 2013). The third law enforcement study, however, produced different results in which ILT produced more effective training transfer than its WBT equivalent (Giovengo, 2014). The research examined U.S. Coast Guard (USCG) training that dealt with maritime law enforcement duties at the Federal Law Enforcement Training Center (FLETC) Charleston, South Carolina campus. The study utilized a convenience sample of 89 USCG trainees who were split between the delivery formats (ILT=48; WBT=41) (Giovengo, 2014). Specifically, the study revealed that ILT students performed significantly higher on cognitive and performance tests as compared to WBT students (Giovengo, 2014). Overall, these three studies illustrate the lack of comparative transfer research in WBT and ILT in regards to first responders, which is a gap this research addressed.

Experiential Learning and Training Transfer

Within the transfer literature, there is a general agreement that specific learning techniques can help increase transfer for both WBT and ILT. As one would predict, there are a wide range of specific learning techniques that have been developed over the years for both educational learning and professional training. The specific learning techniques that enhance training transfer, however, fit within the *experiential learning* framework (Silenas, Akins, Parrish, & Edwards, 2008; Leberman et al., 2006). Experiential learning provides greater realism through the use of immersive, interactive exercises that promote and require knowledge application to solve encountered problems (Silenas et al., 2008; Stansfield, Shawver, Sobel, Prasad, & Tapia, 2000). The following is a list of experiential learning techniques that have shown promise in the transfer literature.

> **Cooperative Learning:** This learning deals with creating environments rich in learning between students, and where students learn from each other's perspectives and past experience through discourse, observation, and interaction (Furman & Sibthorp, 2013, p.19)
>
> **Diversity of Delivery Methods:** Integrating a multitude of delivery methods into instruction. Incorporates a shift away from the traditional lecture model by integrating group learning projects, self-paced study, virtual learning, and collaborative projects into instruction. (Foley & Kaiser, 2013, p. 13)
>
> **Problem-Based Learning:** This technique may use the students' interest in a problem to (a) create an experiment to answer a question or (b) develop a course of action that helps in resolving the problem (Furman & Sibthorp, 2013). Students can answer these problems by designing rather simple experiments that

actively engage them in the learning process instead of simply remembering the answers (Hung, 2013).

Project-Based Learning: This learning takes the interests of the students and creates a project around those interests that is rich with educational content. The project has the capacity to make each of these content areas authentic. (Furman & Sibthorp, 2013, p.18)

Purposeful Reflection or Reflective Learning: Purposeful reflection is a tool that can be introduced into instruction that helps the learner stay engaged with the subject and to start laying roots for meaningful transfer by creating relevance. The word *purposeful* is used as an indicator that this is a guided form of reflection and not just a general reflection on the subject (Foley & Kaiser, 2013, p. 12)

Scaffolding: A combination of ensuring that the learning environment, instructional plan, supporting resources, and instructional delivery are structured in a manner that best supports learning. Instructional scaffolding is a temporary tool that assists the learner in the process of constructing knowledge. The art of facilitating learning is to provide the necessary structure and support to assist the learner in constructing his or her own way of knowing. (Foley & Kaiser, 2013, p. 9-10)

Schema: Schema is the concept that information is organized by the learner in specific patterns or order. The way of knowing and the foundation of how one interacts with the world are often referred to as a worldview. Thus, schema is the foundation or fabric through which we form our worldview. (Foley & Kaiser, 2013, p. 10-11)

Service Learning: Service learning combines educational objectives with community service needs (Bringle & Hatcher, 1996; Smith, 2008). The objectives and the service must be aligned in a way to benefit both the students and the community (Furman & Sibthorp, 2013, p.19). An example would be taking an emergency operations planning (EOP) course and developing and/or revising an agency's EOP.

Some of the learning techniques above are very important to first responder learners. Due to the nature of the responsibilities afforded to first responders, they cannot be conceivably trained on every single incident, situation, event, etc. they may face as part of their duties (Cleveland, 2006). However, the success of these techniques is illustrated by their incorporation into first responder training academies, such as problem-based learning in law enforcement academies in California, Kentucky, and Washington (Cleveland, 2006).

Literature Summary

Overall, the comparative WBT and ILT literature illustrated a heavy emphasis on Levels 1 (Reaction) and 2 (Learning) of evaluation. This was not surprising since training evaluations carried beyond Level 2 (Learning) are seldom completed (Kirkpatrick, 1994; MacRae & Skinner, 2011; Holton, 1996; Bhati, 2007). Despite all of the comparative WBT and ILT research that has been done to date, the *no significant difference* phenomenon was the acknowledged answer to whether WBT or ILT is more effective. Kirkpatrick's Level 2 (Learning) seemed to be the stopping point of the comparative literature as Level 3 (Transfer) comparative literature was limited. For example, although the general research on transfer was voluminous, it was primarily

focused on examining those Training Inputs, Training Outputs, and Conditions of Transfer that affect the ability of an individual to transfer acquired knowledge post-training rather than comparisons of training delivery method. Therefore, there was a noticeable lack of empirical comparison research that examines if transfer is more prevalent with ILT or WBT. This was somewhat because of the over focus on the effects of organizational factors on training transfer, which has resulted in the neglect of examining the effect that training delivery method may have on training transfer (Petty et al., 2007). In addition, the transfer research has focused primarily on convenience samples within the corporate and academic fields. The Level 3 (Transfer) comparative literature that exists, however, mirrored the *no significant difference* phenomenon in the WBT versus ILT effectiveness literature. Overall, this research aimed to fill the current gaps in the transfer literature by focusing on two specific areas: (1) transfer within nonacademic and non-corporate populations (e.g., first responders) in applied settings; and (2) transfer comparison in relation to WBT and ILT. The next chapter explains how this was achieved through the use of training provided to rural first responders by the RDPC, a FEMA training provider.

CHAPTER III

METHODOLOGY

As noted in *Chapters One* and *Two*, there is lack of understanding and research regarding the following aspects of WBT and ILT as they relate to training transfer:

- Lack of transfer research and understanding among nonacademic and non-corporate populations (e.g., first responders) in applied settings (Merriam & Leahy, 2005; Schmeeckle, 2003; Kaiser et al., 2013; Peters et al., 2012; Saks & Belcourt, 1997; Richey, 1998); and
- Lack of transfer research and understanding that specifically compares transfer in relation to WBT and ILT (Petty et al., 2007; Schmeeckle, 2003; Joo et al., 2011).

In light of billions of dollars being spent on training programs every year, organizations are often in the dark as to the extent their employees transfer training to their jobs (Blume, Ford, Baldwin, & Huang, 2010). The lack of research has been classified as dismal by some, thereby resulting in more individuals being trained through WBT without any knowledge or understanding as to whether WBT is as effective at developing transfer as ILT (Figlio, Rush, & Yin, 2010). Considering the shear amount of online training that takes place today and the lack of research, more comparison research is needed to better understand this issue. Due to the inherent unknowns due the state of research, this situation illustrated a need for comparative transfer research.

Therefore, the purpose of this causal comparative quantitative study was to gain valuable comparative insight into WBT and ILT transfer to provide a particular community, in this case first responders, the information they need to determine which training delivery method may be better for their employees for specific trainings based on

their unique circumstances. This study was designed to determine whether differences exist in terms of transfer across diverse first responders from a multitude of disciplines and locations participating in training delivered on-line and instructor-led. Due to the financial, staffing, and equipment limitations first responder agencies face today, especially in rural communities, determining ways to maximize expended dollars on training is paramount. Overall, this information is extremely important as WBT continues to expand and become more commonplace and accepted, including in the first responder community.

Research Questions and Hypotheses

The purpose of this study was to determine whether differences exist transfer across diverse first responders from a multitude of disciplines and locations that receive WBT and ILT delivery. This was accomplished by evaluating transfer outcomes from an individual course that offers both an asynchronously online (WBT) section and a traditional instructor-led (ILT) section. From this purpose, the following research questions were developed. The first question provided the overall foundation for the research while the additional questions further refined the focus:

I. Are there differences in transfer between training delivery method (WBT or ILT) within the first responder community?

A. Responder Disciplines (see Figure B6)

1. Are there differences in transfer between responder disciplines within ILT?
2. Are there differences in transfer between responder disciplines within WBT?

3. Are there differences in transfer between responder disciplines trained via different delivery methods?

B. Geographical Regions (see Figure A1)

1. Are there differences in transfer between geographical regions within ILT?
2. Are there differences in transfer between geographical regions within WBT?
3. Are there differences in transfer between first responders from different geographical regions trained via different delivery methods?

From the questions above, one overall hypothesis and seven sub-hypotheses were defined that were tested through this study:

- Overall – Hypothesis #1
  - Null Hypothesis: There is no difference in transfer between training delivery method (WBT and ILT) within the first responder community.
  - Alternative Hypothesis: There is a difference in transfer between training delivery method (WBT and ILT) within the first responder community.
- Responder Disciplines – Hypothesis #2
  - Null Hypothesis: There is no difference in transfer between responder disciplines within ILT.
  - Alternative Hypothesis: There is a difference in transfer between responder disciplines within ILT.
- Responder Disciplines – Hypothesis #3

    - Null Hypothesis: There is no difference in transfer between responder disciplines within WBT.
    - Alternative Hypothesis: There is a difference in transfer between responder disciplines within WBT.
- Responder Disciplines – Hypothesis #4
    - Null Hypothesis: There is no difference in transfer between responder disciplines trained via different delivery methods.
    - Alternative Hypothesis: There is a difference in transfer between responder disciplines trained via different delivery methods.
- Geographic Regions – Hypothesis #5
    - Null Hypothesis: There is no difference in transfer between geographic regions within ILT.
    - Alternative Hypothesis: There is a difference in transfer between geographic regions within ILT.
- Geographic Regions – Hypothesis #6
    - Null Hypothesis: There is no difference in transfer between geographic regions within WBT.
    - Alternative Hypothesis: There is a difference in transfer between geographic regions within WBT.
- Geographic Regions – Hypothesis #7
    - Null Hypothesis: There is no difference in transfer between first responders from different geographic regions trained via different delivery methods.

- Alternative Hypothesis: There is a difference in transfer between first responders from different geographic regions trained via different delivery methods.

By testing the hypotheses above to answer the specified research questions, important and useful information was gleaned that can be utilized by the first responder community to effectively use their training funds to ensure the right student takes the right course for the right outcome at the right investment. This, in turn, aids first responder agencies to increase their communities' capabilities to plan for, respond to, recover from, and mitigate the consequences of incidents and disasters.

Research Design

This study utilized secondary data analysis to compare training transfer between two course delivery methods for a single course. Secondary data analysis can be defined as "an empirical exercise carried out on data that has already been gathered or compiled in some way" (Dale, Arber, & Procter, 1988, p. 3). Although it has its detractors among the academic community, secondary data analysis does provide several benefits. First, secondary data analysis is a well-established research method that dates back to the 1800's in which early census data in the United States and the United Kingdom were analyzed (Smith, 2008). Other advantages include time-savings and cost-savings by significantly reducing and/or completely eliminating the data collection phase of a research project, significantly reducing and/or eliminating privacy issues because of the inherent unobtrusive research methodology (e.g., not collecting information directly from individuals), and allowing for longitudinal analysis if data collected at various time points are available (Smith, 2008; Baggett, 2012).

As for the specific research design, this study employed a quasi-experimental design that utilized casual comparative techniques/analyses to examine mean scores. This specific design was needed because of the pre-assignment of individuals into groups related to the study that closely approximate control and experimental groups (Salkind, 2000; Vogt, 1999), which for this study was training delivery method (ILT or WBT). Pre-assignment of groups in which the researcher cannot randomly assign participants to control and experimental groups is the key difference between a quasi-experimental research design and experimental research design (Vogt, 1999; Salkind, 2000, Trochim, 2001). Further, quasi-experiments have known concerns with internal validity because of non-randomized groups (Trochim, 2001) but can have high levels of external validity to the same level as true experimental designs (Salkind, 2000). For example, factors outside the control of the study may affect how the independent variable(s) affect the dependent variable thereby limiting validity (Salkind, 2000). Despite this issue, quasi-experiments are completed more frequently than true experiments (Trochim, 2001) because "it allows for the exploration of topics that otherwise could not be investigated because of ethical, moral, and practical concerns" (Salkind, 2000, p. 230). Lastly, the quasi-experimental and casual comparative research design allows for this study to achieve one of the major goals of social research, which is identifying mean differences between treatments (Ragin, 1994).

Participants

The study participants included U.S. citizens who (A) successfully completed a specific course offered by the RPDC and (B) responded to a Level 3 course evaluation questionnaire disseminated by the RDPC. The specific course was delivered as a

traditional instructor-led version as well as an asynchronous web-based version, thereby resulting in two course groupings representing the two training delivery methods (ILT and WBT). The specific RDPC course utilized for the study was *MGT 335 Event Security Planning for Public Safety Professionals*. Please note the web-based version of the course is denoted by a "-W' after the course number (e.g., MGT 335-W). The course description for MGT 335 is provided below.

- **MGT 335:** This 16-hour, classroom-based course is designed to provide planning and management-level skills to public and private sector event security planners who have a lead or supporting responsibility for event security planning. The audience for this course includes local and state law enforcement personnel who are often assigned responsibility for coordinating security for planned events, as well as other planners representing emergency management, emergency medical service (EMS), fire service, and public health. Participants are provided with the essential skills and knowledge to understand the importance of and the need for planning and managing security for special events, and to identify guiding principles and components associated with event security. (RDPC, n.d.b)

Overall, the RDPC collected a total of 1,250 responses from the Level 3 course evaluations that were sent to course participants post-training. Table B4 provides a breakdown of the evaluations received per course as well as the relative response statistics for the RDPC Level 3 course evaluations. This was important as the secondary data utilized for this study was considered a sample of the population that completed the MGT 335 course. Lastly, Table B4 also provides the date ranges of student course completions on which the Level 3 course evaluations were based.

In order to successfully complete MGT 335(-W), participants must have achieved at least a 70% score on the post-test, which comprised a total of 20 questions. Therefore, the study participants are viewed as having a consistent knowledgebase from which comparable analyzes can be completed as both course versions utilized the same post-test questions. The ability to complete comparable analyzes is strengthened by the fact that both versions of the course utilize the same teaching material. Specifically, the RDPC develops the ILT version of a course first and then utilizes the developed course in the creation of the WBT version. This ensures the learning process is as consistent as possible between the two versions of the course with the exception of the training delivery method.

Data Collection

The secondary data utilized in this study were originally collected by the RDPC through Level 3 course evaluation surveys disseminated to all students who successfully completed the courses within a defined timeframe. Postal mailing addresses or e-mail addresses the course participants submitted during course registration were used to send out the Level 3 course evaluations. The Level 3 course evaluations were survey-based and asked the respondents specific questions regarding the training (including transfer-related questions) related to the Terminal Learning Objectives (TLO) within the course (see Appendix C for a copy of the MGT 335 Level 3 course evaluation questionnaire utilized by the RDPC). The Level 3 course evaluations also included specific questions regarding the application/transfer to daily job setting and/or to specific incidents of the KSAs acquired through the course. To obtain the data, the RDPC utilized two survey formats: (1) pen/pencil self-administered returned via postal mail and (2) an online self-

administered survey. Please note that web-based Level 3 course evaluations for MGT 335-W were disseminated via e-mail because of the requirement of an active e-mail address to register for an RDPC online course. Once data collection was complete, the RDPC created master databases of evaluation data through SPSS 21.0 that enabled data analysis and report development. Copies of official RDPC Level 3 course evaluation reports can be found on the RDPC website at https://www.ruraltraining.org/. Access to the master databases for the MGT 335 course evaluation was provided by the RDPC for the purposes of this research.

