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The effect of digital storytelling on academic performance, interest and motivation of police cadets in a law enforcement academy

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THE EFFECT OF DIGITAL STORYTELLING ON ACADEMIC PERFORMANCE, INTEREST AND MOTIVATION OF POLICE CADETS IN A LAW ENFORCEMENT ACADEMY

A Dissertation

by

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ABSTRACT

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With increasing criticism concerning police interactions with the public and the use-of-force decisions, the importance of preservice law enforcement instruction is an ongoing concern for both police practitioners and the public. Law enforcement education can benefit from the integration of new instructional strategies that can help comprehension and long-term knowledge retention transferable into the field. Digital storytelling has been proffered as an effective cross-cultural communication tool that can help meet the needs of the law enforcement profession. This study sought to determine if digital storytelling could influence academic performance in the cadet police training, and if its use could increase a police cadet's interest and motivation in the topic being taught at the regional law enforcement academy. In this mixed methods research study, two cohorts in a regional police academy were exposed to digital storytelling, and the results and effects were analyzed. How the findings affected this diverse work environment and proposed opportunities for further research in law enforcement education and practice are discussed.

DEDICATION

The completion of my doctoral studies would have not been possible without the unwavering support of my best friend and loving wife Maria, my father Val for whom I owe the world, my daughter Hadley, and son Declan who are my world and the future of our family. I hope my accomplishments in life encourage you both to strive for illustriousness and constantly remind you that there is nothing that can hold you back from your dreams. During this very trying and challenging time in my life, they were my anchor and support that kept me going. My appreciation goes to Dr. Celina Sau Lin Ing for her guidance and inspiration to follow in her footsteps during my academic career; she has touched and influenced so many students throughout her tenure as a college professor, and my hopes are that I can continue in her wake. Their inspiration and motivation continue to inspire me as I continue through my life.

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CHAPTER I

INTRODUCTION

With the present-day upsurge of public criticism regarding police actions, the need for improved police training has become paramount within all criminal justice fields. Currently, law enforcement is one of the most scrutinized professions by politicians, community leaders, and the general public with effective training needed immediately to ensure that adequate training is being provided to law enforcement officers (Nowicki, 2006). Equally important is the need to ensure that the appropriate training is provided and that the necessary knowledge and skills are retained after training. According to Bizer and Tannehill (2001), there is a need for police officers to acquire knowledge of most current legal decisions, technological advances, community issues, and tactical developments in the field. Traditionally, this training is carried out in lecture format with little interaction or input from the student cadets. According to Hundersmarck (2009), police academy administrators are beginning to recognize that lecture-based learning is both outdated and inadequate.

Although some police training topics such as firearms training, defensive tactics, and felony traffic stops are still effective when customary lecture-based instructional techniques are utilized, other topics could benefit from technological advances incorporated within different learning approaches. Wickersham (2016) believes there exists a lack of training, not necessarily with hard skills (e.g., firearms training), but with technological advances that could improve the training in areas requiring discretionary decision-making. Hayes (2002) noted that the

opportunity is available now to those in the police-training field to capitalize upon technological innovations to create a more significant and effective police-training programs.

Traditionally, in police training programs, the instructional technique of sharing personal experiences in the form of "war stories" to student cadets stimulate memory and retention of the information being taught. A "war story" is defined as a personal recounting of actual events, as either entertaining or police-related social commentary, designed to promote retentive memory (Ford, 2003). Shearing and Ericson (1991) noted that like biblical parables and legends, police war stories provide direction for being a police officer, guidance as to how officers should experience the world if they are to act as police officers within it. Ford (2003) has stated that the retention of information significantly impacts the reactions of a law enforcement officer when confronted with numerous daily service calls, when enforcing laws and regulations, and, more importantly, when encountering potential or actual life-threatening situations. Although war stories may be an effective manner in which to instruct cadets at the police academy level, it is not necessarily sufficient for an accurate portrayal of the modern police role. Past research and literature has acknowledged the critical deviation between police training and the actual police role (Cummings, 1965; Germann, 1969; Kelling, 1988; Kochur, 1997).

Unfortunately, many police cadets enter the law enforcement profession without the needed cognitive and reasoning skills needed to carry out the role of a police officer in the community. In an effort to resolve this, a new, but closely related, instructional strategy is being explored in police training: transitioning discrete oral war stories to digital storytelling. Nesteruk (2015) defines digital storytelling as, "the use of digital technologies to combine voice, videos, images, music, interviews, graphics, and other electronic content into personal narratives" (p. 143).

According to Barnes et al. (2007), when digital storytelling is introduced and enhanced through the instructor's personal experiences, there is a positive impact on how unique human responses influence new officers' decision-making abilities on-the-job. This growing interest in digital storytelling within the police instructor's narrative is already evident within the academy curriculum (Barnes et al. 2007). A similar instructional technique, "narrative instruction," is being used to assist and reinforce new officers' conceptualization of their classroom experiences applicable to that same situation and outcome into their own in-field expectations. As Powell and Murray (2012) state, while digital storytelling infuses common storytelling with technology, it can also promote individual thinking and inquiry.

To support digital storytelling, a technique commonly utilized by instructors is to use their autobiographical experiences to create a connection between law enforcement cadets and content of the module lesson being taught. Through the instructor's autobiographical experiences, Phillips (2013) believes the student cadet would be able to determine implications applicable to on-the-job situations, since digital storytelling allows reflection on multiple possible meanings and repercussions. While the uses of lecture-based instruction are already integral components of the police academy curriculum, empirical research on the effectiveness of digital storytelling in police academy training has not been examined or analyzed (Bradford & Pynes, 1999). Ruff (2012) stated, when police academies partner directly with the research community, outcomes can address areas of further development, as well as share best practices.

Need for the Study

Storytelling is an ancient and unique human interaction. With recent technological advances, educational practitioners have experienced gains using digital storytelling (Robin & McNeil, 2012). Leonard (1990) proposes that through storytelling, police academy students are able to see their perceptions change as the stories help create a "metaphorical looking glass"

through which the cadets could see a different image of their world (p. 12). The practice of traditional classroom lecture methodology, as implemented within police academies, has been studied to determine if it is a cogent viable teaching method, or if the introduction and use of digital storytelling could more positively impact instruction (Suwardy, Pan, & Seow, 2013).

According to Hawes (1991), Linde (2001), and Denning (2006), the use of digital storytelling as a distinctive mode of expression in the classroom is one of increasing interest among criminal justice scholars who have noted its efficacy in other areas of instruction such as leadership, organizational change, and workplace communication. Based on an exhaustive search of the research literature, there is scant evidence of studies involving the integration of educational technologies, such as digital storytelling, within criminal justice education, especially in the realm of instructional strategies for enhancing memory and cognitive learning of police cadets.