Research Procedures and Data Analysis

Variables and measures. The dependent variable for this study was the amount of transfer that has occurred as a result of training completion. The amount of transfer was measured quantitatively through the data collected on the RDPC Level 3 course evaluations. The independent variables for this study included the following:

- **Course Delivery Method:** This was defined as either ILT or WBT. ILT courses are delivered throughout the United States by the RDPC through the traditional classroom lecture format in which course delivery and its location is predetermined. WBT courses are administered via the RDPC learning management system (LMS) that allows for individual, self-paced course completion anytime, anywhere.
- **Responder Discipline:** This was defined as one of the following responder disciplines recognized by FEMA:
    1. Emergency Management
    2. Emergency Medical Services

3. Fire Services
4. Government Administrative
5. Law Enforcement
6. Private Sector Security
7. Public Health
8. Public Safety Communications

An additional category of "Other" was also be used for those course participants who either do not fit into one of the disciplines or who are not first responders.

- **Geographical Region:** This was defined as one of the U.S. Environmental Protection Agency (EPA) climate regions (EPA, 2015). Although the FEMA regional structure would have been logical choice based on the study participants, the total number of regions (ten) would have caused too much dispersion of the participants to enable regional comparisons. Therefore, the EPA climate regions were chosen because of the lower number of overall regions (six) and a more comprehendible breakdown of states

Per the defined research questions, the data were analyzed to determine whether any mean differences exist in the dependent variable (training transfer for this study) between the various independent groups (i.e., training deliver, responder role, geographic region.) This was completed through the use of the analyses described below.

Data analyses procedures. The data analysis procedures for this study included five specific analyses. *Descriptive statistics* were utilized to provide information regarding data frequencies, means, and standard deviations. An *internal consistency analysis* was performed on the data to determine if a single transfer measurement could

be developed from all single items. The *internal consistency analysis* was completed via Cronbach's alpha, which is utilized to determine if a set of items, such as survey questions, are measuring a single, unidimensional variable/construct (Vogt, 1999). Data from six specific closed-ended questions (Yes/No) from the MGT 335 Level 3 Evaluation questionnaire were utilized to measure transfer. These questions were conditional within the Level 3 course evaluation questionnaire in which the participant must have indicated he/she had an opportunity to develop a security plan or participate in the planning process for an event since completing the course. The *internal consistency analysis* was performed on the data from the following six questions:

- Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?
- Did you use the risk assessment model (R = T x V x I) during your event security plan development to anticipate potential dangers associated with the event?
- Did you use what you learned in MGT 335 to effectively manage special security considerations (e.g., access management, infrastructure security, traffic, etc.)?
- Did you use what you learned in MGT 335 to develop Mutual Aid Agreements (MAA) and/or Memorandums of Understanding/Agreement (MOU/MOA)?
- Did you use what you learned in MGT 335 to apply the Incident Command System (ICS) to your event security plan?
- Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?

Subsequent to the internal consistency analysis, *one-way, between subjects analysis of variance (ANOVA)* were utilized to determine if there were any differences in transfer

between and within the responder disciplines and the geographical regions for the two training delivery methods (ILT and WBT). The main statistical tests performed during the study were *independent samples t-test*, which are frequently utilized to determine if significant difference exists between two independent and unrelated groups (Salkind, 2000). Therefore, the t-test was utilized to determine the difference, if any, in transfer (dependent variable) between different training delivery methods (independent variable), which for this study were WBT or ILT. *Independent samples t-tests* were performed at the training delivery level (ILT versus WBT), responder discipline level (nine responder disciplines), and the geographical region level (six geographical regions). All data analyses were performed through the use of IBM SPSS Statistics 21.0. An alpha level of .05 was utilized as the benchmark for statistical significance within the results.

Context of Study

For the purposes of this study, there were three specific elements that were of importance to the context of the study. These elements were the training delivery, characteristics of training first responders, and the unique characteristics of first responders in rural America. Each of these elements is discussed in the following sections.

Training provider. The course utilized in this study was developed and delivered by the RDPC, which was established in 2005 by Congress to develop and deliver all-hazards preparedness training to rural communities across the United States. Specifically, Congress noted:

> Training for rural first responders poses unique challenges when compared to their urban counterparts. This new consortium will provide rural first responders

> with awareness level training, develop emerging training, and provide technical assistance in support of rural homeland security requirements (H.R. Rep. No. 108-774, 2004, p. 67-68).

Therefore, the overarching mission of the RDPC is to coordinate the development and delivery of preparedness training in support of rural homeland security requirements and facilitate relevant information sharing.

Additionally, data utilized in this study were obtained through the RDPC Level 3 Course Evaluation Program. In 2010, the RDPC established a Level 3 Course Evaluation Program to evaluate the training effectiveness of its courses. This program is based on Level 3 (Transfer) of Kirkpatrick's model. The purpose of the program is to measure the transfer in behavior that has occurred in the participant because of his/her completion of the training course. Therefore, the RDPC Level 3 Course Evaluation Program assesses whether the KSAs that each participant acquires via a training course are being applied in their daily work setting. As of 2014, a total of seven courses, as well as any associated web-based versions, have been evaluated by the RDPC.

First responder training. First responders are "individuals who, in the early stages of an incident, are responsible for the protection and preservation of life, property, evidence, and the environment" (FEMA, 2014f, ¶ 1). Though the first responder community can include additional individuals who provide support services (e.g., public works), the primary first responder disciplines are emergency management, emergency medical services, fire services, and law enforcement (FEMA, 2014f). Further, each of these disciplines has unique training characteristics. Taken as a whole, however, the first responder community has common training characteristics that set them apart from

trainees in the academic and corporate arenas. For example, because of the nature of the responsibilities afforded to first responders, they cannot be conceivably trained on every single incident, situation, event, etc. they may face as part of their duties (Cleveland, 2006). This is because of the complex and dynamic nature of emergencies, incidents, or disasters that have "no single 'correct' solution" (Moskaliuk et al., 2013, p. 210). Overall, the inherent characteristics of first responder training create three unique characteristics that are not commonly found in trainee populations in the academic and corporate arenas:

1. A need to remember the provisions of emergency plans and procedures over long periods of time until an emergency occurs.
2. A need to generalize from the specific conditions under which training occurred to the potentially very different conditions of an actual emergency.
3. A need to develop effective mechanisms for teamwork under conditions that limit retention and generalization (Ford & Schmidt, 2000, p. 195).

It is easy to see that training transfer is indicative of the second characteristic, which cuts across various levels in Haskell's (2001) six-level transfer framework (see Table B1). Lastly, this illustrates that training, regardless of whether it is WBT or ILT, must focus on building upon a first responder's current training foundation to foster effective action in future situations (Cleveland, 2006).

Rural first responder characteristics. Prior to detailing the unique rural first responder characteristics, one must understand the context of the terms *rural* and *frontier* as they relate to the first responder community. Although some may think that very little of the developed world is rural or frontier in this day and age, they may be surprised once

statistics are provided that define the extent of these areas. For example, over half the world's population lived in urban environments in 2008, which was a first for the world's population (Brown & Schafft, 2011). This trend is expected to continue in the years ahead as well as in less developed countries (Brown & Schafft, 2011). As for the United States, the U.S. Census Bureau estimates that as much as 97.4% of the land in the United States is rural, while the U.S. Department of Agriculture (USDA) Economic Research Service (ERS) defines 74.5% of the land as rural (Rural Assistance Center, 2007).

One may ask, however, how and why is an area defined as rural or frontier? Most federal agencies use a population threshold under 50,000 to define a rural area. Additionally, the U.S. Census Bureau has established that a population density of less than 1,000 persons per square mile is an additional indicator that an area could be rural (Rural Assistance Center, 2007). Further, frontier areas are classified as areas with a population density of less than six persons per square mile and are characterized by isolation from population centers (e.g., cities) and provision of services (e.g., hospital, cell phone service) (Rural Assistance Center, 2013). The National Center for Frontier Communities (2012) estimates that approximately two percent of the U.S. population lives in frontier areas that comprise 46.7 percent of the land within the Unites States, which is largely concentrated in the western United States and Alaska. Further, 438 (or 14.4 percent) of the 3,042 counties and county-equivalents (e.g., parishes) in the United States are considered frontier (North Carolina Rural Health Research and Policy Analysis Center, 2007). In general terms, rural and frontier areas within the United States represent 80 percent of the landmass and 20 percent of the population (McGinnis, 2004).

As for the RDPC (2012), it defines a community as rural if the population is 50,000 or less or the population density is 1,000 people or lest per square mile.

The socio-geographic definitions are adequate to define rural and frontier areas, but they do not contribute to an understanding of the special characteristics which make these communities unique in terms of first responder agencies and the need for special considerations in training, some of which are provided below:

- **Resource Constraints:** In rural communities, limited populations and tax bases create difficulties and shortcomings for first responder agencies in terms of staffing, equipment, and other resources. For example, volunteers are often required to fully staff or backfill rural fire departments.
- **Geography:** Emergency response in vast and, often times, sparsely populated areas may be extremely challenging. Greater distances traveled and difficult on-road and off-road terrain (e.g., mountains, marshlands, wilderness) may significantly impact response planning and operations.
- **Economy:** While rural communities are more likely than urban areas to rely on single economies, they are responsible for a greater share of the Nation's workers in the farming, manufacturing, and retail trade sectors. The Nation's agricultural resources and activities (e.g., supply chains and processing for animal and crop production) are highly concentrated in rural areas.
- **Infrastructure:** Many segments of critical infrastructure, such as hospitals and other healthcare facilities, are less capable (e.g., have fewer physicians and specialists per capita) than similar infrastructure in urban areas for various

reasons. These conditions may limit response to public health hazards such as communicable diseases.

- **Modernization:** Citizens continue to demand that first responder agencies modernize systems despite resource shortages. For example and according to the Pew Research Center, approximately 88 percent of U.S. adults own a cell phone and 78 percent access the Internet. Rural first responder agencies must upgrade their own equipment as well as 9-1-1 centers, warning systems, and online resources for the benefit of their residents (RDPC, 2012, p. 5-6).

These special characteristics illustrate that rural and frontier first responder agencies often face unique challenges in personnel staffing, especially within emergency management agencies, because of their associated small population bases. In fact, many rural first responder agencies are staffed by volunteers who take time from their daily jobs and families to train and exercise for, respond to, and recover from a broad variety of situations. Limited tax revenue and single-industry economies (e.g., mining, agriculture) are also frequently associated with rural and frontier population bases, which often hinders the procurement of training and new equipment to assist first responder agencies in preparedness, response, recovery, and mitigation efforts. The limited population and frequently associated large land mass of rural and frontier communities also make it difficult to show a positive cost-benefit analysis when requesting funding for training and equipment. Therefore, rural and frontier communities routinely face challenges and difficulties in terms of interoperable communications (as well as interagency/multiagency communications), reliance on volunteers, equipment challenges, administrative challenges, and community awareness, education, and participation (Janssen, 2006;

Kapucu, 2006). Further complicating emergency preparedness and response in rural communities is the fact that select critical infrastructure and natural resources are concentrated in rural areas outside of large urban centers, such as railroads, roads, waterways, and pipelines for transporting oil and gas (Brown & Shafft, 2011). Incidents involving these sectors and assets often require responders from small and rural communities.

The limited population and tax bases in rural and frontier communities may make one wonder just how many rural first responders there are within the United States. The actual numbers may be higher than what one may think. For example, 90% (or ~14,500) of the over 16,000 local and county law enforcement agencies in the United States serve populations under 25,000 and over half of all agencies employ 10 or fewer officers (National Institute of Justice, 2004). Further, 44% (or ~13,440) of the over 30,000 fire departments in the United States are located in rural areas (U.S. Fire Administration, 2007). Although these numbers may seem high, one must remember that rural and frontier areas constitute 80 percent of the landmass and 20 percent of the population in the United States (McGinnis, 2004).

CHAPTER IV

RESULTS

Introduction

As discussed in the previous chapters, currently there is lack of understanding and research regarding the following aspects of WBT and ILT as they relate to training transfer:

- Lack of transfer research and understanding among nonacademic and non-corporate populations (e.g., first responders) in applied settings (Merriam & Leahy, 2005; Schmeeckle, 2003; Kaiser et al., 2013; Peters et al., 2012; Saks & Belcourt, 1997; Richey, 1998); and
- Lack of transfer research and understanding that specifically compares transfer in relation to WBT and ILT (Petty et al., 2007; Schmeeckle, 2003; Joo et al., 2011).

Therefore, the purpose of this study was to gain valuable comparative insight into WBT and ILT transfer in order to provide a particular community, in this case first responders, the information they need to determine which training delivery method for specific courses and/or training needs may be better for their employees based on their unique circumstances. To achieve this insight, responses to the MGT 335 Level 3 course evaluation conducted by the RDPC were examined to measure/compare transfer within the two training delivery methods (ILT vs. WBT). This chapter presents the results of the quantitative analyses that were performed on the existing data, which was completed through the use of IBM SPSS Statistics 21.0. An alpha level of 0.05 was utilized as the benchmark for statistical significance within the results.

In order to present the results in an easily comprehendible fashion, the remainder of this chapter consists of three individual sections. The first section provides demographical information on those who responded to the MGT 335 Level 3 course evaluation. The next two sections provide the specific results from the statistical analyses that were performed to address the research questions that guided the study.

Demographic Information

From February to May 2013, a total of 1,250 individuals responded to the MGT 335 Level 3 course evaluation. These individuals were U.S. citizens who successfully completed MGT 335 or MGT 335-W between March 2009 and September 2012. Table B4 provides the response statistics to the evaluation study. This study focused on those who indicated that they had an opportunity to transfer the knowledge, skills, and abilities obtained via the training. This was determined through a specific question on the course evaluation instrument in which the participant indicated whether he/she had an opportunity to develop a security plan or participate in the planning process for an event since completing the course. Of the 1,250 participants who completed the Level 3 course evaluation questionnaire, 63.8% (n=797) indicated they did have an opportunity. As for training delivery method, the majority of these individuals completed the ILT course (79.5 %; n=634) as compared to the WBT course (20.5%; n=163) as displayed in Table B5. As for responder discipline, the majority of participants were from law enforcement (60.4%; n=481) followed by emergency management (14.4%; n=115), government administrative (6.6%; n=53), and fire services (6.3%; n=50). Table B6 presents additional data for the remaining disciplines. In regards to geographical representation, the participants represented 46 states and Washington, D.C. In order to group the

participants to enable regional analysis, the U.S. Environmental Protection Agency climate regions were utilized, which is comprised of six individual regions. A majority of the participants (78.5%; n=626) came from three regions: Southeast (35.9%; n=286), Midwest (26.2%; n=209), and Northeast (16.4%; n=131). Table B8 presents additional data for the remaining regions.

Comparable groups discussion. The participants within this study were grouped by training delivery method (ILT and WBT). Although the study groups were preassigned, the groups were considered comparable because of a common minimum understanding level post-training (i.e., obtaining a score of 70% or better on the course post-test) and the identical learning material utilized in both course versions. Due to the secondary nature of the data, there was no ability to control for other demographic variables. For example, the RDPC utilizes a cadre of instructors with multiple instructors being able to teach a specific ILT course. Therefore, this study cannot control for learning differences within the ILT version of the course based on the assigned instructor because of the variance from delivery to delivery. Even after acknowledging the limitations in the limited demographic data for the study participants because of RDPC training characteristics (e.g., training delivery is largely ILT-based, deliveries are concentrated in the eastern United States), the subject of the course (e.g., marketed to the law enforcement community), and other limitations, the study participants were determined to be a comparable group because of the fact that they comprise a large sample that included a wide range of individuals from different responder disciplines and geographical regions.