Wood and Tong (2008) did not believe that matters of curriculum could be addressed in a meaningful way unless the prior matter of police academy curriculum kept up with the changing times. The results suggest digital storytelling, as used in a police academy experimental setting, could provide necessary evidence that this specific teaching technique is an advantageous and indispensable method of teaching in law enforcement. Although storytelling as an instructional method is not new in education, digital storytelling has become a new instructional method that emerged from the growth and evolution of digital technologies (Sheafer, 2017). Therefore, this study addresses the use of digital storytelling to improve academic performance and/or increase police cadets' interest and motivation within a police academy setting.

Statement of the Problem

Over the years, the cost of educating police officers has skyrocketed. Yet, police academies cannot afford the liability of failure to appropriately train law enforcement personnel,

so they are asking: What is the real and collateral cost to a police academy for an illegal arrest, improper use of force, or deadly force incident? A pivotal Supreme Court case of City of Canton versus Harris (1989) held that inadequate police training may result in municipal liability when the failure to adequately train police personnel could be construed as deliberate. Using this case ruling as part of the arguments for change, instructors in criminal justice, social science, and education fields would be able to argue the importance of augmenting and strengthening both knowledge and understanding of how to best convey facts, experiences, actualities, and consequences to police cadets. As law enforcement moves into the 21st century, it is imperative that its work force keep up with the demands placed on it by an increasingly more complex and better educated society.

Cox and Moore (1992) noted the solution to ineffective teaching methods in a police academy environment should be of paramount importance to policy makers, community and individual stakeholders, and most importantly, criminal justice educators. Ineffective teaching methods could become problematic as they can result in casualty and liability from the officers' inappropriate actions while on duty. Brown et al. (2017) stated that training is rarely viewed as a substantial liability risk; yet its indirect effects are evident (Pinizzotto, Bohrer, & Davis, 2011).

Purpose of the Study

The purpose of the study is twofold: (1) determine the effect of digital storytelling on academic performance of police cadets in a law enforcement academy; and, (2) determine police cadets' perceptions of digital storytelling as an instructional strategy for promoting long-term knowledge transfer into the field.

Research Questions

This study addresses the following research questions and hypotheses using both quantitative (Research Question One) and qualitative (Research Question Two) approaches.

Research Question One

Does digital storytelling improve academic performance in the cadet police training?

Research Question Two

Does the use of digital storytelling increase the police cadet's interest and motivation in the topic being taught at the law enforcement academy?

Hypotheses

The research questions posed in the previous section of this proposal form the foundation for the following hypotheses:

Research Hypothesis One

There is a statistically significant improvement on academic performance of student cadets when digital storytelling is introduced as a treatment.

Research Hypothesis Two

The use of digital storytelling does have a positive effect on police cadet's interest and motivation in the topic being instructed.

Definitions of Terms

Digital storytelling

Digital storytelling is defined as the use of digital technologies combining voice, videos, images, music, interviews, graphics, and other electronic content into personal narratives (Robin, 2008).

Narrative instruction

Narrative instruction is an instructional technique that utilizes human experiences within the context of narratives to serve as a structural means of communication and instruction (Butcher, 2006).

Lecture method

The lecture method is a method by which the instructor lectures the cadets directly from a

prepared required curriculum from the State of Texas with little to no input from the cadets (Texas Commission on Law Enforcement, n.d.).

Law enforcement cadet

A law enforcement cadet is an individual who is enrolled in a certified police academy, but who has not successfully completed the initial criminal justice training.

Texas Commission on Law Enforcement (TCOLE)

The Texas Commission on Law Enforcement serves as the regulatory agency charged with overseeing all peace officers and agencies within the State of Texas.

Significance of the Study

Overall, law enforcement training has not changed at all in the last 30 years (Junginger, 2008). This delay in overhauling the law enforcement training curriculum has constrained improvements which are long overdue. Similarly, research on the implementation of new instructional methods for police cadet training can potentially benefit and influence other disciplines outside of the criminal justice field; that is, digital storytelling could be a suitable and germane teaching strategy within other professional learning setting, such as in the military, where basic boot camp training has relied primarily on lecture-based instruction. In addition, as the law enforcement community welcomes new generations of police officers, these officers bring with them not only increased technological, social media, and Internet experiences, but also personal familiarities with digital storytelling (Leal, 2009). Specifically, within the law enforcement fields, inexperienced and untested cadets may benefit from hearing the first-hand experiences of officers in the field since these same experiences may, indeed, become harsh realities in their own future tenure as law enforcement officers.

Summary

The purpose of the study is twofold: (1) determine the effect of digital storytelling on

academic performance of police cadets in a law enforcement academy; and, (2) determine police cadets' perceptions of digital storytelling as an instructional strategy for promoting long-term knowledge transfer into the field. Golden and Seehafer (2009) have declared that law enforcement instructors face a growing challenge in today's technological world with a wide variance of student backgrounds and practical technological knowledge. Given the scarcity of current non-anecdotal knowledge and practices, the purpose of this study is to research if digital storytelling increases a cadet's interest, knowledge, and retention of issues being lectured. McDermott and Hulse (2012) research found that, "When cadets exposed to digital storytelling leave the academy, it is hypothesized they will retain the knowledge that enhanced their legal and tactical skills" (p.19).

This chapter introduced the research topic and explained in detail: (1) the need for the study, (2) the statement of the problem being addressed by the study, (3) the purpose of the study, (4) research questions, (5) hypotheses, (6) definition of terms, and (7) the significance of this study. In the next chapter, a review of existing literature will discuss: background and overview of storytelling, storytelling in learning environments, transition of storytelling into digital storytelling, digital storytelling effect on academic performance and knowledge transfer, digital storytelling with other learning methodologies, and non-academic environments.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The purpose of the study is to: (1) determine the effect of digital storytelling on academic performance of police cadets in a law enforcement academy; and, (2) determine police cadets' perceptions of digital storytelling as an instructional strategy for promoting long-term knowledge transfer into the field. This chapter reviews the existing body of research relating to the introduction and implementation of digital storytelling into training programs such as in police cadet training, beginning with an overview of storytelling from the earliest times through its most recent emergence as digital storytelling. A synopsis of related research on the effect of digital storytelling on academic performance and knowledge transfer is presented followed by research citing the need for changes to current police academy training.

Background and Overview of Storytelling

Storytelling has been used to share information between humans for thousands of years. According to Kosa (2008), storytelling represents the social, cultural, and demographic sharing of tales and legends that can contain theatrics, artifacts, or embellishment to entertain, or enhance retention, learning, or to convey history, or emphasize a moral value system.

Both Kosa (2008) and Vitali (2016) have traced the history of storytelling back several thousands of years, explaining that storytelling has predated all forms of writing, as well as

describing how storytelling shaped the earliest forms of oral communication combined with hand movements, facial expressions, and body gestures. Storytelling was used in daily routines and many religious rituals and, in many cultures, was a method of passing on knowledge from one generation to another. Storytelling became one of several teaching tools along with oral presentations, artwork displays, or show performances, solo or group music recitals, such as songs, poetry, chants, or dances.

According to Lisenbee and Ford (2018), the early childhood experience of storytelling enabled children to describe an experience or lesson by telling or writing a story with one another. Children were often told stories by their parents or other family member in order to communicate family norms and values important to that family nucleus. They continued to grow with these stories and their intricacies, thereby impacting their development and becoming pivotal from early development into adolescence.

As children matured through the formative life stages, they learned from surrounding environments and pressures, and, at times, had difficulty in understanding more complex or multifaceted topics. According to Bowman (2018), other authors have attempted to bridge the gap from experience to understanding about the topic being taught; in fact, several studies have confirmed that humans often fashioned narratives out of whatever they see in the world around them. It was through these narratives by which human beings began to understand their environment and gain some bases in understanding life's complexities.

Storytelling in Learning Environments

Oral storytelling has been used for centuries, and stories within any learning environment could assist leaners to understand and comprehend various life decisions they may encounter in the future. According to Keller (2012) from the beginnings of civilizations, humans have

harnessed the benefits of storytelling, and have adapted the use of storytelling in their societies to educate their people. As a result, storytelling has been successful in passing on stories from one generation to another. Although, storytelling was mainly used as a way to provide entertainment, it did provide an educational benefit. This benefit was the ability for humans to pass on stories, legends, or even basic knowledge of living onto their children.

In a specific setting, such as within an educational discipline, according to Coulter, Michael, and Poyner (2007), storytelling offered students more than just entertainment; it offered substantive content and value in academic settings. In addition, Coulter et al. (2017) asserted that when storytelling was applied within a smaller contained classroom environment, students could better understand the larger communal world around them; when storytelling was used in this sense, it could engage the student by making the lesson more interesting and entertaining. Storytelling could assist students to remember relevant information presented by the instructor (Frisch & Saunders, 2008). These stories could emulate and enhance individual thinking with the experiences of the instructor; through this storytelling technique and subsequent active student involvement, instructors could increase knowledge retention and boost the interest of their students. Kosa (2008) asserted that storytelling enabled teachers to reach students of various demographical backgrounds and at multiple skill levels since the content was noticeably easier to understand in a story format.

Clark and Rossiter (2006) agreed that storytelling could create a detailed perspective easily understood by students from a variety of backgrounds and experiences, while Powell and Murray (2012) maintained that storytelling was already widely accepted among many contemporary educators as a method to adapt diverse methodologies and strategies to enhance students' knowledge of specific topics. Likewise, Pavon, Camara, and Sanz (2012) asserted that

storytelling was a very useful pedagogical tool that could be widely used in many formats, including digital media, scenario-based training, or through the utilization of the Internet.

Storytelling had been compared to personal autobiographical presentations. Brady (1990) noted that autobiography used to convey information was among the most fundamental teaching acts that could be performed. Through the autobiographical approach, an instructor could convey personal experiences to the audience using storytelling as the major mode of communication. Czarnecki (2009) believed that storytelling was an organic process in nature with the teller recounting a tale learned and what the story meant to him or her.

Storytelling has been highly beneficial not only within formal classroom settings, but also within many non-academic settings. Barker and Gower (2010) focused on various aspects of storytelling such as strategic applications within different organizations, thereby forming the foundation for the use of storytelling for concerted pre-service and in-service training; many private and for-profit organizations and companies have realized the benefits of storytelling, adopting and incorporating it into their various training programs. Companies such as Jiffy Lube, Amazon, and Budget Car Rental have implemented employee training with the use of storytelling in digital format so that it can be delivered to the masses through Internet format (Baldwin & Ching, 2017).

Essentially, the fundamental means to accomplish tasks and assignments were passed from one employee to another with company mission and goals utilized as guides. As knowledge was passed from one experienced employee to someone else, paired with their experience, an instrumental teaching tool was created and implemented. As newer employees visualized themselves through the experiences of the experienced employee, they could prepare themselves and actualize their own involvement in the work to be completed. Moreover, through

storytelling, the recently-hired employee could envision himself, within the actual story, and, when combined with the experienced employee's self-awareness and reactions, could become a powerful learning tool (Barker & Gower, 2010).

Thus, storytelling has merits in a variety of different settings and organizations and continues to be shaped and adapted for other purposes. A majority of the different industries, organizations, and companies are looking for new and innovative ways in which to capture the attention of their employees during training. This additional training technique that companies provide to their employees is aimed at increasing efficiency and productivity.

Transition of Storytelling into Digital Storytelling

Over the years, these early forms of storytelling as communication tools gradually transformed into digital storytelling with the introduction and enhancement of widespread technological advancements for learning environments. In 1993, Dana Atchley, a performing storyteller, created the term "digital storytelling" as he saw the considerable potential of the use of computers and multimedia within most educational settings. Later, Porter (2005) further defined digital storytelling as a "technical tool that weaves personal tales using images, graphics, music, and/or sound to teach others and to generate student interest" (p. 1). McLellan (2006) also noted that digital storytelling is a promising instructional strategy and has become a constantly evolving field of study in education.

As currently characterized within educational settings, digital storytelling encompassed the use of any digital, or electronic, media format that enabled an instructor to actively share and supplement aspects of their own experiences and stories with their students (McLellan, 2006). Further, according to Skouge and Rao (2007), through the use of technology and the instructors' experiences, digital storytelling could include graphic realistic images and sounds to lessons,

thereby improving focused interest from students, increasing all-around academic performance. Additionally, Yang and Wu (2012) also concluded that the use of technology paired with instructors' experiences told in a storytelling format contributed to the transformation of storytelling into digital storytelling.

According to Malita and Martin (2010), digital storytelling continued to evolve with technology, and it has the ability to collaborate and contribute on an unprecedented scale within all instructional areas. This technological growth has allowed digital storytelling to advance into an increasingly more effective form using technology within all types of classroom environments (Skouge, Guinan, Nobrega, Rao, & Segal, 2004; Skouge, Boisvert, & Rao, 2007).

As McLellan (2006) pointed out, digital storytelling has gained momentum as it was utilized within many different educational settings, e.g., in the humanities fields, mainly due to its low operating costs, highly efficient nomenclature, and high acceptance rates among students. As stated by Sadik (2008) digital storytelling is effective in all fields of study, and provides students with continuous opportunities to align technology with the curriculum, as well as collaborate and learn from peers who have already integrated technology in their other own subject fields.