Transfer Data Analyses

In order to determine the differences in transfer between training delivery method, independent sample t-tests were performed to compare data from the transfer-related questions from the MGT 335 Level 3 course evaluation. The independent variable in this study was the training delivery method (ILT or WBT). The dependent variable is the amount of transfer that has occurred as a result of training completion, which was comprised of answers to six closed-ended (Yes/No) questions from the Level 3 course evaluation questionnaire. These questions were conditional within the Level 3 course evaluation questionnaire in which the participant must have indicated he/she had an opportunity to develop a security plan or participate in the planning process for an event since completing the course. As previously noted, of the 1,250 participants who completed the Level 3 course evaluation questionnaire, 63.8% (n=797) indicated they did have an opportunity. The dependent variable was operationalized through mean scores in which Yes was coded as a 1 and No was coded as a 0.

Overall transfer measurement. Prior to running the independent samples t-test, an internal consistency analysis was performed on the data from the six questions to determine if a single transfer measurement could be developed from the six items. The internal consistency analysis was completed via Cronbach's alpha, which is utilized to determine if a set of items, such as survey questions, are measuring a single, unidimensional variable/construct (Vogt, 1999). Cronbach's alpha was performed on the following questions, which comprised the subscale:

- Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?

- Did you use the risk assessment model (R = T x V x I) during your event security plan development to anticipate potential dangers associated with the event?
- Did you use what you learned in MGT 335 to effectively manage special security considerations (e.g., access management, infrastructure security, traffic, etc.)?
- Did you use what you learned in MGT 335 to develop MAAs or MOUs/MOAs?
- Did you use what you learned in MGT 335 to apply ICS to your event security plan?
- Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?

The overall transfer measure was found to have poor internal consistency (6 items; α = .59) following the rule of George and Mallery (2003): > .9 (Excellent), > .8 (Good), > .7 (Acceptable), > .6 (Questionable), > .5(Poor), and < .5 (Unacceptable).

Differences in transfer between training delivery method. Due to the low estimate of internal consistency, evaluation of transfer differences between training delivery method (ILT and WBT) was completed at the individual question level. Table B9 presents the descriptive statistics for each of the six individual itemss by training delivery method. Data from these questions were analyzed via an independent samples t-test, which is frequently utilized to determine if significant difference exists between two independent and unrelated groups (Salkind, 2000). Therefore, the t-test determined if there is any difference in training transfer (dependent variable) between different training delivery methods (independent variable).

As displayed in Table B10, data analysis via independent samples t-tests revealed that transfer differences between training delivery method (ILT and WBT) were not

statistically significant at the 5 percent (.05) level. The only statistically significant result was for the application of ICS to an event security plan. As displayed in Table B10, there was a significant difference in transfer for MGT 335 ILT (M =.85, SD=.360) and MGT 335 WBT (M=.77, SD=.425), t (205.757) = 2.180, p=.030. While this individual result suggests that training delivery method has an effect on the transfer of the concepts and principles of ICS (higher mean score for ILT), the overall results mirror the *no significant difference* phenomenon that is common in in the ILT and WBT training effectiveness literature. Additionally, the average mean difference across all six questions was .04, thereby further illustrating the *no significant difference* result.

Differences in transfer between training delivery method and discipline. In addition to differences between training delivery method, further data analyses were performed to determine if differences in transfer existed between training delivery method by discipline. Table B11 presents the descriptive statistics for each of the six individual questions by training delivery method and discipline. To determine the difference, if any, between training delivery method and discipline, two specific analyses were performed:

- One-way, between subjects ANOVA: To assess transfer differences between and within two or more group means, in this case discipline means (Vogt, 1999).
- Independent samples t-tests: To assess transfer differences within each discipline in relation to training delivery method.

Due to the insufficient internal consistency measure between the six questions, the statistical analyses were performed at the individual question level with the nine disciplines outlined in Table B6.

Beginning with the one-way, between subjects ANOVA, this test was performed to determine if there were any differences in transfer between and within the disciplines in each training delivery method. Table B12 presents the results for the ILT participants while Table B13 presents the results for the WBT participants. Overall, the tests revealed no significant differences between and within the disciplines for WBT participants at the $p < .05$ level as well as no significant differences in five of the six questions for ILT participants. Discipline differences were noted in the question regarding the application of information or skills to day-to-day job setting at the $p < .05$ level [$F(8,580) = 2.798$, $p = .005$] for the ILT participants. Post hoc comparisons using the Tukey Method indicated that the mean score for the government administrative discipline (m=.80, sd=.406) was significantly higher than the law enforcement discipline (m=.51, sd=.501).

As for the independent samples t-tests results, a total of 54 t-tests were completed (9 disciplines X 6 questions = 54 t-tests). Results for each question per discipline are presented in Tables B14 through B22. Overall, only five individual t-tests (or 9.2 percent of the tests were statistically significant in four of the nine disciplines assessed (Private Sector Security [question 1], Public Health [questions 3 and 6], Public Safety Communications [question 6], and Other [question 2]). The results of four of the t-tests in the Private Sector Security, Public Health, and Public Safety Communications disciplines, however, should be interpreted with caution because of a low number of participants in the WBT condition (4 or less participants) from which the test is based. Therefore, the only statistically significant result that was clearly valid was for the application of the risk assessment model (R = T x V x I) to an event security plan within the Other discipline. As displayed in Table B22, there was a significant difference in

transfer for MGT 335 ILT (M =.41, SD=.507) and MGT 335 WBT (M=.89, SD=.333), t (22.633) = -2.878, p=.009.

Overall, the statistical analyses suggest that the independent variables of training delivery method and discipline have no effect on the dependent variable of training transfer. These results mirror the *no significant difference* phenomenon that is common in the ILT and WBT training effectiveness literature because of a total lack of other statistically significant results. Although there were instances of statistically significant differences, these results only numbered a total of six out of the 66 total tests performed (or 9.1 percent), when a five percent error rate would be expected given α=.05.

Differences in transfer between training delivery method and geographical region. In addition to differences between disciplines, further data analyses were performed to determine if differences in transfer existed between training delivery method within and between geographical regions. Table B23 presents the descriptive statistics for each of the six individual questions by training delivery method and geographical region. To determine the difference, if any, between transfer between training delivery method and geographical region, the same statistical tests utilized in the discipline analyses were utilized: (1) one-way, between subjects ANOVA; and (2) independent samples t-tests. Due to the insufficient internal consistency measure between the six questions, the statistical analyses were performed at the individual question level with the six geographical regions outlined in Figure A1 and Table B8.

Beginning with the one-way, between subjects ANOVA, this test was performed to determine if there are any differences in transfer within each training delivery method between the geographical regions. Table B24 presents the results for the ILT participants

while Table B25 presents the results for the WBT participants. Overall, the test revealed no significant differences in transfer between regiosn for either the ILT or the WBT participants at the $p < .05$ level.

As for the independent samples t-tests results, a total of 36 t-tests were completed (6 geographical regions X 6 questions = 36 t-tests). Results for each question per geographical region are presented in Tables B26 through B31. Overall, only three individual t-tests (or 8.3 percent of the tests) yielded statistically significant results in two of the six geographical regions (Midwest [questions 1 and 5], Northwest [question 1]). The validity of the results of the t-test in the Northwest region, however, is questionable because of a low number of participants in the WBT condition (6 participants) as compared to the ILT condition (57 participants). Therefore, the only valid statistically significant results were in the Midwest region in which there was a significant difference in:

- The transfer/application of knowledge when developing an event security plan between ILT participants (M = .93, SD = .255) and WBT participants (M = .80, SD = .408), t (52.956) = -2.091, p=.041; and
- The transfer/application of ICS concepts and principles to an event security plan between ILT participants (M = .86, SD = .350) and WBT participants (M = .70, SD = .464), t (51.018) = -2.011, p=.050.

Overall, the statistical analyses suggest that the independent variables of training delivery method and geographical region have no effect on the dependent variable of training transfer. These results mirror the *no significant difference* phenomenon that is common in the ILT and WBT training effectiveness literature because of a total lack of

other statistically significant results. Although there were instances of statistically significant results, these results only numbered a total of three out of the 48 total tests performed (or 6.3 percent). Two of these tests, however, suggested that ILT participants had higher rates of transferring general course knowledge and ICS concepts and principles to event security plans as compared to WBT participants. Again, with α set at .05, an error rate of 5% would be expected. Therefore, differences in transfer attributable to training method, responder role, and geographic region are essentially attributable to random error.

CHAPTER V

DISCUSSION

This study was designed and administered to determine if there are differences in training transfer when comparing training delivery methods (ILT and WBT). Further, this study sought to fill a gap within the research regarding the following aspects of WBT and ILT as they relate to training transfer:

- Lack of transfer research and understanding among nonacademic and non-corporate populations (e.g., first responders) in applied settings (Merriam & Leahy, 2005; Schmeeckle, 2003; Kaiser et al., 2013; Peters et al., 2012; Saks & Belcourt, 1997; Richey, 1998); and
- Lack of transfer research and understanding that specifically compares transfer in relation to WBT and ILT (Petty et al., 2007; Schmeeckle, 2003; Joo et al., 2011).

Therefore, the purpose of this study was to gain valuable comparative insight to address the gaps above. This information is important not only for academics and training providers, but most importantly for the first responder community because it provides the information they need to determine which training delivery method for specific courses and/or training needs may be better for their employees based on their unique circumstances. This information is extremely important as WBT continues to expand and become more commonplace and accepted.

Interpretation of Findings

This study examined three specific comparative areas within the data to determine if there are transfer differences related to training delivery method. These areas included overall differences between training delivery method (ILT and WBT) as well as how

discipline and geographic region may additionally affect transfer in conjunction with training delivery method. Data were obtained from a Level 3 course evaluation of the MGT 335 training course offered by the RDPC. To examine transfer, secondary data analysis focused on data from six transfer-specific questions of the MGT 335 evaluation questionnaire. These questions were completed by those who indicated they had had an opportunity to apply/utilize the knowledge gain through the course by developing a security plan or participating in the planning process for an event since completing the course. Of the 1,250 participants who completed the Level 3 course evaluation questionnaire, 63.8% (n=797) indicated they did have an opportunity.

Overall, the findings within this study mirror the *no significance difference* phenomenon that is apparent within the ILT and WBT training effectiveness literature, which includes results comparing disciplines and geographical regions. Although statistical analyses did produce results defined as statistically significant at the $p < .05$ level, the number of significant results only numbered 9 out of a total of 114 tests, or 7.9% of the tests, with a 5% expected error rate. Further, all tests were performed at the individual question level because of the poor internal consistency between the questions (6 items; $\alpha = .59$). Therefore, when viewing the few significant results among the totality of the tests, the few statistically significant results quickly get lost within the overall *no significant difference* interpretation. Therefore, one can justly state that for the purposes of event security planning training in small and rural communities, the training delivery method does not matter as both (ILT and WBT) produced similar levels of training transfer overall as well as when comparing responder disciplines and geographical regions.

Although there is a lack of significant findings from a statistical point of view, this study begins to support the conclusion that the transfer of first responder training is unaffected by training delivery method. This is extremely important for first responder agencies in light of budget limitations, which tend to be even more limited in small and rural areas. Therefore, this study illustrates that first responder agencies can utilize cost-effective WBT and experience no drop-off in training transfer. Although first responders have traditionally completed training in the ILT format, various forms of WBT and other distance learning and technology-based training solutions (e.g., augmented reality) are becoming more widely utilized and accepted. This study shows that other training delivery methods have promise to provide effective training and reduced costs with greater access to isolated regions. Lastly, this study provides justification to training providers, such as the RDPC, to invest in WBT course development and expanded delivery mechanisms to help provide the right training to the right student at the right time in the most effective and efficient way, which is important in small, rural, and remote communities. This is supported by recent research that illustrated rural responders want expanded WBT offerings to help overcome training barriers, of which costs associated with attending a training is the number one barrier (Simpkins, 2015). This shows that along with education, especially post-secondary, the future of training and learning is not entirely in the classroom, but rather out of the classroom via WBT and the use of other ever expanding technology-based training solutions.

Despite the overall *no significant difference* finding, there are data elements that deserve notation. First, the number of individuals who completed the WBT version of MGT 335 was significantly lower than those who completed the ILT version on which

the statistical analyses were based. The total WBT individuals numbered less than one-third of the total ILT individuals. Although the small sample size effect is somewhat muted in the overall ILT versus WBT analyses, the effect of the low number of WBT individuals has larger impact on the analyses that examined differences within and between disciplines and geographical regions. For example, the following disciplines had four or less WBT individuals: EMS, Private Sector Security, Public Health, and Public Safety Communications. Further, the following geographical regions had approximately ten or less WBT individuals: Great Plains, Northwest, and Southwest. These low sample sizes may have limited the statistical power to find differences in transfer that actually exist.

In addition to a low number of WBT individuals, three of the six individual questions illustrated low levels of transfer compared to the other questions. Specifically, transfer rates related to questions about using the risk assessment model, developing MAAs and MOUs/MOAs, and application to day-to-day job setting were 30 percent lower as compared to the other three questions (50.7 percent as compared to 80.7 percent). The result regarding developing MAAs and MOUs/MOAs (ILT mean = .40; WBT mean = .45) is understandable as the development of these agreements and memorandums are commonplace to those with responsibilities related to emergency planning and response. Therefore, the course may have not provided information to greatly increase knowledge, skills, and abilities in this area. Conversely, the low transfer rates related to using the risk assessment model (ILT mean = .52; WBT mean = .52) sheds light on a concern. Since the risk assessment model is an important piece of the course, additional analysis is needed as to why the model is not being used by

approximately half of the respondents. For example another risk assessment model may be being more widely utilized within the first responder community (e.g., Threat and Hazard Identification and Risk Assessment [THIRA]). Lastly, the low transfer rates for the application of course information or obtained skills to day-to-day job setting (ILT mean = .57; WBT mean = .58) is another data element that requires further examination. One would assume that the mean/transfer rate for this question would be higher since other questions had much higher rates, especially the question that asked the individual if he/she has used what he/she learned in MGT 335 when planning and/or developing their event security plan (ILT mean = .89; WBT mean = .85). This may illustrate a possible limitation of the survey instrument as these data points do not seem to be consistent, which harkens backs to the poor internal consistency previously discussed.

Implications for Practice

Ultimately, the provision of relevant, timely, and effective training to individuals within the first responder community is a critical issue because they protect and save lives and property through action, which is the main objective of any emergency response. Further, their actions, judgements, and behaviors are a result of the training they have received (and their inherent intuition developed through training and experience) that is subsequently utilized in/transferred to emergency situations, which is especially true for low-frequency, high-consequence events (e.g., major earthquakes) (Atherton & Sheldon, 2012; Mendonca et al., 2006). Although this study did not provide consistently statistically significant differences, it does illustrate that both ILT and WBT are similarly effective at transferring knowledge, skills, and abilities to the first responder

community. This result has several implications for practice as it relates to first responder training.

The main implication is the acceptance and expansion of WBT by first responder agencies. Although the first responder community has traditionally exclusively relied on ILT (some of which is necessary because of the nature of their jobs), further acceptance of WBT opportunities and expansion of its use is warranted. For example, expansion of WBT opportunities can help overcome training barriers related to budget restrictions and lack of staff (e.g., necessary staff to cover for officers while attending and ILT training) among others. Further, WBT and other technology-based training solutions can allow officers to receive training on topical areas and/or circumstances that are either dangerous (e.g., hazardous materials) or hard to replicate (e.g., civil disobedience) in a training environment. In order to be effective, agencies must work to remove any negative attitudes (real or imagined) that may perceive WBT as inferior to ILT.