Czarnecki (2009) stated that students are able to gain effective communication skills and experience in specific areas that teachers felt important. Student communication skills can be directly attributed to types of communication, interpersonal skills, and personal and social responsibility. Teachers and educators have found that digital storytelling continues to grow into a teaching method, greatly contributing to the critical thinking skills of students. It is theorized that digital storytelling can also inspire students' imagination, creativity, and critical thinking and was a productive, and easy to assimilate methodology. Porter (2005) has stated that, ultimately,

students' interest and motivation increase considerably with the application of digital storytelling and continue to evolve effectively throughout the particular course, and carry over into future classes.

Another researcher, Leopold (2010) also agreed that the use of digital storytelling and its ease of assimilation could increase and strengthen students' media literacy skills and keep their attention, interest, and focus longer due to their association with current technology such as iPads and cell phones. Students can also feel a sense of inclusion with the topic, resulting in the increased level of retention of key facts and figures (Dogan, 2007). In practice, these tools are currently used in a variety of ways to keep both student attention and motivation, to familiarize the student with the use of technology, and to implement a learning structure that could enable students to visualize their own learning through technology, leading to long-term knowledge transfer.

Digital Storytelling Effect on Academic Performance and Knowledge Transfer

The simplicity of digital storytelling and the use of technology are not seen as intimidating to most students due to their previous experiences with both storytelling and technology. When students are not intimidated by the use of technology, it can lead to an increase in academic performance and assist in knowledge transfer. This knowledge transfer could become a valuable asset as a byproduct of digital storytelling. From the perspective of teachers, this repertoire of persuasive tools and technology usage could allow the students to learn in such a way that knowledge transfers of information becomes more efficient and results in a subsequent increase of academic performance.

Thousands of scholarly articles have tested and analyzed the effect storytelling has had on education pedagogy. As technology is now involved in every facet of everyday life,

networking storytelling and technology would create new ways to disseminate learning quickly and with ease. Conferences, video, Internet usage, and online communications could now send information around the world within seconds; technology would now provide a way of taking a story and reaching the masses with ease and efficiency (Czarnecki, 2009).

Research on digital storytelling, specifically within law enforcement training environments, is almost non-existent. However, many published researchers from other social science and related disciplines have determined that digital storytelling could be an effective factor to positively influence students' academic achievement and knowledge retention (Robin & McNeil 2012; Glonek & King 2014; Alismail, 2015; Mancheno 2015). For example, in the 2012 research conducted by Dr. Sy-ying Lee, digital storytelling was utilized to evaluate students with learning difficulties; that is, storytelling was integrated with technology, eliminating print media from the course curriculum. There were two groups of 20 students each: one was a control group using traditional learning techniques, while the other was exposed to digital storytelling as the primary instructional delivery system. Lee (2012) concluded in his study, that a positive correlation existed when students in the second group became more focused and more interested in their lessons as the use of technology greatly improved the learning experience resulting in higher grades.

According to Robin and McNeil (2012), there is a growing interest in digital storytelling and its effect on student performance in focused research conducted as part of doctoral dissertations. Bulent Dogan conducted one of the first doctoral studies in digital storytelling at the University of Houston in 2007. In his research, three groups of public school teachers were surveyed after utilizing digital storytelling lessons to instruct a total of three sets of students; students from all groups were provided assessments after the lessons, and the results were

compared. Dogan (2007) suggested that digital storytelling was a powerful tool to convey desired messages around a topic or a subject area by the instructors. Thus, teachers who had utilized digital storytelling, reported increased knowledge of their own technical skills and capabilities, and the study results demonstrated a positive effects on students' motivation and academic performance.

In 2009, Anne Rudnicki's doctoral dissertation studied the dialogical aspects of the use of digital storytelling by graduate students. In her narrative inquiry, she focused on three aspects of digital storytelling: (1) students' experiences in story circles, (2) student dialogical experiences throughout the course, and (3) personal experiences as the storyteller. Recurring themes from the study included improved enhancement in feedback and sharing, personalization of the stories being told, savings of time, and repetition for understanding when in storytelling modes. Rudnicki concluded that the students did performed higher in skills depicting practical outcomes, but showed improved knowledge retention when students were able to form more meaningful conclusions.

While the above studies surveyed students from elementary to high school grade levels, there are also studies involving adult learners. In 2015, at the University of Calgary, Canada, Hewson et al. (2015) conducted research using a sample of 7 adults who were exposed to a five-day social service course where digital storytelling was strictly utilized. After the surveys were administered, the assessments of the results showed all positive responses.

For the study, two surveys consisting of closed- and open-ended questions were developed; one for the students and the other for the instructor storytellers. In addition, a 17-item Likert survey was administered at the end of the courses which included open-ended questions. The study found that students enjoyed and benefited from learning with digital

storytelling, while the surveys that were administered reported a positive effect on learning.

In another 2015 study, research was conducted on the level of engagement of pre-service primary and pre-primary teachers when digital storytelling was used during professional development workshops. The most significant result was the use of a "multimodal design" in digital storytelling which not only positively impacted the perceptions of preservice teachers, but also may have increased their understanding of subject specific concepts. According to Alismail (2015), this learning could encompass active learning of objectives that formed a variety of different understandings and implications in education.

Hewson, et al. (2015) pointed out that adult learners have more difficulty grasping pedagogical, technical, or content knowledge competencies when instructed in new topics. It was also ascertained that adult learners learned more effectively if they were able to apply the digital learning to their current perspective and outlook, or if it impacted their daily living or profession.

At the same time, digital storytelling could be used as a means of engaging adult learners within different disciplines. Suwary et al. (2013) used digital storytelling to engage adult learners on topics of finance. In the hierarchy of adult learning topics, the authors hypothesized that the topic of finance was one that adult learners could struggle with and have difficulty comprehending. Several accounting educators were interviewed, and they recognized the importance of incorporating effective teaching methods into the accounting curricula. In the past, adult students have complained that the topic of finances was a dull and boring subject to learn and master. Since finance students had this preconceived notion, there was a lack of critical thinking and adaption of financial concepts that were taught in the classroom. At the conclusion of this study, the researchers discovered that digital storytelling helped adult learners

understand financial accounting concepts and contextualized accounting. They also found that many of the stories discussed during the use of digital storytelling improved knowledge retention, while most students reported it helped them have increase confidence before entering the work world.

Major investment corporations such as Fidelity Investments, Charles Schwab, and TD Ameritrade have battled with these same challenges in finance. These financial powerhouses have now adopted digital storytelling as a way to send learning objectives via Internet connections to a variety of satellite offices. The instructors were able to teach not only the required objectives of financial learning, but have also discussed their own stories, and incorporated their own experiences. Brill (2010) has suggested that professionals learned not only from their own experiences, but from a trial and error type of learning. Thus, digital storytelling was able to assist instructors in various specialties, such as financial accounting, through instructor interactions, both formal and informal, and through conversations with other professionals of similar backgrounds, aspirations, and experiences.

Digital Storytelling with Other Learning Methodologies

Additional research highlighted digital storytelling usage in conjunction with other instructional methodologies and technologies. A 2016 study, conducted by Karakoyun and Kuzu, studied the implementation of digital storytelling through online instruction. The study focused on investigating views held by pre-service teachers from the Department of Computer Education and Instructional Technology (CEIT) and was conducted in two stages: first, pre-service teachers from the Department were trained in online digital storytelling; the second stage involved their performance with online digital storytelling activities within the scope of one college course during Spring 2012-2013 terms. Karakoyun and Kuzu (2016) concluded that the

participants of this study perceived that digital storytelling not only improved learning and innovation skills, but also promoted the students' critical thinking skills.

Even though Karakoyun and Kuzu (2016) study pointed out how digital storytelling improved learning and innovation skills, in an earlier study, Mullen and Wedwick (2008) noted that there remain several challenges in getting started in the classroom with digital stories linked to related blogs and YouTube presentations. In their experimental study, the researchers reviewed students' perceptions at a rural Midwestern K-8 school, using two 50-minute class sessions for language arts instruction. At the beginning of the class period, students encountered early problems and difficulties when using the new computers while trying to understanding the lessons; eventually, through a series of trial-and-error and instructor assistance, the students were able to see and hear stories of the Apollo 11 landing and how Michael Jackson performed his signature moonwalk dance moves in the song "Billie Jean" video via the YouTube channels. As a result, the students became immersed in their experimental study while utilizing YouTube and lost track of time. Mullen and Wedwick (2018) concluded that although technology can be overwhelming at times, educators can integrate digital storytelling within existing classroom environments.

Obari and Lambacher (2012) found that digital storytelling helped Japanese students better develop English language skills, using YouTube, blogs, and e-mobile technologies. Their study determined that students were captivated and fascinated with the stories they were able to view and hear on YouTube; some students could even discuss certain Western holidays and customs they had learned from the online digital storytelling. Their Japanese teachers and aides were also able to augment their own existing lesson plans with digital assignments. In this blended classroom, students learned through a combination of face-to-face instruction paired

with the assistance of technology using digital storytelling opportunities through mobile devices.

Another technique using digital storytelling with other classroom practices has been incorporating storytelling into hybrid courses, otherwise known, as a "blended course". The hybrid course is a mixture of face-to-face instruction with electronic or online learning. In 2016, Shelton, Warren, and Archambault researched interactive digital storytelling in a hybrid course. Their purpose was to ascertain digital storytelling's sustainability and practical applications within the instructional environment. These researchers utilized a survey research design with participants from two cohorts enrolled over two concurrent semesters at a large public university in the southwest United States. The instructional methodology incorporated digital stories followed by a multiple-choice questionnaire. At the conclusion of the course, a total of 398 students were surveyed to ascertain their experiences with digital storytelling formats. Shelton et al. (2016) concluded that results of their study indicated students perceived digital storytelling as a way to facilitate engagement, support their learning, and enhanced learning gains. Students confirmed that digital influence with the lessons helped hold their attention, while presenting manageable chunks of content.

Moreover, in a "blended" environment, learning could become multisensory -- an integration of digital storytelling with multiple forms of related media including text, videos, and audio that can stimulate multiple senses (i.e., visual, auditory, and tactile) in the students' learning environment. In a variety of environments, digital storytelling can reduce the barriers that can hamper effective learning. As students have used Facebook, YouTube, and other sources of media for years, this method of learning seems routine and can be easily adopted. Robin (2008) stated, through the use of digital storytelling, a student can personalize their experience, listen and self-imagine the story being told, and are then well positioned to overcome

obstacles that would prevent effective learning from taking place.

Another form of instructional electronic storytelling may be viewed as "interactive blended" digital storytelling. Interactive storytelling offered an opportunity to present course content in a manner that motivates and encourages learners to understand that they are learning in a totally immersive fashion (Baldwin & Ching, 2017); interactive storytelling allows students to identify what topics or concepts to view next and could assist the student in determining how to problem-solve dilemmas they could encounter as a police officer. In these teaching methods, the student has parameters and guidelines in which the instructors guide their learning path; using interactive storytelling, the students are free to explore anything they want using technology to determine what is happening or what will happen next.

Shelton et al. (2016) explored the use of interactive digital storytelling video in a hybrid university course. Within a 15-week hybrid course, experts delivered content pertaining to a specific topic of science. Each week students watched approximately one hour of video stored in a learning management system (LMS). These videos addressed learning objectives created for science majors from NOVA, Public Broadcasting Service, and NASA. At the conclusion, the authors were able to analyze both qualitative and quantitative evidence that indicated that digital storytelling facilitated student engagement, "scaffolded" or guided their learning, and supported knowledge achievements.

In contrast, students reported that they were presented manageable chunks of information, and felt that, as university students, they were actively engaged in their own learning as compared to the traditional face-to-face model. Yet, although digital storytelling could be beneficial to and support students' learning processes, the researchers believed that digital storytelling must have a scaffold or guide to lead the students through the course; without

this scaffold, the student could go off on tangents and lose track of the learning objectives as well as lose what learning gains already achieved.

Other Non-Academic Environments

The utilization of digital storytelling in non-academic training environments has also been documented. For example, businesses are moving towards the incorporation of storytelling through digital means. Robin (2008) observed how digital storytelling is easily able to capture the attention of average people and be implemented in a powerful way economically within a relatively short amount of time. A variety of companies have begun experimenting with digital storytelling in an effort to find ways of improving training and retention for their employees. Keller (2012) stated that storytelling continues to be an individual art, and tellers could develop different methods of learning how to effectively tell a story. Yet, digital storytelling takes this process a step forward with the infusion of technology.

Another example of non-academic usage is the use of digital storytelling by the military. On November 1, 1993, the United States Air Force released a manual describing the "Instructional System Development (ISD)" principles and processes for developing education and training programs (United States Air Force, 1993). The purpose of the manual was to design models for analyzing, designing, developing, and implementing effective and cost efficient multimedia electronic instructional systems. The United States Air Force concluded that the nature of technologies such as CD-ROM, video disk, conference phones, and multimedia do change the learning outcomes. According to McLellan (2006), it was determined that broader instructional delivery systems, such as digital storytelling, resulted in better student retention of knowledge with enhanced understanding of specific learning outcomes.

As outlined above, digital storytelling has been studied in many instructional areas.

Specifically, in the fields of education, military, and public service, experimentation with the utilization of digital storytelling has already begun. In criminal justice disciplines, this experimental exploration has not taken place as quickly or as wide-spread as other specialties. Broad scholarly research and study is limited in criminal justice education, which most would consider a high liability and important field of study. Criminal justice education has the ability to change or affect the way law enforcement officers are instructed.