Additionally, the first responder community is facing difficulties related to expanding training requirements that are pitted against limitations in agency financial and human resources. Complicating this fact is that a one-size-fits-all approach cannot be applied to the first responder community because of different disciplines across the community (e.g., fire, law enforcement, and emergency management), different roles across and within disciplines and individual agencies, and different backgrounds, experiences, and skills within individuals. Further, training must now be modernized in terms of development and delivery in order to be applicable to and motivate the new generation of digital learners that are entering the first responder community workforce. Acceptance and expansion of WBT opportunities can help address these issues without

any deficiencies in training transfer. This can include the use of blended-learning techniques in which certain portions of training (e.g., introductory modules) are placed online as a prerequisite prior to attending the ILT portion, thereby allowing the student to immediately utilize and expand upon previously obtained knowledge.

Lastly, leaders within the first responder community can advocate for more WBT and other technology-based training solutions from public and private training providers. Current literature illustrates that training must expand beyond the traditional classroom to ensure training, no matter the field or the industry, remains effective for the trainee and cost-effective for organizations. The current training literature as well as the results of this study shows that WBT and other technology-based training solutions have the promise to meet the needs of first responders. Again, this is supported by recent research that illustrated rural responders want expanded WBT offerings to help overcome training barriers, so now it is up to leaders within the first responder community to ensure they voice their needs to those organizations that have the responsibility to fulfill their needs.

Implications for Policy

In regards to policy, first responder training is largely directed by established federal, state, and local training and certification requirements. In fact, recent research into rural training preferences revealed that the number one factor used to select a training course was whether it is required to maintain necessary certification or other training requirements (Simpkins, 2015). In light of these facts, this study has several implications for policy as it relates to first responder training. Namely, this study illustrates that training providers at the federal (e.g., DHS and FEMA) and state (e.g., state emergency management agencies) levels, as well as in the private sector, need to

invest in WBT and other technology-based training solutions to help provide needed training to first responder agencies. Immediate impacts can be made by focusing development on courses that address annual certification and other training requirements, which will help to lessen the training burden placed on individual first responders as well as their overall agencies. Further, the expansion of WBT offerings (and offerings through other training delivery technologies) can to help overcome training barriers, especially elements related to cost and access.

In addition to training providers, this study has policy implications for training recipients (i.e., first responder agencies and their employees). In today's climate, first responder agencies have to do more with less related to emergency preparedness and response training, but in an effective and efficient manner. Therefore, first responder agencies must recognize the possible significant savings by integrating WBT and other technology-based training solutions. Although the implementation of these technologies does not change the need to achieve training objectives, training programs are now being greatly influenced by technology (Atherton and Sheldon, 2012). The traditional classroom- and lecture-based training model is being forced out in preference for a model that is more interactive and driven by technology (Kranz, 2014).

Although WBT and other technology-based training solutions offer content and delivery methods that decrease some of the barriers associated with traditional training, their successful advancement and implementation can be considered asymmetrical (Atherton & Sheldon, 2012). This can be somewhat explained because of today's information age in which teaching and learning methods range from studying printing materials alone to training via online gaming systems (Andronie, 2014). Therefore, there

are many ways in which technology-based training solutions can assist in training individuals within the homeland security community (Andronie, 2014). Despite the availability of technology-based training solutions, one of the largest issues that remain is that many agencies do not fully understand how to effectively and efficiently leverage technology to support training (Jass, 2013). Namely, regardless of the inherent advantages of technology-based training solutions, the efficiencies and effectiveness offered by technology can be severely diminished if it is not properly implemented. Although the first responder community needs to embrace and adapt to training technology (such as WBT), "there is a lack of guidance for *how* to adapt" (Spain et al., p. 89). It is no surprise that many training technology implementation projects fail to fully achieve potential benefits because of factors such as poor strategy, leadership, or engagement (Andison et al., 2014). Therefore, much benefit would be achieved if leaders from the first responder community, training providers, and other stakeholders are provided policy and implementation guidance that can be utilized by individual first responder agencies to effectively and efficiently implement WBT and other technology-based training solutions.

Implications for Future Research

This study helps to address the lack of transfer research and understanding among nonacademic and non-corporate populations (e.g., first responders) in applied settings that compares ILT and WBT transfer. One study alone cannot fulfill a research gap; therefore, there are vast opportunities related to first responder transfer research. Due to the limitations previously explained, this study can serve as a preliminary study from

which more comprehensive studies can be conducted. The following bullets provide recommendations for future transfer research within the first responder community.

- **Replication Studies:** This study examined one particular training course (MGT 335). Therefore, additional studies are warranted that examine ILT versus WBT transfer differences through additional courses. This includes examining courses with different instructional levels (Awareness [AWR] versus Management [MGT] versus Performance [PER]). Additionally, future research should consider courses that do not have a heavy law enforcement focus in order to achieve more discipline diversity within the participants. Lastly, future research should also attempt to obtain more geographically dispersed participants to ensure adequate and comparable representation of each region.
- **Comprehensive Course Evaluations:** This study examines one specific element of Kirkpatrick's model (Level 3 – Transfer). A more comprehensive understanding of the differences between ILT and WBT transfer within the first responder community may be obtained through comprehensive studies utilizing the other levels. For example, the RDPC collects both Level 1 (Reaction) and Level 2 (Learning) data from each course participant per requirements set forth by FEMA. Therefore, future studies could examine if differences in reactions (Level 1) and learning (Level 2) have an impact on transfer (Level 3) between associated training delivery methods (ILT versus WBT). Level 2 (Learning) is very important within transfer research as it is one of the Training Outputs within Baldwin and Ford's (1988) transfer model: Training skills must be learned and retained in order to transfer.

- **Trainee Characteristics:** This study included limited demographic information for the participants (discipline and geographical region). Additional research is warranted that captures more detailed participant demographical information (e.g., age, job responsibility [management staff versus line staff], education level, etc.) to determine if and how trainee characteristics affect transfer. This area of research is important as the element of trainee characteristics is a major part of Baldwin and Ford's (1988) transfer framework. Specifically, the trainee characteristics element is one of the three training inputs (the other two being training design and work environment) that directly affect the training outputs (learning and retention) and conditions of transfer (generalization and maintenance).
- **Other Technology-Based Training Solutions:** This study examined one form of technology-based training delivery. WBT is, however, only one of many technology-based training solutions that are being utilized today. These solutions suffer from a lack of research similar to WBT. This illustrates a need for further research to determine if and how transfer is affected by other training delivery technologies or if specific solutions provide greater transfer rates. Examples of other technology-based training solutions that future transfer research can examine include:
    - **Adaptive Training:** Adaptive training supports technology-based training solutions by allowing the instruction to dynamically change/adapt based on individual trainee characteristics, such as performance, skill level, experiences, etc. (Spain et al., 2012).

- **Augmented Reality:** Provides the ability to extend the physical world by applying virtual objects and/or information over an individual's view of the physical world (Nam, 2015; Diaz, 2014; Tsai, Liu, & Yau, 2013).
- **Experiential Learning**: Experiential learning occurs when a learning activity having a behavioral-based hierarchy allows the student to experience and practice job-related tasks and functions during a training session. Any learning based on experiencing, doing, exploring, and even living can be termed experiential (Tsai et al., 2013).
- **Gaming:** The use of video games to support training objectives. Based on entertainment gaming technology, (serious) game training solutions range from single-player or small-group games up to large multiplayer Internet-based games. Gaming technology allows a trainee to effectively simulate task performance with the right amount of realism to enable learning, practicing, improving, and transfer of necessary knowledge and skills (Serge et al., 2013; Taylor & Barnett, 2013; *Technologies to watch*, 2010; Mendonca et al., 2006).
- **Mixed-Mode/Blended/Resource-Based Learning:** These terms interchangeably describe an approach to education that combines face-to-face and distance approaches to education in that an instructor or tutor meets with students (either in a face-to-face mode or through a technological means) and a resource-base of content materials and learning activities are made available to students. In addition, some e-Learning approaches might be used (Mendonca et al., 2006).

- **M-Learning:** An extension of distance education, supported by mobile devices equipped with wireless technologies (Pereira & Rodrigues, 2013).
- **Virtual Reality:** Human interaction technology that allows actual users to participate in a virtual world reproduced by computers (Cha et al., 2012). Enables a trainee to be immersed within and interact with 3-diminsional (3D) environments that are artificial/simulated (Cohen et al., 2013; Hoang et al., 2010).

- **Private Sector Comparison:** The majority of first responder training provided through FEMA NTED is developed and delivered by post-secondary institutions of higher learning through federal contracts, grants, and cooperative agreements. Additional training is administered by the federal government via federal training centers (e.g., Center for Domestic Preparedness [CDP], Emergency Management Institute [EMI], U.S. Fire Academy [USFA]). A third type of training provider is private sector, for-profit organizations. Therefore, comparative research could be completed that examines differences in training transfer between the three types of training providers (federal, post-secondary institutions, and private sector organizations). Not only would this research help to address the research gaps previously explained, it also would help identify possible best practices and other training techniques that may enhance transfer.

Summary and Reflection

This study examined whether there are differences in training transfer between two training delivery methods (ILT and WBT) as it relates to first responder training. This study not only analyzed possible differences in overall transfer, but also if there are

differences across and within responder discipline and geographical region. A single training course was utilized (MGT 335), which offers both an ILT and a WBT delivery format. The secondary data utilized in this study were obtained by the RDPC as part of its Level 3 Course Evaluation Program. Overall, the study results mirrored the *no significant difference* phenomenon commonly found in the ILT and WBT training effectiveness literature. Specifically, no significant differences were found when comparing transfer between training delivery methods (ILT versus WBT) as well as when comparing transfer with and between responder discipline and geographical region. Although this study did not provide any significant findings, this can be interpreted as a beneficial result. Specifically, this study illustrates that there is no difference in training transfer between WBT instruction and ILT instruction. This is of importance to first responder agencies in light of budget and staffing limitations, and especially to rural first responder agencies that face additional training barriers. Therefore, first responder agencies can expand the acceptance and utilization of WBT to address training barriers without concerns regarding effects to training transfer.

During the literature review for this study, it became apparent that the study would most likely result in a *no significant difference* finding. Although it is nice to obtain/uncover significant results, the opposite is true for this study as it supports more acceptance and expansion of WBT, and possibly other technology-based training solutions, within first responder training. First responder agencies within small, rural, and remote communities may receive the most benefit as this study illustrated they can use other training delivery methods beyond the traditional classroom-based model to effectively train their employees without a degradation in training transfer. Therefore,

although the study results are not significant from an academic standpoint, they are very beneficial from a practical standpoint.

In conclusion, there are numerous elements that affect training transfer at the individual and organizational level, such as those noted in Baldwin and Ford's (1988) transfer model. This study in no way attempted to examine all of the elements. Rather, it focused on one single element (training delivery method). The results show that first responder agencies must act now to move beyond the traditional classroom-based training model and begin to utilize technology-based training solutions that can provide increased efficiency without a lapse in effectiveness. This is especially true since individuals who grew up with complete access to the Internet, computers, and other technologies are now entering the workforce. These individuals are comfortable with technology and exxpect to continue its use within day-to-day job settings. Therefore, there needs to be a continued expansion and use of technology-based training solutions to ensure community preparedness and resiliency across the United States.

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APPENDIX A

FIGURES

Figure A1. EPA climate regions

Source: U.S. Environmental Protection Agency (2015). *Climate change* [website]. Retrieved from http://www.epa.gov/climatechange/

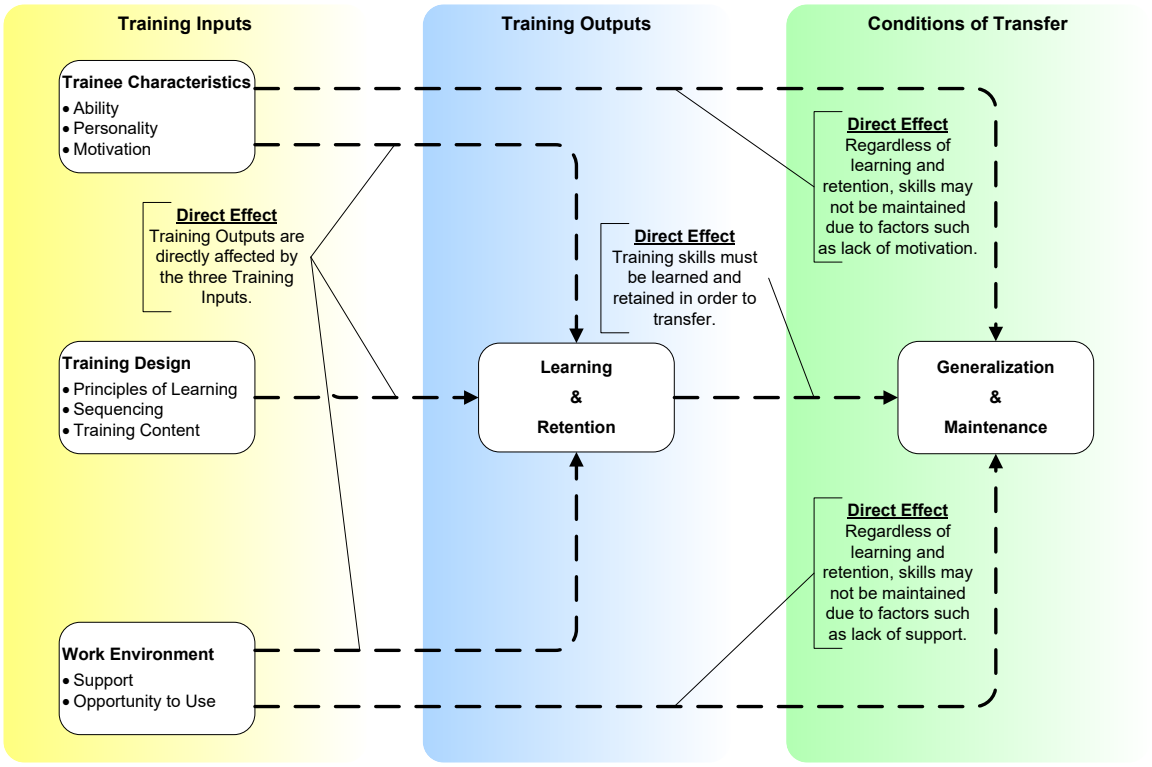

Figure A2. Baldwin and Ford's transfer model

Source: Baldwin, T., & Ford, J. (1988). Transfer of training: A review and directions for future research. *Personnel Psychology*, *41*(1), 63–105.

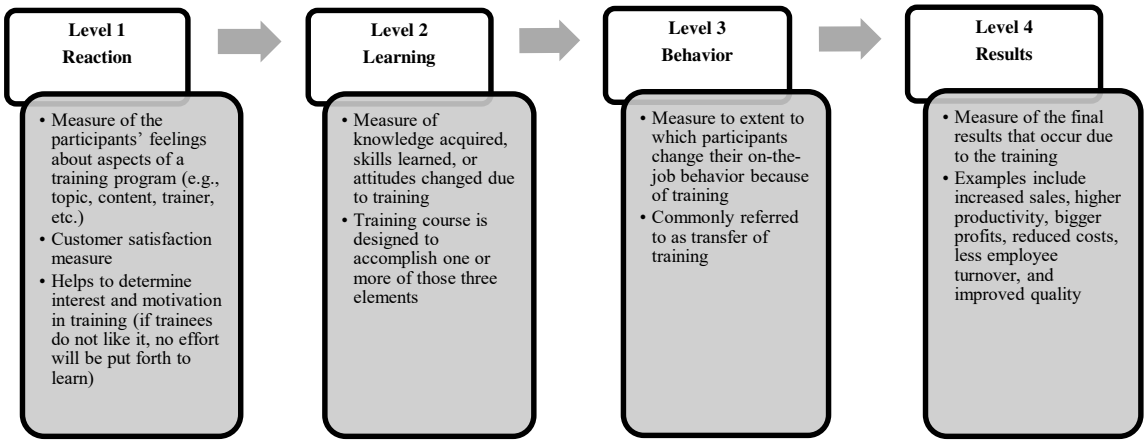

Figure A3. Kirkpatrick's four levels of training evaluation

Source: Kirkpatrick, D. (1996). Great ideas revisited: Revisiting Kirkpatrick's four-level model. *Training and Development, 50*(1), 54-59.