Notwithstanding the scarcity of relevant research, there are, however, a few criminal justice studies. In a criminal justice study, Butcher (2006) noted, "A number of professionals have linked storytelling as being relevant to learning and corrections, adult education" (p. 197). In another study, Kruse (2012) concluded that digital storytelling is a valuable teaching tool for determining the relationship between forensic evidence and stories told about police events, actions, and decisions. He found that these stories are "bi-directional" in that the police cadet could learn from the instructor's experiences and could integrate this knowledge into future problem-solving. Subsequently, as Sadik (2008), Kokkotas, Pizaki, and Malamitsa (2010) proposed, since police cadets become more interested in the topics under discussion and could deliberate more deeply about the meaning of the topic, eventually they would realize that these experiences could, indeed, become harsh realities during their tenure as police officers.

Instructors could utilize the use of digital storytelling during undergraduate criminal justice studies as well as during actual police academy training. Sadik (2008) has argued that training becomes highly effective when police cadets' are exposed to the dilemmas and challenges they will face on the street. Nowicki (2006) observed that the classroom is the law enforcement officer's workshop, and all the tools are readily available to craft the right digital story that can be used as an effective training tool for law enforcement officers. In his study, law

enforcement officers were administered “war stories” as a training tool, and it was determined that police cadets learned more from the “war stories” and sought to know how to prevent the pitfalls their instructors faced in their stories.

Similarly, Kruse (2012) argues that it is important to look beyond the classroom and into the type of story being told. This story can come from more experienced officers in a manner conducive to student learning. A story with real world application can assist the police cadet in many facets of his preparation for the most caustic working environment second only to the military. When students are told “war stories” they can feel and imagine themselves in the story and will find ways not to fall victim to the same situation. These stories can also bring humor, and a variety of different human emotions that can encourage almost any student of any background.

Through digital storytelling, police cadets may develop an increased understanding that can help in interpreting, organizing, and prioritizing their own experiences from their academy instruction. Rudnicki (2009) suggests that digital storytelling can be used to improve learning and retention in training situations. Through digital storytelling, police cadets can benefit from long term knowledge transfer when used with the appropriate memory retention electronic tools. According to Sadik (2008) memory retention will become more valuable when police officers are faced with the same situations in patrol settings when they are authorized and must make their own decisions.

Hulst (2013) has determined that police digital storytelling is an understudied aspect of law enforcement education and could positively influence decision making. Within this understudied criminal justice instructional environment, effective digital storytelling communication can influence and shape the students’ identities and give greater and more

appropriate emphases to experiences and actions (Rideout, 2015). These emphases and experiences are important to the students as they will learn to use them in the field to make every day police decisions.

Given these research findings, the field of law enforcement education continues to lack in research and development of teaching methodologies in the education of police officers. For example, all law enforcement training in the State of Texas continues to be delivered via instructor-to-student through long passages of information and material often read repeatedly so that police cadets and officers can retain the information--a method of criminal justice instruction that has been in existence since the early 1900's. Hulst (2014) has argued that storytelling can enable law enforcement instructors to harness their experiences for more focused class experiences; thus, students can become more interested in these actual experiences as they realize that these experiences could, indeed, become reality during their career and tenure as police officers.

To address this need and to increase current knowledge of the effects of digital storytelling in criminal justice training, the purpose of this study was to (1) determine the effect of digital storytelling on academic performance of police cadets in a law enforcement academy; and, (2) determine police cadets' perceptions of digital storytelling as an instructional strategy for promoting long-term knowledge transfer into the field.

Summary

Both Hulst (2013) and Rideout (2015) concluded that digital storytelling, when used in both conventional learning environments and in non-academic settings, resulted in more appropriate decision-making in the field, and contributed to better problem-solving capabilities. This literature review provided a synopsis of the background of storytelling within society, the

beginnings of digital storytelling as an instructional strategy, and provided a structure to support and validate the use of digital storytelling in a criminal justice educational environment. Four interrelated topics were presented: an overview of storytelling; transition of storytelling into digital storytelling; digital storytelling effect on academic performance and knowledge transfer; and the use of digital storytelling in non-academic training environments. The next chapter focuses on the research methodology employed in the study, including the following areas: methodology, setting, participants, protection of human subjects, data collection, qualitative instrument, selection of content, treatment, control group, treatment group, facilitation of the treatment lesson, data analysis, limitations of the study, and summary.

CHAPTER III

METHODOLOGY

Introduction

The purpose of the study is twofold: (1) determine the effect of digital storytelling on academic performance of police cadets in a law enforcement academy; and, (2) determine police cadets' perceptions of digital storytelling as an instructional strategy for promoting long-term knowledge transfer into the field. This chapter outlines the methodology as applied to this study and is separated into the following subcategories: (1) Introduction; (2) Setting; (3) Participants; (4) Protection of Human Subjects; (5) Data Collection; (6) Qualitative Instrument (7) Selection of Content; (8) Treatment; (9) Control Group; (10) Treatment Group; (11) Data Analysis; (12) Limitations of the Study; and (13) Summary.

This study consists of a two-group testing methodology utilizing a two group, pretest-posttest design with randomization. This is a mixed methods research design. To address the first research hypothesis, an experimental research design was chosen. To address the second research hypotheses, a qualitative research design was chosen. It should be noted that a "true" experimental design could not be utilized because of the following constraints: (1) the police cadet students are already assigned to specific police academy classes to be conducted. The participants' knowledge would be assessed before (pretest) and after (posttest) the administration of the lessons and their perceptions of the digital storytelling instructional method assessed

on both a qualitative and quantitative level.

Setting

This study took place at a regional police academy located in the Dallas Fort Worth Metroplex area within the larger North Texas area. The police academy conducts approximately six police academy classes per year with classes offered Monday through Friday, 8:00 a.m. through 5:00 p.m., for a total of 19 weeks. In addition to the basic police pre-service training classes, the academy also provides required in-service continuing education courses for peace officers throughout the State of Texas. Specifically, this police academy serves the police departments within the Tarrant County region and surrounding counties. This academy meets or exceeds all requirements set forth by the Texas Commission on Law Enforcement (TCOLE) for a state certified police training academy. All instructors who teach at the police academy must have a minimum of a TCOLE instructor license, certificate, or be designated, in writing, a subject matter expert in the course by the police academy training coordinator. Although additional classes were offered throughout the academic year, only two classes were available during the timeframe of this study.

Participants

The coordinator of the police academy selected the participants for this study from two classes. The participants for this study included all new incoming police cadet students at a regional police academy in the Dallas/Fort Worth area in Texas. Each police academy class consisted of one academy coordinator and approximately 20-40 students in each session; total student attendance each year fluctuates between 120-240 police cadet students. Two incoming academy classes were recruited to participate in the study; the only two academy classes were in session during this study: Class #189 in session from March 26, 2018-August 3, 2018, and Class #190 in session from June 18, 2018-October 26, 2018.

The cadets represent all police agencies in the Dallas/Fort Worth Metroplex, which

encompasses a total of 30 police agencies, plus an additional 11 allied agencies with part of their jurisdiction within Tarrant County, Texas. TCOLE requires that all police cadets in the police academy meet or exceed *Texas Administrative Rule 217.1 Minimum Standards for Enrollment and Initial Licensure* (Appendix A) before acceptance in a TCOLE certified police academy and before a Texas peace officer license is issued. The cadets' demographic data, including gender, age, ethnicity, technological proficiency, and highest degree attained were collected from the student surveys specifically created for this study.

Table 1 below presents the demographic characteristics of the policy academy (Cohort #189 and Cohort #190).

Table 1

Demographic Characteristics of Police Academy Participants from Cohorts #189 and Cohort #190 (N=64)

Characteristics	Number	Percentage
Gender		
Female	12	18.75
Male	52	81.25
Age in Years		
21-25	23	35.94
26-30	19	29.69
31-35	9	14.06
36-40	6	9.37
41-45	2	3.13
46-50	2	3.13
51-55	2	3.13
56-60	1	1.55
61 or above	0	0
Ethnicity		
Caucasian	48	75.00
Hispanic	7	10.94
African American	5	7.81
Other	4	6.25

Protection of Human Subjects

To protect the rights of all the students involved in this study, the researcher sought approval through the University of Texas Rio Grande Valley's Human Subjects Review Board. After approval was obtained, the cadets were advised that participation in this study was voluntary and would have no outcome or effect on class standing, grades, or graduation status. The expectations, length of time, and the participants' participation in this study were discussed. They were informed that all their information gathered during this study would remain anonymous. After the cadets agreed to participate and signed all related release forms, they were granted access to the lessons and assessments via Wi-Fi through the cadets' personal mobile devices.

Data Collection

The study was conducted over a span of two days. Due to the police academies strict time constraints, the treatments were administered during the cadet's 1-hour lunch period. Classes #189 and #190 were assigned to their specific days of the study. Class #189 was randomly selected to participate on Day One and Class #190 was on Day Two. Each candidate was provided a slip of paper that included a unique identifier and a specialized QR code that was assigned to each student. The total number of students was calculated and an equal amount of slips for both the control and experimental groups were placed into a bucket to ensure randomization.

Each unique identifier consisted of a three-digit numerical participant ID number, beginning with a 1 or 2, to differentiate members of the control and experimental groups. A participant ID number that started with a 1 represented a control group; a participant ID number that started with a 2 represented an experimental group. The unique identifier assisted the

researcher in matching up the responses from both pretest and posttest as well as the *Digital Storytelling: Respondent Interest and Motivation Survey (RIMS)* survey. Before active participation in the pretest and posttest, the participants were given instructions on how to access the assessments and complete them via the online portal.

The participants in Class #189 on Day One were randomized and assigned to a control or treatment group, and then the control group was given a pretest and posttest via their individual mobile devices. The experimental group was then provided a pretest and posttest via their individual mobile devices which contained the treatment (digital storytelling) on the same day (Appendix E). On Day Two of the study, police academy Class #190 was also randomized and assigned to a control or experimental group, and the study was administered in the exact manner as on Day One.

At the conclusion of the experimental group's review of the online digital storytelling lesson, the participants were directed to a separate website to access a survey designed to elicit information of participants' perceptions and attitudes regarding the use of digital storytelling as an instructional strategy for promoting long-term knowledge transfer into the field. The *Digital Storytelling: Respondent Interest and Motivation Survey (RIMS)* consisted of 10-questions using a 7-point Likert scale with two open-ended questions, and was administered through the student cadet's individual cell phone or other mobile device (Appendix C).

Qualitative Instrument

While a valid and reliable instrument that measured the perceived effectiveness of digital storytelling in an online law enforcement lesson would have been preferred, after an extensive review of the research literature, a suitable instrument could not be found. Therefore, to elicit participants' perceptions regarding the use of digital storytelling as an instructional strategy for

promoting long term knowledge transfer into the field, an 8-question, 7-point, Likert scale questionnaire titled the *Digital Storytelling: Respondent Interest and Motivation Survey (RIMS)* was developed (Appendix C). In addition to the 8 Likert scale questions, two open-ended questions were added to elicit input regarding cadets' likes and dislikes regarding the use of digital stories in online lessons.

The participants who were exposed to the treatment lesson were asked to respond to the 8 question items using a 7-point Likert scale (1=Strongly Disagree, 2=Somewhat Disagree, 3=Disagree, 4=No Opinion, 5=Somewhat Agree, 6=Agree, 7=Strongly Agree). As De Vaus (2014) stated, Likert scale questionnaires assist in the development of more valid measures. The survey was designed to collect data regarding the cadets' experiences with the lesson using digital storytelling, including: if their attention was kept, and if they found the lesson interesting; if the digital stories helped the cadets recall key information better through digital storytelling than without; and if the videos incorporated into the online lessons helped them to understand and comprehend the lesson more clearly.

In order to establish the validity of the survey, a pilot test was conducted. During the pilot test, criminal justice subject matter experts evaluated the survey questions for variation, meaning, redundancy, scalability, and validity in the field of criminal justice education. In addition, the survey's reliability was determined using Cronbach Alpha, a statistical method used to determine the internal consistency or average correlation of items in the survey. The Statistical Package for the Social Sciences (SPSS) program, Version 24 aided the researcher in identifying any questions that needed to be eliminated or reconfigured for improved reliability. Only after the validity and reliability of the survey was established was it ready to be deployed.

Selection of Content for the Development of the Pretests and Posttests

As previously noted, TCOLE regulates all of the State of Texas law enforcement training police academies, starting with 140 contact curriculum hours in 1970 and increasing to 643 hours

currently. Specific topics include discrete law enforcement topics such as professional policing, penal code, criminal investigations, family violence, or firearms as well as related topics as health and safety codes, communications and problem solving, and emergency medical assistance (Appendix B).

To ensure participants were not exposed to the content of the treatment lesson, the researcher selected a law enforcement-related topic chosen from TCOLE standardized courses, which are not part of the Police Academy curriculum. The TCOLE lesson, 8158 Body Worn Cameras, is not addressed until much later, when police officers have been in the profession for a minimum of two years. This course is mandatory by TCOLE for all police officers for continuing education credits or continuing licensing requirements.

For the pretest and posttest, the researcher developed 20 multiple choice type questions from the lesson materials. The advanced level of the selected lesson content ensured the answers to the questions would not easily be discerned by guessing, but difficult enough to ensure mastery of the subject being learned. The TCOLE Course 8158 Body Worn Cameras has been in use since October 1, 2015.