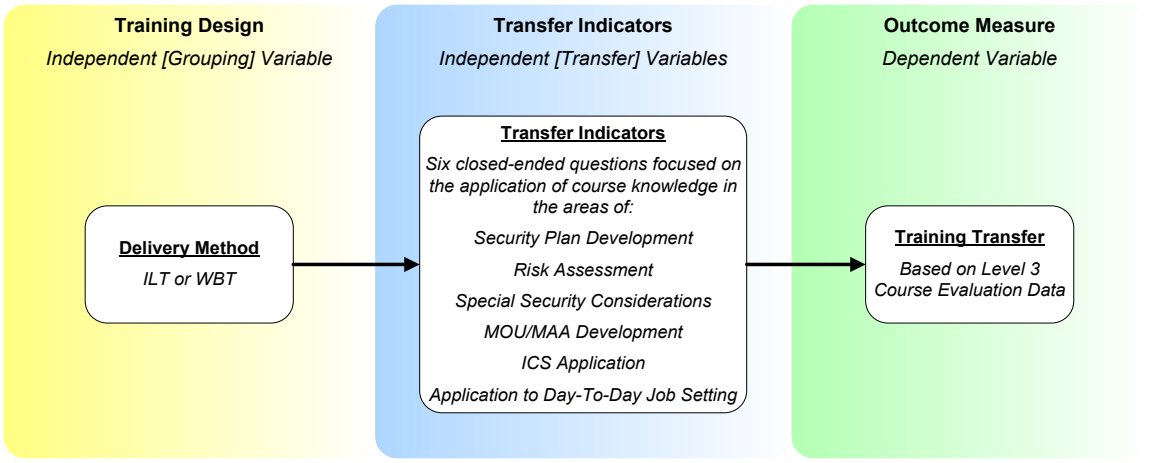

Figure A4. Conceptual framework for study

APPENDIX B

TABLES

Table B1. Haskell's Modified Seven Levels of Transfer

Level	Name	Transfer Description
0	Failed Transfer	This refers to the failure to apply what one has learned in a situation despite the learning's relevance to the situation.
1	Non-Specific Transfer	This refers to all learning – all learning has been connected to past learning.
2	Application Transfer	Applying what one has learned to a specific situation.
3	Context Transfer	Applying what one has learned to a slightly different situation (e.g., recognizing something in one context and then in another).
4	Near Transfer	Transferring to new situations that are closely similar (e.g., learning a skill and then using part of that learning to develop another skill).
5	Far Transfer	Applying learning to situations that are quite dissimilar.
6	Creative Transfer	In the interaction between the new and old situation, something new is created.

Source: Haskell, R. (2001). *Transfer of learning: cognition, instruction and reasoning*. Academic Press, San Diego, CA.

Table B2. Transfer Domain Factors Research Support Summary

	Domain Factors		
Support Level	Trainee Characteristics	Training Design	Work Environment
Strong or Moderate Relationship	Cognitive Ability Self-Efficacy Pretraining Motivation Anxiety/Negative Affectivity Openness to Experience Perceived Utility Career Planning Organizational Commitment	Learning Goals Content Relevance Practice and Feedback Behavioral Modeling Error-Based Samples	Transfer Climate Supervisory Support Peer Support Opportunity to Perform
Mixed Support	Extrinsic vs. Intrinsic Motivation Conscientiousness External vs. Internal Locus of Control	Self-Management Strategies	
Minimal Empirical Support	Motivation to Learn Motivation to Transfer Extroversion	Needs Analysis Active Learning Technological Support	Strategic Link Accountability

Source: Burke, L. A., & Hutchins, H. M. (2007). Training transfer: An integrative literature review. *Human Resource Development Review*, *6*(3), 263–296.

Table B3. Online Learning Advantages and Disadvantages

Advantages	Disadvantages
Anytime and anywhere learning	Computer literacy issues
Automated record keeping and tracking	Failure to communicate expectations
Consistent learning environment	Higher levels of frustration, anxiety, and confusion
Diminish student inhibitions regarding communication by removing psychological and social barriers to student-teacher and student-student interactions	Ineffective hands-on practices
Flexibility in delivery formats	Internet connectivity issues
Higher enrollments per session	Lack of and/or delayed instructor feedback
Interactive learning to promote leaner interest	Lack of human interaction
Learner-centered environment	Lack of nonverbal cues
Meet the needs of nontraditional students	Longer timeframe to develop and/or update curriculum
More autonomous (e.g., less dependent on teacher's approval and instruction)	Many of accepted advantages have not been empirically tested
Multimedia content	Privacy and computer security issues
Reduced training costs (e.g., delivery, trainee attendance, etc.)	Requires self-motivation for learning
Reduced training time	Student feelings of isolation
Self-paced learning	Technology-focus instead on content-focus
Sophisticated interactions that incorporate game-based activities and business simulations	
Wider access to wide range of populations	

Table B4. Participant Statistics from MGT 335 Level 3 Course Evaluation

Course	# of Evaluations	# of Students	Response Rate	Student Date Range
MGT 335	951	2,119	45.0%	March 2009 – Sept. 2012
MGT 335-W	299	619	48.3%	Sept. 2009 – Sept. 2012
Overall	1,250	2,738	45.7%	

Table B5. Course Delivery Method Statistics

Course	Delivery Method	Frequency	Percent
MGT 335	ILT	634	79.5%
MGT 335-W	WBT	163	20.5%

Table B6. Participant Discipline

Discipline	Frequency	Percent
Emergency Management	115	14.4%
Emergency Medical Services	11	1.4%
Fire Service	50	6.3%
Government Administrative	53	6.6%
Law Enforcement	481	60.4%
Private Sector Security	29	3.6%
Public Health	12	1.5%
Public Safety Communications	17	2.1%
Other	29	3.6%
Total	797	100.0%

Table B7. Participant State

State	Frequency	Percent
AL	14	1.8
AR	12	1.5
CA	2	.3
CO	11	1.4
CT	1	.1
DC	2	.3
FL	89	11.2
GA	23	2.9
HI	18	2.3
IA	16	2.0
ID	25	3.1
Il	1	.1
IL	17	2.1
IN	36	4.5
KS	25	3.1
KY	28	3.5
LA	16	2.0
MA	1	.1
MD	6	.8
ME	9	1.1
MI	31	3.9
MN	22	2.8
MO	13	1.6
MS	14	1.8
MT	1	.1
NC	34	4.3
ND	2	.3
NE	8	1.0
NJ	6	.8
NM	13	1.6
NV	2	.3
NY	72	9.0
OH	24	3.0

State	Frequency	Percent
OK	2	.3
OR	17	2.1
PA	24	3.0
SC	15	1.9
SD	9	1.1
TN	28	3.5
TX	8	1.0
UT	2	.3
VA	12	1.5
VT	1	.1
WA	23	2.9
WI	51	6.4
WV	8	1.0
WY	1	.1
Missing	2	0.3
Total	797	100.0

Table B8. Participant Geographical Region

Region	Frequency	Percent
Great Plains	56	7.0%
Midwest	209	26.2%
Northeast	131	16.4%
Northwest	65	8.2%
Southeast	286	35.9%
Southwest	48	6.0%
Not Provided	2	0.3%
Total	797	100.0

Table B9. Descriptive Statistics for Individual Transfer Questions: All Participants

Question	Training Delivery	N	Mean	Std. Deviation	Std. Error Mean
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT	620	.89	.311	.012
	WBT	158	.85	.360	.029
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT	616	.52	.500	.020
	WBT	159	.52	.501	.040
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT	607	.77	.419	.017
	WBT	157	.71	.457	.036
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/Agreement?	ILT	359	.40	.490	.026
	WBT	112	.45	.499	.047
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT	578	.85	.360	.015
	WBT	149	.77	.425	.035
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT	589	.57	.495	.020
	WBT	151	.58	.496	.040

Table B10. Independent Samples T-Test Results: All Participants

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.89 .85	.311 .360	1.403	220.230	.162	.044	.031
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.52 .52	.500 .501	.11	773	.991	.001	.045
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.77 .71	.419 .457	1.632	228.736	.104	.066	.040
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/Agree ment?	ILT WBT	.40 .45	.490 .499	-.903	469	.367	-.040	.053
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.85 .77	.360 .425	2.180	205.757	.030	.083	.038
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.57 .58	.495 .496	-.126	738	.900	-.006	.045

Table B11. Descriptive Statistics for Individual Transfer Questions by Discipline

Question	Discipline	ILT			WBT		
		M	N	Std. Dev.	M	N	Std. Dev.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	EM	.91	80	.284	.84	32	.362
	EMS	.78	9	.441	.50	2	.707
	FS	.91	32	.296	.82	17	.393
	GA	.89	37	.315	.87	15	.352
	LE	.90	397	.305	.85	73	.360
	PSS	.83	24	.381	1.00	4	.000
	PH	.80	10	.422	.50	2	.707
	PSC	.85	13	.376	.75	4	.500
	OTH	.89	18	.323	1.00	9	.000
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	EM	.56	78	.499	.44	32	.504
	EMS	.67	9	.500	.50	2	.707
	FS	.61	31	.495	.61	18	.502
	GA	.57	37	.502	.47	15	.516
	LE	.49	397	.501	.49	73	.503
	PSS	.54	24	.509	.75	4	.500
	PH	.30	10	.483	.50	2	.707
	PSC	.77	13	.439	.25	4	.500
	OTH	.41	17	.507	.89	9	.333
Did you use what you learned in MGT 335 to effectively manage special security considerations?	EM	.76	78	.432	.81	32	.397
	EMS	.75	8	.463	.50	2	.707
	FS	.65	31	.486	.56	18	.511
	GA	.78	37	.417	.79	14	.426
	LE	.79	391	.409	.70	73	.462
	PSS	.70	23	.470	.75	4	.500
	PH	.78	9	.441	.00	2	.000
	PSC	.77	13	.439	.75	4	.500
	OTH	.82	17	.393	.75	8	.463
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/Agreement?	EM	.36	56	.483	.58	26	.504
	EMS	.50	4	.577	.50	2	.707
	FS	.29	17	.470	.36	11	.505
	GA	.43	23	.507	.27	11	.467
	LE	.41	222	.492	.45	49	.503
	PSS	.36	14	.497	.33	3	.577
	PH	.20	5	.447	.50	2	.707
	PSC	.63	8	.518	.00	1	.000
	OTH	.50	10	.527	.43	7	.535
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	EM	.83	76	.379	.75	32	.440
	EMS	.88	8	.354	.50	2	.707
	FS	.79	29	.412	.76	17	.437
	GA	.77	31	.425	.64	14	.497
	LE	.85	375	.354	.81	67	.398

Table B11 (continued)

Question	Discipline	ILT M	ILT N	ILT Std. Dev.	WBT M	WBT N	WBT Std. Dev.
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	PSS	.82	22	.395	.67	3	.577
	PH	1.00	10	.000	1.00	2	.000
	PSC	.92	12	.289	.67	3	.577
	OTH	.93	15	.258	.78	9	.441
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	EM	.65	759	.479	.58	31	.502
	EMS	.67	29	.500	1.00	2	.000
	FS	.62	35	.494	.47	17	.514
	GA	.80	381	.406	.73	15	.458
	LE	.51	219	.501	.57	69	.499
	PSS	.57	13	.507	.50	2	.707
	PH	.89	17	.333	.00	2	.000
	PSC	.69		.480	1.00	4	.000
	OTH	.71		.470	.44	9	.527

Table B12. One-Way ANOVA Results: Discipline and ILT

Question	Analysis	Sum of Squares	df	Mean Square	F	Sig.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	Between Groups	.361	8	.045	.464	.881
	Within Groups	59.399	611	.097		
	Total	59.760	619			
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	Between Groups	2.519	8	.315	1.263	.260
	Within Groups	151.318	607	.249		
	Total	153.838	615			
Did you use what you learned in MGT 335 to effectively manage special security considerations?	Between Groups	.803	8	.100	.567	.805
	Within Groups	105.823	598	.177		
	Total	106.626	606			
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/Agreement?	Between Groups	1.097	8	.137	.565	.806
	Within Groups	84.942	350	.243		
	Total	86.039	358			
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	Between Groups	.717	8	.090	.690	.701
	Within Groups	73.885	569	.130		
	Total	74.602	577			
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	Between Groups	5.363	8	.670	2.798	.005
	Within Groups	138.962	580	.240		
	Total	144.326	588			

Table B13. One-Way ANOVA Results: Discipline and WBT

Question	Analysis	Sum of Squares	df	Mean Square	F	Sig.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	Between Groups	.839	8	.105	.801	.603
	Within Groups	19.515	149	.131		
	Total	20.354	157			
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	Between Groups	2.189	8	.274	1.094	.371
	Within Groups	37.522	150	.250		
	Total	39.711	158			
Did you use what you learned in MGT 335 to effectively manage special security considerations?	Between Groups	1.976	8	.247	1.197	.305
	Within Groups	30.546	148	.206		
	Total	32.522	156			
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/Agreement?	Between Groups	1.102	8	.138	.534	.829
	Within Groups	26.577	103	.258		
	Total	27.679	111			
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	Between Groups	.639	8	.080	.428	.903
	Within Groups	26.140	140	.187		
	Total	26.779	148			
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	Between Groups	2.478	8	.310	1.279	.259
	Within Groups	34.396	142	.242		
	Total	36.874	150			

Table B14. Independent Samples T-Test Results: Emergency Management

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.91 .84	.284 .369	.948	46.456	.348	.069	.073
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.56 .44	.499 .504	1.205	108	.231	.127	.105
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.76 .81	.432 .397	-.633	108	.528	-.056	-.232
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.36 .58	.483 .504	-1.890	80	.062	-.220	.116
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.83 .75	.379 .440	.942	106	.348	.079	.084
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.65 .58	.479 .502	.701	104	.485	.073	.104

Table B15. Independent Samples T-Test Results: EMS

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.78 .50	.441 .707	.744	9	.476	.278	.374
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.67 .50	.500 .707	.405	9	.695	.167	.412
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.75 .50	.463 .707	.632	8	.545	.250	.395
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.50 .50	.577 .707	0.000	1.714	1.000	0.000	.577
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.88 .50	.354 .707	1.144	8	.286	.375	.328
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.67 1.00	.500 .000	-.905	9	.389	-.333	.369

Table B16. Independent Samples T-Test Results: Fire Services

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.91 .82	.296 .393	.829	47	.411	.083	.100
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.61 .61	.495 .502	.012	47	.990	.002	.147
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.65 .56	.486 .511	.610	47	.545	.090	.147
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/Agreement?	ILT WBT	.29 .36	.470 .505	-.372	26	.713	-.070	.187
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.79 .76	.412 .437	.221	44	.826	.028	.129
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.62 .47	.494 .514	.980	44	.332	.150	.153

Table B17. Independent Samples T-Test Results: Government Administrative

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.89 .87	.315 .352	.253	50	.801	.025	.100
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.57 .47	.502 .516	.651	50	.518	.101	.155
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.78 .79	.417 .426	-.015	49	.988	-.002	.132
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/Agreement?	ILT WBT	.43 .27	.507 .467	.893	32	.378	.162	.181
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.77 .64	.425 .497	.910	43	.368	.131	.144
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.80 .73	.406 .458	.512	48	.611	.067	.130

Table B18. Independent Samples T-Test Results: Law Enforcement

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.90 .85	.305 .360	1.057	91.903	.293	.045	.045
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.49 .49	.501 .503	-.031	468	.975	-.002	.064
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.79 .70	.409 .462	1.539	94.287	.127	.089	.058
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.41 .45	.492 .503	-.559	269	.577	-.044	.078
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.85 .81	.354 .398	.989	440	.323	.047	.048
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.51 .57	.501 .499	-.857	94.442	.393	-.056	.065

Table B19. Independent Samples T-Test Results: Private Sector Security

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.83 1.00	.381 .000	-2.145	23.000	.043	-.167	.078
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.54 .75	.509 .500	-.770	4.110	.483	-.208	.271
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.70 .75	.470 .500	-.212	25	.834	-.054	.257
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.36 .33	.497 .577	.074	15	.942	.024	.324
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.82 .67	.395 .577	.595	23	.558	.152	.255
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.57 .50	.507 .707	.186	21	.854	.071	.384

Table B20. Independent Samples T-Test Results: Public Health

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.80 .50	.422 .707	.845	10	.418	.300	.355
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.30 .50	.483 .707	-.506	10	.624	-.200	.395
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.78 .00	.441 .000	2.393	9	.040	.778	.325
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.20 .50	.447 .707	-.703	5	.513	-.300	.427
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	1.00 1.00	.000 .000	T-test cannot be computed because the standard deviations of both groups are 0.				
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.89 .00	.333 .000	3.618	9	.006	.889	.246

Table B21. Independent Samples T-Test Results: Public Safety Communications

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.85 .75	.376 .500	.417	15	.683	.096	.231
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.77 .25	.439 .500	2.011	15	.063	.519	.258
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.77 .75	.439 .500	.074	15	.942	.019	.258
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/Agreement ?	ILT WBT	.63 .00	.518 .000	1.139	7	.292	.625	.549
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.92 .67	.289 .577	1.110	13	.287	.250	.225
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.69 1.00	.480 .000	-2.309	12	.040	-.308	.133

Table B22. Independent Samples T-Test Results: Other

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.89 1.00	.323 .000	-1.458	17	.163	-.111	.076
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.41 .89	.507 .333	-2.878	22.633	.009	-.477	.166
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.82 .75	.393 .463	.413	23	.684	.074	.178
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.50 .43	.527 .535	.273	15	.788	.071	.261
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.93 .78	.258 .441	.964	11.355	.355	.156	.161
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.71 .44	.470 .527	1.296	24	.207	.261	.202

Table B23. Descriptive Statistics for Individual Transfer Questions by Geographic Region

Question	Region	ILT			WBT		
		M	N	Std. Dev.	M	N	Std. Dev.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	Great Plains	.91	43	.294	.90	10	.316
	Midwest	.93	159	.255	.80	44	.408
	Northeast	.91	96	.293	.85	34	.359
	Northwest	.86	57	.350	1.00	6	.000
	Southeast	.89	228	.319	.85	52	.364
	Southwest	.75	36	.439	.91	11	.302
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	Great Plains	.62	42	.492	.40	10	.516
	Midwest	.51	160	.502	.49	45	.506
	Northeast	.50	94	.503	.47	34	.507
	Northwest	.48	56	.504	.67	6	.516
	Southeast	.51	228	.501	.56	52	.502
	Southwest	.54	35	.505	.64	11	.505
Did you use what you learned in MGT 335 to effectively manage special security considerations?	Great Plains	.88	42	.328	.80	10	.422
	Midwest	.78	159	.416	.65	43	.482
	Northeast	.76	92	.429	.65	34	.485
	Northwest	.75	57	.434	.67	6	.516
	Southeast	.76	222	.430	.73	52	.448
	Southwest	.76	34	.431	.91	11	.302
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/Agreement?	Great Plains	.48	27	.509	.33	6	.516
	Midwest	.42	77	.496	.42	31	.502
	Northeast	.38	55	.490	.54	28	.508
	Northwest	.41	27	.501	.67	3	.577
	Southeast	.41	152	.493	.41	37	.498
	Southwest	.15	20	.366	.33	6	.516
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	Great Plains	.92	39	.270	.70	10	.483
	Midwest	.86	155	.350	.70	40	.464
	Northeast	.81	90	.394	.88	33	.331
	Northwest	.81	52	.398	.67	6	.516
	Southeast	.87	209	.341	.78	49	.422
	Southwest	.75	32	.440	.80	10	.422
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	Great Plains	.70	40	.464	.78	9	.441
	Midwest	.57	152	.496	.60	43	.495
	Northeast	.51	92	.503	.59	32	.499
	Northwest	.48	56	.504	.40	5	.548
	Southeast	.58	214	.495	.53	51	.504
	Southwest	.65	34	.485	.60	10	.516

Table B24. One-Way ANOVA Results: Geographic Region and ILT

Question	Analysis	Sum of Squares	df	Mean Square	F	Sig.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	Between Groups	1.063	5	.213	2.220	.051
	Within Groups	58.685	613	.096		
	Total	59.748	618			
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	Between Groups	.576	5	.115	.459	.807
	Within Groups	153.027	609	.251		
	Total	153.603	614			
Did you use what you learned in MGT 335 to effectively manage special security considerations?	Between Groups	.591	5	.118	.669	.647
	Within Groups	105.983	600	.177		
	Total	106.574	605			
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/Agreement?	Between Groups	1.473	5	.295	1.232	.294
	Within Groups	84.203	352	.239		
	Total	85.676	357			
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	Between Groups	.818	5	.164	1.266	.277
	Within Groups	73.761	571	.129		
	Total	74.579	576			
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	Between Groups	1.652	5	.330	1.349	.242
	Within Groups	142.489	582	.245		
	Total	144.141	587			

Table B25. One-Way ANOVA Results: Geographic Region and WBT

Question	Analysis	Sum of Squares	df	Mean Square	F	Sig.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	Between Groups	.329	5	.066	.497	.778
	Within Groups	20.002	151	.132		
	Total	20.331	156			
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	Between Groups	.622	5	.124	.487	.785
	Within Groups	38.821	152	.255		
	Total	39.443	157			
Did you use what you learned in MGT 335 to effectively manage special security considerations?	Between Groups	.831	5	.166	.788	.560
	Within Groups	31.605	150	.211		
	Total	32.436	155			
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/Agreement?	Between Groups	.604	5	.121	.474	.795
	Within Groups	26.765	105	.255		
	Total	27.369	110			
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	Between Groups	.710	5	.142	.791	.557
	Within Groups	25.479	142	.179		
	Total	26.189	147			
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	Between Groups	.681	5	.136	.547	.741
	Within Groups	35.859	144	.249		
	Total	36.540	149			

Table B26. Independent Samples T-Test Results: Great Plains Region

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.91 .90	.294 .316	.067	51	.947	.007	.105
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.62 .40	.492 .516	1.255	50	.215	.219	.175
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.88 .80	.328 .422	.664	50	.510	.081	.122
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.48 .33	.509 .516	.643	31	.525	.148	.230
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.92 .70	.270 .483	1.405	10.483	.189	.223	.159
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.70 .78	.464 .441	-.458	47	.649	-.078	.170

Table B27. Independent Samples T-Test Results: Midwest Region

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.93 .80	.255 .408	2.091	52.596	.041	.135	.065
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.51 .49	.502 .506	.205	203	.838	.017	.085
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.78 .65	.416 .482	1.597	59.928	.116	.129	.081
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.42 .42	.496 .502	-.036	106	.972	-.004	.106
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.86 .70	.350 .464	2.011	51.018	.050	.158	.079
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.57 .60	.496 .495	-.377	193	.707	-.032	.086

Table B28. Independent Samples T-Test Results: Northeast Region

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.91 .85	.293 .359	.857	128	.393	.053	.062
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.50 .47	.503 .507	.292	126	.771	.029	.101
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.76 .65	.429 .485	1.205	53.212	.234	.114	.094
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.38 .54	.490 .508	-1.336	81	.185	-.154	.115
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.81 .88	.394 .331	-.879	121	.381	-.068	.077
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.51 .59	.503 .499	-.805	122	.422	-.083	.103

Table B29. Independent Samples T-Test Results: Northwest Region

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.86 1.00	.350 .000	-3.024	56	.004	-.140	.046
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.48 .67	.504 .516	-.834	6.068	.436	-.185	.221
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.75 .67	.434 .516	.463	61	.645	.088	.190
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.41 .67	.501 .577	-.841	28	.407	-.259	.308
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.81 .67	.398 .516	.798	56	.428	.141	.177
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.48 .40	.504 .548	.347	59	.730	.082	.237

Table B30. Independent Samples T-Test Results: Southeast Region

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.89 .85	.319 .364	.791	278	.430	.040	.050
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.51 .56	.501 .502	-.578	278	.563	-.045	.077
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.76 .73	.430 .448	.389	272	.697	.026	.067
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.41 .41	.493 .498	.027	187	.978	.002	.091
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.87 .78	.341 .422	1.399	63.553	.167	.091	.065
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.58 .53	.495 .504	.647	263	.519	.050	.077

Table B31. Independent Samples T-Test Results: Southwest Region

Question	Training Delivery	M	SD	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?	ILT WBT	.75 .91	.439 .302	-1.363	24.254	.185	-.159	.117
Did you use the risk assessment model during your event security plan development to anticipate potential dangers associated with the event?	ILT WBT	.54 .64	.505 .505	-.535	44	.595	-.094	.175
Did you use what you learned in MGT 335 to effectively manage special security considerations?	ILT WBT	.76 .91	.431 .302	-1.233	24.337	.229	-.144	.117
Did you use what you learned in MGT 335 to develop Mutual Aid Agreements and/or Memorandums of Understanding/ Agreement?	ILT WBT	.15 .33	.366 .516	-.979	24	.337	-.183	.187
Did you use what you learned in MGT 335 to apply ICS to your event security plan?	ILT WBT	.75 .80	.440 .422	-.317	40	.753	-.050	.158
Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?	ILT WBT	.65 .60	.485 .516	.266	42	.792	.047	.177

APPENDIX C

MGT 335 LEVEL 3 COURSE EVALUATION QUESTIONNAIRE

1. Please indicate which delivery method of *MGT 335* you completed.

   Instructor-Led Training (classroom-based)
   Web-Based Training

2. Which discipline below best reflects your current position and job duties? (Please mark only one answer)

   Emergency Management
   Emergency Medical Services
   Fire Services
   Government Administrative
   Healthcare/Public Health
   Law Enforcement
   Public Safety Communications
   Public Works/Public Utilities
   Other (please specify): _____

3. Which of the following population segments do you routinely work with as part of your position within your organization? (Please mark all that apply)

   Highly populated areas and large cities (over 250,000 people)
   Suburban areas (50,000 – 250,000 people)
   Small and rural areas (less than 50,000 people or 1,000 people per square mile)
   Remote/frontier areas (less than 7 people per square mile)
   All of the above

4. Why did you take this course? (Please mark all that apply)

   Supervisor recommended it
   Attendance required for my next duty or assignment
   For general career advancement
   Desire to increase my professional knowledge
   Have security planning responsibilities for planned events occurring within my jurisdiction
   Other (please specify): _____

5. Since taking the course, have you had an opportunity to develop a security plan or participate in the planning process for an event?

   Yes **(please continue to question #6)**
   No **(please skip to question #16)**

Please answer the questions 6 – 15 based on your experiences planning for events after completing MGT 335.

6. For what type of planned event(s) did you have an opportunity to develop a security plan or participate in the planning process for an event? (Please mark all that apply)

   Parades
   Community Runs (e.g., marathon, 5K, etc.)
   Political Events
   Concerts
   Sporting Events
   Activist/Protest Demonstrations
   Corporate Events
   Other (please specify): _____

7. Did you use what you learned in MGT 335 when you developed your event security plan or as part of your role in the planning process?

   Yes
   No

   (a) If "yes," please explain.

   (Open-ended Response)

8. Did you use the risk assessment model (R = T x V x I) during your event security planning process to anticipate potential dangers associated with the event?

   Yes
   No

   (a) If "yes," did you use what you learned in MGT 335 when you employed risk management for a planned event?

   Yes
   No

9. Did you use what you learned in MGT 335 to effectively manage special security considerations (e.g., access management, infrastructure security, traffic, etc.)?

   Yes
   No

   (a) If "yes," please explain.

   (Open-ended Response)

10. Did taking the course help you to identify possible internal and external communications issues and possible solutions within your communications plan?

    Yes
    No

    (b) If "yes," please explain.

        (Open-ended Response)

11. Did you develop Mutual Aid Agreements (MAA) and/or Memorandums of Understanding/Agreement (MOU/MOA) for the planned event?

    Yes
    No

    (a) If "yes," did you use what you learned in MGT 335 to develop the agreements and/or memorandums?

        Yes
        No

12. Did you incorporate concepts and principles of the Incident Command System (ICS) within your event security plan?

    Yes
    No

    (a) If "yes," did you use what you learned in MGT 335 to apply ICS to your event security plan?

        Yes
        No

13. Did taking the course help you to identify the essential planning considerations when developing event contingency plans as part of the overall event security plan?

    Yes
    No

    (c) If "yes," please explain.

        (Open-ended Response)

14. Did taking the course help you to better understand what types of security information is allowed to be disseminated to the public via the media?

    Yes
    No

    (a) If "yes," please explain.

        (Open-ended Response)

15. Did you utilize the Event Security Planning Tool (ESPT) provided through the course within the development of your event security plan?

    Yes
    No

    (a) If "yes," please explain how the tool was utilized.

        (Open-ended Response)

16. Please indicate which of the following has limited your application of MGT 335 concepts and approaches. (Please mark all that apply)

    No planned event has occurred in my jurisdiction.
    Others within organization are responsible for event planning.
    Event planning has occurred in my jurisdiction, but my organization was not involved with the event planning.
    The class was not helpful for the type of planned events that occur within my jurisdiction.
    The environment within my organization does not support the implementation of new knowledge.
    My position responsibilities have changed since completing the course
    Other (please specify): _____

17. Have you shared any information or skills presented in the course with other employees in your organization?

    Yes
    No

    (a) If "yes," please explain what information or skills were shared and how the sharing was facilitated.

        (Open-ended Response)

18. Have you used or applied any information or skills presented in the course in day-to-day work tasks, training, or in general?

    Yes
    No

    (a) If "yes," please explain what information or skills were applied.

        (Open-ended Response)

19. Have you or your organization improved or developed any plans, policies, or procedures as a result of this training?

    Yes
    No

    (a) If "yes," please explain what plans, policies, or procedures were improved or developed?

        (Open-ended Response)

20. What is the number of employees within your organization who benefited from what you learned in this course?

    (Input Specific Number)

21. How many individuals are employed by your organization?

    (Input Specific Number)

22. Please list any additional actions your organization has taken as a direct result of attending *MGT 335*.

    (Open-ended Response)

23. Please provide any suggestions that can be utilized to help improve *MGT 335* for future audiences.

    (Open-ended Response)

24. Please provide what you think are emerging issues that should be considered as topics for future RDPC courses.

    (Open-ended Response)

25. Please provide any other comments you have regarding your completion of *MGT 335*.

(Open-ended Response)

APPENDIX D

VITA

Brian Keith Simpkins, Ed.D., CHS-I

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Richmond, Kentucky 40475
(859) 358-2440
brian.simpkins@eku.edu

Educational History

Bachelor of Arts (B.A.), Criminal Justice (2002)
Marshall University, Huntington, West Virginia

- Graduating Distinction: Magma Cum Laude
- Senior Thesis: The Continuum of Adult Drug Abuse
- Senior Thesis Advisor: Dr. Samuel Dameron
- Minor: Psychology

Master of Science (M.S.), Criminal Justice (2004)
Eastern Kentucky University, Richmond, Kentucky

- Thesis: America's Hidden and Ignored Drug Problem: Prescription Drug Abuse
- Committee: Dr. Peter Kraska (Chair), Dr. Derek Paulsen, and Dr. Kenneth Tunnell

Doctor of Education (Ed.D.), Educational Leadership and Policy Studies (2015)
Eastern Kentucky University, Richmond, Kentucky

- Dissertation: Homeland Security Learning Transfer: Does Instructional Method Matter?
- Committee: Dr. Charles Hausman (Chair), Dr. Ryan Baggett, Dr. James Bliss, and Dr. Deborah West

Certifications

Certified in Homeland Security – Level I (2015)
American Board for Certification in Homeland Security

- Identification Number: 122789
- Expiration: 2018, March

Professional History

Associate Director – Research and Evaluation (June 2005 – Present)
Justice and Safety Center
Eastern Kentucky University
50 Stratton Building
521 Lancaster Avenue,
Richmond, Kentucky 40475

Responsibilities:

- Lead all research activities of the Center, including research design development, methodological approach, data collection, statistical analysis, and formal report writing.
- Research projects are varied (both quantitative and qualitative) ranging from first responder technology evaluations, to national surveys, case studies, focus groups, interviews, etc.
- Assist in the management of externally-funded, federal projects and programs from agencies such as the U.S. Department of Homeland Security (DHS) and the U.S. Department of Justice (DOJ)
- Serve as program coordinator for the Bluegrass State Intelligence Community Center of Academic Excellence (BGS IC CAE)
- Management responsibilities include staff supervision, deliverable development, invoicing, budgets, contracts, and human resources.
- Assist and/or lead the development of funding proposals.
- Develop necessary project management plans, which include metric development and monitoring.
- Member of the Center's leadership and executive team, which provides direction and guidance for the Center's present and future activities, formulates and implements new policies, and manages internal and external relationships.
- Serve as the Center's Intuitional Review Board (IRB) contact and National Incident Management System (NIMS) compliance contact.

Key Accomplishments:

- Administered seven national assessments for the Rural Domestic Preparedness Consortium (RDPC) program focusing on training needs at the state and local levels, which included populations ranging from less than 500 to over 20,000.
- Advanced the research capabilities of the Center and research results by incorporating new and innovative ideas into practice.
- Assisted in the coordination of the construction of the Center's offices in the Stratton Building and moving the Center's operations from the Begley Building.
- Assisted with the establishment of Center as a Technical Agent for the DHS System Assessment and Validation for Emergency Responders (SAVER) Program as well as served as a project manager for the Center's program activities.
- Developed and deployed a document management system for the Federal Emergency Management Agency (FEMA) National Integration Center (NIC) related to Nationwide Plan Review (NPR) program.
- Established a Level Three Course Evaluation Program for the RDPC.
- Established and managed the DHS First Responder Technologies (R-Tech) Program User Working Group and its activities, which is the steering committee for the DHS R-Tech Program.
- Individually developed, directed, and completed the 2014-2015 National Training Needs Assessment for the RDPC, which is one of the most comprehensive

assessments of homeland security training needs within rural and frontier areas across the United States.
- Led or assisted in the development of 16 SAVER Program reports, which became some of the most requested reports by emergency responders through the program.
- Managed day-to-day operations of federal projects with funding levels ranging from $80,000 to over $1,000,000 with timeframes ranging from three months to one year.
- Managed the FEMA NIMS Inbox and reduced the number of outstanding e-mails from a weekly average of over 800 to less than five. The NIMS Inbox served as a national e-mail hotline for emergency responders to seek guidance regarding NIMS implementation and compliance.
- Promoted from Senior Information Analyst to Program Manager in June 2006 and to Associate Director in April 2009.
- Provided oversight on the initial development and publication of the DHS R-Tech Program monthly newsletter.
- Successful completion of research projects resulted in other organizations requesting the Center to perform research projects (e.g., National Domestic Preparedness Consortium, FEMA National Exercise Division)

Training Lead (September 2004 – May 2005)
Systems Planning and Analysis, Inc.
Protective Security Support Group
2001 North Beauregard Street
Alexandria, Virginia 22311

Responsibilities:
- Provided daily oversight of a post-training learning management system (LMS) for DHS related to soft target awareness, Buffer Zone Protection Plan (BZPP), and law enforcement tactical response training. Oversight included direct supervision a staff of three individuals.
- Developed ad hoc reports based on LMS data for DHS officials for use during congressional hearings.
- Developed course evaluation reports on above courses as well as for DHS Protective Security Advisor (PSA) Training.
- Performed data acquisition research for the DHS National Asset Database (NADB), which is the national critical infrastructure/key resources (CI/KR) inventory.
- Position required a Secret clearance through the U.S. Department of Defense (DOD).

Key Accomplishments:
- Developed LMS process controls to better ensure quality assurance/quality control (QA/QC) of data entered into the system
- Implemented improved data visualization techniques to enhance data outputs of the LMS as well as developed written reports.

- Led the development of the course evaluation methodology, which was based on Donald Kirkpatrick's *Four Levels of Evaluation*.
- Provided recommended changes to standardized DHS forms to aid in course evaluations, which were ultimately accepted and incorporated by DHS.

Graduate Research Assistant (May 2004 – August 2004)
Justice and Safety Center
Eastern Kentucky University
50 Stratton Building
521 Lancaster Avenue,
Richmond, Kentucky 40475

Responsibilities:
- Provided general research assistance to the Center's fulltime staff members on topics such as intelligent surveillance systems, cybercrime, and community risk and vulnerability assessments.
- Performed data entry activities for projects administered by the Center for the American Society for Industrial Security (ASIS) and the Federal Law Enforcement Training Center (FLETC)
- Performed data collection activities for an evaluation of community policing practices on law enforcement agency websites.
- Assisted in the development of the Center's 2003 Annual Report.

Graduate Assistant (August 2002 – May 2004)
Department of Criminal Justice and Police Studies
College of Justice and Safety
Eastern Kentucky University
467 Stratton Building
521 Lancaster Avenue,
Richmond, Kentucky 40475

Responsibilities:
- Assigned Professor: Dr. Derek Paulsen
- Provided general research assistance related to prescription drug abuse, geographical profiling, spatial crime analysis, and cybercrime.
- Performed data entry and data analysis activities on two externally-funded projects: Project Safe Neighborhood and Kentucky State Police Tactical Mapping and Analysis Program (TMAP).
- Graded undergraduate assignments, including paper and exams.
- Covered classes and proctored exams when necessary.

Intern (June 2001 – July 2001)
Marshall University Police Department
One John Marshall Drive
Huntington, West Virginia 25755

Responsibilities:

- Assisted Chief of Police with the department's role in new student orientation.
- Processed official police reports, officer training files, parking permits (faculty, staff, and students), and parking tickets.
- Participated in ride-alongs with officers during all shift patrols.

Teaching History

Part-Time Faculty (January 2009 – Present)
Homeland Security Degree Program
School of Safety, Security, and Emergency Management
College of Justice and Safety
Eastern Kentucky University
245 Stratton Building
521 Lancaster Avenue
Richmond, Kentucky 40475

Responsibilities:

- Develop and instruct undergraduate courses for the Homeland Security Degree Program within the College of Justice and Safety, School of Safety, Security, and Emergency Management (SSEM).
- Facilitation of graduate level courses under supervision of the instructor of record for the SSEM Master of Science Degree Program.

Courses Instructed and Facilitated (by semester):

- Spring 2016 *(future course)*
  - HLS 210 Physical Security (CRN – TBD) (Instructor)
- Fall 2015
  - HLS 441 Homeland Security Technology (CRN – 12712) (Instructor)
- Spring 2015
  - HLS 210 Physical Security (CRN – 28798) (Instructor)
- Fall 2014
  - SEC 210 Physical Security (CRN – 14373) (Instructor)
- Spring 2014
  - SEC 210 Physical Security (CRN – 26346 (Instructor)
- Fall 2013
  - HLS 391 Vulnerability and Risk Assessment (CRN – 14384) (Facilitator)
- Spring 2013
  - APS 210 Physical Security (CRN – 25044) (Instructor)

- Fall 2012
    - APS 210 Physical Security (CRN – 14379) (Facilitator)

- Spring 2012
    - HLS 810 Critical Infrastructure Protection (CRN – 22698) (Facilitator)
    - SSE 880 Research and Planning for Safety, Security, and Emergency Management (CRN – 26501) (Facilitator)

- Fall 2011
    - HLS 301 Critical Infrastructure Protection (CRN – a 14261) (Instructor)

- Spring 2011
    - HLS 301 Critical Infrastructure Protection (CRN – 25217) (Instructor)
    - HLS 301 Critical Infrastructure Protection (CRN – 25225) (Instructor)
    - SSE 880 Research and Planning for Safety, Security, and Emergency Management (CRN – 22919) (Facilitator)

- Fall 2010
    - HLS 301 Critical Infrastructure Protection (CRN – 15175) (Instructor)

- Summer 2010
    - HLS 301 Critical Infrastructure Protection (CRN – 51932) (Instructor)

- Spring 2010
    - HLS 830 Hazards and Threats to Homeland Security (CRN – 24440) (Facilitator)
    - SSE 880 Research and Planning for Safety, Security, and Emergency Management (CRN – 23264) (Facilitator)
    - HLS 301 Critical Infrastructure Protection (CRN – 25785) (Instructor)

- Fall 2009
    - HLS 441 Homeland Security Technology (CRN – 13717) (Instructor)

- Spring 2009
    - HLS 810 Critical Infrastructure Protection (CRN – 23868) (Facilitator)

Publications

Books and Book Chapters

Baggett, Ryan, Foster, Chad, and Simpkins, Brian *(future publication)*. *Homeland Security Technologies for the 21st Century*. Santa Barbara, CA: Praeger.

Collins, Pam, and Baggett, Ryan (2009). *Homeland Security and Critical Infrastructure Protection.* Santa Barbara, CA: Praeger Security International. *(contributing author)*

Cordner, Gary, and Scarborough, Kay (2007). *Police Administration* (6th ed.). New York, NY: Routledge. *(contributing author)*

Paulsen, Derek, and Robinson, Matthew (2003). *Spatial Aspects of Crime: Theory and Practice.* Boston, MA: Allyn and Bacon. *(contributing author)*

Journal Articles

Simpkins, Brian *(accepted manuscript for future issue)*. Preparedness in Rural America: Examining Rural Homeland Security Training Needs. *Homeland Security Affairs.*

Foster, Chad, and Simpkins, Brian (2012). On the move: Selecting a vehicle to support mobile operations. *Rural Preparedness Quarterly, Volume 12,* p. 1-3.

Foster, Chad, and Simpkins, Brian (2011, Winter). SAVER assists responders from rural communities by informing their procurement decisions. *Rural Preparedness Quarterly, Volume 4,* p. 4.

Foster, Chad, and Simpkins, Brian (2010, May). Evolving Mobile Command: Available and Needed Standards for Disaster Communications. *Public Safety Communications, 76*(5)*,* p. 24-25.

Simpkins, Brian (2010, Summer). RDPC Conducts Maritime Survey. *Rural Preparedness Quarterly, Volume 3,* p. 4-5.

Simpkins, Brian (2010, Spring). RDPC Research Spotlight. *Rural Preparedness Quarterly, Volume 3,* p. 3.

Simpkins, Brian (2010, Spring). 2009 National Training Needs Survey Indicates Critical Needs. *Rural Preparedness Quarterly, Volume 3,* p. 3.

Paulsen, Derek (2004). To Map or Not to Map: Assessing the Impact of Crime Maps on Police Officer Perceptions of Crime. *International Journal of Police Science and Management, 6*(4), 234-246. *(contributing author)*

Research Reports

Simpkins, Brian (2015). *First Responder Training Transfer: Does Training Delivery Method Matter* (unpublished doctoral dissertation)*?* Eastern Kentucky University, Richmond, KY.

Simpkins, Brian (2015, July*). Research Report – 2014-2015 National Training Needs Assessment: Volume II – Assessing Capability and Training Needs in Rural Communities (Through DHS Award # EMW-2013-CA-K00155-SO1, subcontractor to The Center for Rural Development)*. Richmond, KY: Eastern Kentucky University.

Simpkins, Brian (2015, April). *Research Report – 2014-2015 National Training Needs Assessment: Volume I – National Training Coordinators Needs Assessment (Through DHS Cooperative Agreement # 2010-RD-TO-K013)*. Richmond, KY: Eastern Kentucky University.

Collins, Pam, and Simpkins, Brian (2013, August*). Training Needs of Emergency Responders in Tribal Nations: An RDPC Comprehensive Report (Through DHS Cooperative Agreement # 2008-GD-T8-K015).* Richmond, KY: Eastern Kentucky University.

Henry, Erin, and Simpkins, Brian (May, 2013). *National Level Exercise 2011: Research Brief (Through DHS Cooperative Agreement # 2008-GD-T8-K015).* Richmond, KY: Eastern Kentucky University.

Lowe, Nathan, and Simpkins, Brian (2010, September). *2010 National Domestic Preparedness Consortium State Administrative Agency Training Points of Contact Survey: Final Report (Through DHS Cooperative Agreement # 2007-GD-T7-K007)*. Richmond, KY: Eastern Kentucky University.

Lowe, Nathan, and Simpkins, Brian (2010, April*). Training Needs Survey of Rural Public Safety and Maritime Personnel (Through DHS Cooperative Agreement # 2006-GD-T6-K001)*. Richmond, KY: Eastern Kentucky University.

Lowe, Nathan, and Simpkins, Brian (2010, January). *2009 National Training Needs Survey Research Brief: Emergency Management (Through DHS Cooperative Agreement #* 2007-GD-T7-K007*)*. Richmond, KY: Eastern Kentucky University.

Lowe, Nathan, and Simpkins, Brian (2010, January). *2009 National Training Needs Survey Research Brief: EMS (Through DHS Cooperative Agreement #* 2007-GD-T7-K007*)*. Richmond, KY: Eastern Kentucky University.

Lowe, Nathan, and Simpkins, Brian (2010, January). *2009 National Training Needs Survey Research Brief: Fire Services (Through DHS Cooperative Agreement #* 2007-GD-T7-K007*)*. Richmond, KY: Eastern Kentucky University.

Lowe, Nathan, and Simpkins, Brian (2010, January). *2009 National Training Needs Survey Research Brief: Interdisciplinary (Through DHS Cooperative Agreement #* 2007-GD-T7-K007*)*. Richmond, KY: Eastern Kentucky University.

Lowe, Nathan, and Simpkins, Brian (2010, January). *2009 National Training Needs Survey Research Brief: Law Enforcement (Through DHS Cooperative Agreement #* 2007-GD-T7-K007*)*. Richmond, KY: Eastern Kentucky University.

Ritter, Tanya, and Simpkins, Brian (2009, December). *NIMS Smart Practice: How Metro Denver Prepared for the Democratic National Convention (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University

Ritter, Tanya, and Simpkins, Brian (2009, October). *NIMS Smart Practice: Integrating Florida's Business and Industry into the Emergency Operations Center (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian, and Ritter, Tanya (2009, October). *NIMS Smart Practice: Providing for Special Needs Individuals in Monroe County, Florida (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Collins, Pam, Cordner, Gary, and Scarborough, Kay (2004). *The ASIS Foundation Security Report: Scope and Emerging Trends).* Richmond, KY: Eastern Kentucky University. *(contributing author).*

Technical Reports

Foster, Chad, Simpkins, Brian, and Poynter, Eric (2012, August). *SAVER Program Report: Touch Screens for Ruggedized Computers Technology Guide (Through U.S. Department of Homeland Security [DHS] Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Poynter, Eric, Foster, Chad, and Simpkins, Brian (2012, August). *SAVER Program Report: Mobile Computing Through the Cloud TechNote (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Foster, Chad, Simpkins, Brian and Poynter, Eric (2012, May). *SAVER Program Report: Ruggedized Computers Selection and Procurement Guide (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian, Foster, Chad, and Poynter, Eric (2011, December). *SAVER Program Report: Mobile Command Vehicles Selection Guide (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Foster, Chad, Simpkins, Brian, and Poynter, Eric (2011, October). *SAVER Program Report: Portable Identification Card Systems Assessment Report (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Foster, Chad, Simpkins, Brian, and Poynter, Eric (2011, October). *SAVER Program Report: Portable Identification Card Systems Application Note (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian, Foster, Chad, and Poynter, Eric (2011, May). *SAVER Program Report: Portable Identification Card Systems Market Survey Report (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Foster, Chad, Simpkins, Brian, and Poynter, Eric (2011, April). *SAVER Program Report: Portable Identification Card Systems Focus Group Report (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian, Foster, Chad, and Poynter, Eric (2010, September). *SAVER Program Report: Market Survey Report on Propagation Modeling Software (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian, Foster, Chad, and Poynter, Eric (2010, September). *SAVER Program Report: Propagation Modeling Software Application Note (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Foster, Chad, Simpkins, Brian, and Poynter, Eric (2010, August). *SAVER Program Report: Mobile Command Systems Assessment Report (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Foster, Chad, Simpkins, Brian, and Poynter, Eric (2010, August). *SAVER Program Report: Mobile Command Systems Application Note (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Foster, Chad, Simpkins, Brian, and Poynter, Eric (2010, August). *SAVER Program Report: Incident Decision Support Software Application Note (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian (2010, May). *3rd Annual National Rural Emergency Preparedness Summit: Final Report (Through DHS Award # 2007-GD-T7-K007)*. Richmond, KY: Eastern Kentucky University.

Simpkins, Brian, Foster, Chad, and Poynter, Eric (2009, November). *SAVER Program Report: Market Survey Report on Incident Decision Support Software (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian, Foster, Chad, and Poynter, Eric (2009, November). *SAVER Program Report: Mobile Command Systems Market Survey Report (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian, Foster, Chad, and Poynter, Eric (2009, October). *SAVER Program Report: Focus Group Recommendations on Mobile Command Systems (Through DHS Cooperative Agreement # EMW-2005-CA-0378).* Richmond, KY: Eastern Kentucky University.

Raine, Emily, Simpkins, Brian, and Baggett, Ryan (2008, December). *Operational Test and Evaluation Performance Report: Halcyon FireGround Compass* (*Through DHS Award # HSHQDC-07-D-00039, subcontractor to G&H International Services, Inc.).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian, and Baggett, Ryan (2008, January). *Feasibility Study: NACRE QuietPro* (*Through DHS Award # HSHQDC-07-D-00039, subcontractor to G&H International Services, Inc.).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian (2007, August). *Environmental Monitoring: Comprehensive Report* (*Through DHS Award # N65236-06-D-7872).* Richmond, KY: Eastern Kentucky University.

Training Evaluations

Simpkins, Brian (2014, September). *RDPC Level 3 Evaluation Program Study: MGT 335 Event Security Planning for Public Safety Professionals (Through DHS Cooperative Agreement # 2010-RD-T0-K013).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian (2014, July). *RDPC Level 3 Evaluation Program Study: AWR 187-W Terrorism and WMD Awareness in the Workplace (Through DHS Cooperative Agreement # 2010-RD-T0-K013).* Richmond, KY: Eastern Kentucky University.

Simpkins, Brian (2014, July). *RDPC Level 3 Evaluation Program Study: AWR 209 Dealing with the Media: A Short Course for Rural First Responders (Through*

DHS Cooperative Agreement # 2010-RD-T0-K013). Richmond, KY: Eastern Kentucky University.

Simpkins, Brian, and Henry, Erin (2012, December). *RDPC Level 3 Evaluation Program Study: AWR 147 Rail Car Incident Response. (Through DHS Cooperative Agreement # 2008-GD-T8-K015)*. Richmond, KY: Eastern Kentucky University.

Simpkins, Brian, and Henry Erin (2012, December). *RDPC Level 3 Evaluation Program Study: AWR 148 Crisis Management for School-Based Incidents: Partnering Rural Law Enforcement and the Local School Systems (Through DHS Cooperative Agreement # 2008-GD-T8-K015)*. Richmond, KY: Eastern Kentucky University.

Simpkins, Brian (2012, August). *RDPC Level 3 Evaluation Program Study: AWR 144 Port and Vessel Security for Public Safety and Maritime Personnel (Through DHS Cooperative Agreement # 2007-GD-T7-K007)*. Richmond, KY: Eastern Kentucky University.

Simpkins, Brian (2012, January). *RDPC Level 3 Evaluation Program Study: MGT 381 Business Continuity Planning and Emergency Response (Through DHS Cooperative Agreement # 2007-GD-T7-K007)*. Richmond, KY: Eastern Kentucky University.

Lowe, Nathan, and Simpkins, Brian (2009, October). *RDPC Level 3 Evaluation Program Study: MGT 335 Event Security Planning for Public Safety Professionals (Through DHS Cooperative Agreement # 2006-GD-T6-K001)*. Richmond, KY: Eastern Kentucky University.

Presentations

Simpkins, Brian (2015, November). Assessing Emergency Management Capabilities in Rural America: Where Were We Before, Where Are We Now, and Where Do We Need To Go? *International Association of Emergency Managers (IAEM) 63rd Annual Conference* (Las Vegas, NV). Breakout Session Speaker.

Simpkins, Brian (2015, September). Assessing Rural Law Enforcement Capabilities: A Longitudinal Analysis (2006 – 2015). *Southern Criminal Justice Association (SCJA) Annual Conference* (Charleston, SC). Panel Presenter: Policing in the South and Beyond.

Simpkins, Brian (2011, November). Needs Assessment Town Hall Meeting. *2011 State Administrative Agency Conference* (Anniston, AL – Center for Domestic Preparedness). Panelist.

Simpkins, Brian (2010, April). 2009 National Training Needs Assessment. *3rd Annual National Rural Emergency Preparedness Summit* (Albuquerque, NM). Presenter.

Simpkins, Brian (2010, March). 2009 National Training Needs Assessment. *Homeland Security: Global and Domestic Perspectives Conference* (Warrensburg, MO). Presenter.

Simpkins, Brian, and Paulsen, Derek (2003, November). The Moonshine of the New Millennium: Pharmaceutical/Prescription Drugs and Their Abuse. *American Society of Criminology 59th Annual Meeting* (Denver, CO). Presenter.

Simpkins, Brian (2001, April). The Continuum of Adult Drug Abuse. *Marshall University First Annual Undergraduate Research and Creativity Conference* (Huntington, WV). Presenter.

Grant Support Activities and Funding

2015–Present	Funding Agency:	Office of the Director of National Intelligence, Defense Intelligence Agency
	Funded Activity:	Support for the implementation of the Bluegrass State Intelligence Community Center of Academic Excellence (BGS IC CAE)
	Award Number / Amount:	HHM402-14-1-0001 / $1,828,313
	Role:	Program Coordinator
2006–Present	Funding Agency:	U.S. Department of Homeland Security, Federal Emergency Management Agency
	Funded Activity:	Support for the implementation, research, evaluation, and training related to the Rural Domestic Preparedness Consortium (RDPC).
	Award Numbers / Amounts:	2004-GT-T4-K007 / $7,999,494 2006-GD-T6-K001 / $6,103,000 2007-GD-T7-K007 / $11,640,000 2008-GD-T8-K015 / $8,549,200 2010-RD-T0-K013 / $2,880,000 EMW-2013-CA-K00155 / $532,107 (subcontract)
	Role:	Research Director, Project Manager
2006–2012	Funding Agency:	U.S. Department of Homeland Security, Federal Emergency Management Agency
	Funded Activity:	Support for the implementation of the National Incident Management System (NIMS) Support Center and the System Assessment and Validation for Emergency Responders (SAVER)

		Program
	Award Number / Amount:	EMW-2005-CA-0378 / $31,500,000
	Role:	Project Manager, Subcontractor Monitoring
2005–2008	Funding Agency:	U.S. Department of Homeland Security, Science and Technology Directorate; U.S. Navy, Space and Naval Warfare Systems Center Charleston
	Funded Activity:	Research, development, test, and evaluation activities in support of the Public Safety and Security Institute for Technology (PSITEC) and the First Responders Technologies (R-Tech) Program.
	Award Numbers / Amounts:	N65236-05-P-3878 / $89,105 N65236-06-P-0054 / $89,780 N65236-06-P-0927 / $89,696 N65236-06-D-7872 / $5,376,230 HSHQDC-07-D-00039: $1,212,002 (subcontract)
	Role:	Program Manager, Research Director, Subcontractor Monitoring

Unfunded Proposal Submissions

Energetic Material Research and Testing Center (2014, June 16). *National Law Enforcement, Corrections, and Technology Center (NLECTC) System: Small, Rural, Tribal, and Border (SRTB) Regional Center (contributing author).* Application in Response to NIJ Solicitation Number NIJ-2014-3764. Socorro, NM: New Mexico Institute for Mining and Technology. Role: Key Personnel.

Justice and Safety Center (2014, April 28). *Implementation of Intelligence-Led Policing for Planned Events: A Comparative Analysis (contributing author).* Application in Response to NIJ Solicitation Number NIJ-2014-3748. Richmond, KY: Eastern Kentucky University. Role: Key Personnel.

Justice and Safety Center (2014, April 25). *Linking Predictive Policing and Criminological Theory: Using Routine Activities Theory to Explain Locations Identified by Predictive Policing Techniques (co-lead author).* Application in Response to NIJ Solicitation Number NIJ-2014-3758. Richmond, KY: Eastern Kentucky University. Role: Co-Principal Investigator.

The Center for Rural Development (2013, April 25). *Establishing a National Criminal Justice Technology Research, Test, and Evaluation Center (contributing author).* Application in Response to NIJ Solicitation Number NIJ-2013-3386. Somerset, KY: Center for Rural Development. Role: Key Personnel.

Justice and Safety Center (2011, August 1). *Modeling Implementation of the Common Alerting Protocol (CAP) for Improved Public Alert and Warning.* Application in Response to NSF Solicitation Number NSF-08-553 (co-lead author). Richmond, KY: Eastern Kentucky University. Role: Key Personnel.

Justice and Safety Center (2010, March 22). *Evaluation of Self-Contained, Remote Operating Mobile Command Systems: Solutions for Assured Communication in Rural and Disaster-Affected Areas (co-lead author).* Application in Response to NIJ Solicitation Number NIJ-2010-2389. Richmond, KY: Eastern Kentucky University. Role: Key Personnel.

Kentucky Division of Emergency Management (2010, February 26). *Improving Remote Community Alerting in Kentucky: Assessment of Radio Broadcast Data System (RBDS) Technology (contributing author).* Application in Response to NOAA Solicitation Number NOAA-NWS-NWSPO-2010-2002071. Frankfort, KY: Kentucky Division of Emergency Management. Role: Key Personnel.

Justice and Safety Center (2010, January 20). *Disaster Resilience and Recovery within Rural Communities: National Assessment and Operations Guidance (contributing author).* Application in Response to USDA Solicitation Number USDA-CSREES-AFRI-002564. Richmond, KY: Eastern Kentucky University. Role: Key Personnel.

Justice and Safety Center (2009, August 7). *NIMS General Support Services (contributing author).* Application in Response to DHS Solicitation Number HSFEEM-09-R-0048-0001. Richmond, KY: Eastern Kentucky University. Role: Key Personnel.

Center for Applied Energy Research (2009, April 1). *Development of New Materials/Coatings for Application in the Transportation Sector (contributing author).* Application in Response to Request for Proposals form the National Institute for Hometown Security, Kentucky Critical Infrastructure Protection Program. Richmond, KY: Eastern Kentucky University. Role: Key Personnel.

Honors and Awards

A. Michael Perry Freshman Scholarship Award *(1998-1999)*
All-American Scholar Award *(two-time recipient; 2001 and 2002)*
American Criminal Justice Association Gold Key Award *(2003)*
American Criminal Justice Association Graduate Key Award *(2004)*
American Criminal Justice Honor Society *(2000)*
Eastern Kentucky University Board of Regents, 2012 Staff Regent Election Candidate
Eastern Kentucky University College of Justice and Safety Alumni Society Board of Directors, 2015 Member-At-Large Candidate
Eastern Kentucky University, Staff Professional Development Fund Award *(2015)*
Golden Key International Honour Society *(2002)*

Honor Society of Phi Kappa Phi *(2013)*
Commission in the Honorable Order of Kentucky Colonels *(2008)*
Leadership Kentucky Nominated Applicant *(2015 Class)*
Marshall University Criminal Justice Department Scholarship Award *(2002)*
Marshall University Dean's List *(all semesters; 1998-2002)*
Phi Eta Sigma National Honor Society *(1999)*

Memberships

American Board for Certification in Homeland Security *(2015 – present)*
American Criminal Justice Association *(Chapter Sergeant-At-Arms at Marshall University [2000-2002] and Eastern Kentucky University [2003-2004])*
American Criminal Justice Honor Society *(Chapter President at Marshall University [2001-2002])*
American Society of Criminology *(2002-2004)*
Eastern Kentucky University Association of Justice and Safety Graduate Students *(2002-2004)*
Fraternal Order of Police *(Huntington, WV Gold Star Lodge #65)*
Golden Key International Honour Society *(2002 – present; Charter Member at Marshall University)*
Honor Society of Phi Kappa Phi *(2013 – present)*
Honorable Order of Kentucky Colonels *(2008 – present)*
Phi Eta Sigma National Honor Society *(1999)*
Sierra Club, Cumberland Chapter *(2015-present)*
Tates Creek Estates Homeowners Association *(2010-present)*
Woodmen of the World, Chapter 888 *(2009-present; Chapter Delegate)*

Professional Training

AWR 148-W: Crisis Management for School-Based Incidents: Partnering Rural Law Enforcement, First Responders, and Local School Systems (RDPC)
AWR 187-W: Terrorism and Weapons of Mass Destruction (WMD) Awareness in the Workplace (RDPC)
AWR 208-W: Crisis Management in a Rural School (RDPC)
AWR 209-W: Dealing with the Media: A Short Course for Rural First Responders
Certificate of Achievement: Professional Development Series (Emergency Management Institute [EMI])
IS-1: Emergency Program Manager: An Orientation to the Position (EMI)
IS-5.a: An Introduction to Hazardous Materials (EMI)
IS-8.a: Building for the Earthquakes of Tomorrow (EMI)
IS-10: Animals in Disaster, Awareness, and Preparedness (EMI)
IS-100: Introduction to Incident Command System (EMI)
IS-139: Exercise Design (EMI)
IS-200: ICS for Single Resources and Initial Action Incidents (EMI)
IS-235: Emergency Planning (EMI)
IS-240: Leadership and Influence (EMI)

IS-241: Decision Making and Problem Solving (EMI)
IS-242: Effective Communication (EMI)
IS-244: Developing and Managing Volunteers (EMI)
IS-271: Anticipating Hazardous Weather and Community Risk (EMI)
IS-275: Role of the Emergency Operations Center (EMI)
IS-279: Retrofitting Flood Prone Residential Structure (EMI)
IS-292: Disaster Basics (EMI)
IS-700: National Incident Management System, An Introduction (EMI)
IS-701: National Incident Management System: Multi-Agency Coordination System (EMI)
IS-800.a: National Response Framework, an Introduction (EMI)
MGT 335-W: Event Security Planning for Public Safety Professionals (RDPC)
Surveillance Detection Course (U.S. Department of Homeland Security)