Treatment

During the first day, within a closed classroom environment, the police cadets were introduced to and instructed on the procedures, guidelines, and protocols pertaining to this research study. This study was administered over two separate days during the lunch break period at the police academy from 12:00 to1:00 p.m. For this study, an online lesson was developed by the researcher and made accessible to participating cadets through an unpublished URL via the cadets' mobile devices. Due to the time constraints of the police academic day, and strict guidelines for instruction from TCOLE, a non-curricular, but important, topic was selected. As stated in the Texas Administrative Rule 215.9 (Appendix D), a training provider (i.e., police academy instructor) must distribute learning objectives to all students at the beginning of each

course to ensure and validate that all learning objectives were being taught and assessed; within the police academy, a non-curricular training is defined as any training administered to police cadets that is not an integral part of the regularly approved police academy curriculum.

During the data collection process, the researcher selected a topic that was not a required part of the regular police academy curriculum. The topics that are administered over the police academy program are regulated by TCOLE under Texas Administrative Rule 217.1 (Appendix A). The chosen topic is a standardized topic of instruction listed on the TCOLE website as Course 8158 Body Worn Cameras. This topic was not covered in the regular police academy class, and therefore the cadets were not familiar with the content prior to the start of the study.

Control group - Facilitation of the Control Lesson

On each day, the control group was given an online pretest to assess their current knowledge of the content prior to being granted access to the online lesson. At the completion of the pretest, the cadets were able to electronically click on a hyperlink directing them to the online lesson; the lesson was presented in text format with a few photos interspersed throughout the content and placed on a website to be accessed via the Internet. This lesson contained the objectives listed at the beginning of the lesson as per requirements set forth by TCOLE Texas Administrative Rule 215.9 (Appendix D). The students were familiar with the testing format as used in the police academy.

The TCOLE lesson, Body Worn Cameras 8158, was approximately 10-minutes long, excluding the time needed to complete the pretest and posttest. The lesson did not include any other explanatory information commonly presented through standardized teaching methodology. Additionally, although some images were sparingly used throughout the lesson, interactive videos or multimedia were not utilized. The posttest was administered and calculated in an. identical way as the pretest. After completion, a confirmation message was provided to the participants thanking them for their participation.

Figure 1 below shows the two group methodology utilizing a pretest and posttest design for the control group.

Figure 1. Two Group Testing Methodology Utilizing a Pretest-Posttest Design: Control Group

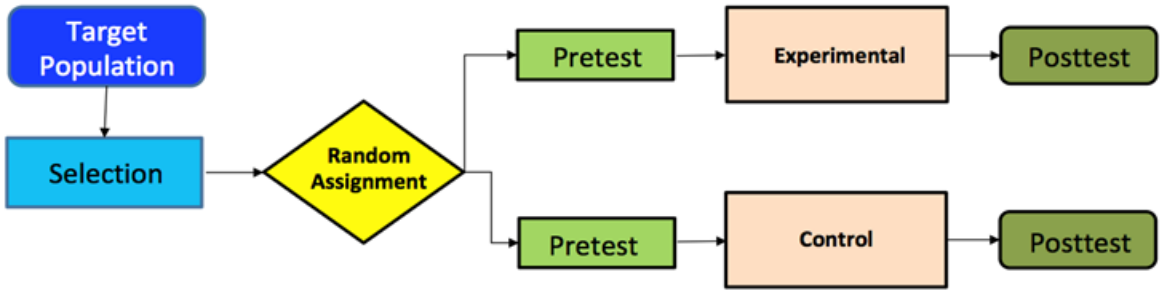

Figure 1. A flowchart model for the facilitation of the control lesson. The rectangles on the left denote the target population to selection phase, rectangles on the right denote the pretest/posttest before and after the experimental or control groups. The junction between the target population to selection phase and the pretest is the randomized portion of the assignment denoted by a yellow rhombus.

Treatment Group - Facilitation of the Experimental Lesson

On each day, the treatment group took the online pretest to assess their current knowledge of the content prior to being granted access to the online lesson. At the end of the pretest, a link was provided which took them to the treatment lesson. This lesson was identical to the control lesson with the exception of the addition of short digital stories interspersed throughout the lesson. After the lesson was completed, the students selected the hyperlink at the bottom of the web page to complete the posttest. At the completion of the posttest, they were forwarded to the *Digital Storytelling: Respondent Interest and Motivation Survey (RIMS).* After completing the survey, a message was provided to the participants thanking them for their participation.

Figure 2 below shows the two group methodology utilizing a pretest and posttest design for the experimental group.

Figure 2. Two Group Testing Methodology Utilizing a Pretest-Posttest Design: Experimental Group

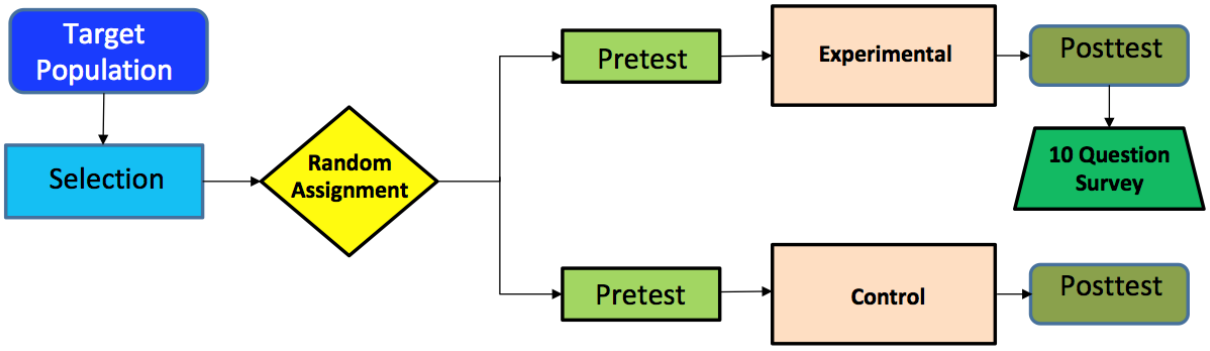

Figure 2. Flowchart model for the facilitation of the experimental lesson. The rectangles on the left denote the target population to selection phase, rectangles on the right denote the pretest/posttest before and after the experimental or control groups. The junction between the target population to selection phase and the pretest is the randomized portion of the assignment denoted by a yellow rhombus. At the end of the experimental posttest a rectangle denotes the 10 question survey that was administered at the conclusion of the experimental posttest.

Data Analysis

The Statistical Package for the Social Sciences (SPSS) program, Version 24, was utilized to run the statistical analyses to answer the two research questions addressed in this study. The cutoff value for determining statistical significance was set at a value of .05 or less; this corresponded to less than a 5% chance that a result has been observed if the null hypothesis was true from the beginning. The mean scores from both the pretest and posttest assessments were compared to theoretical sampling distributions to determine if the means differences were significant. The findings were then analyzed to determine statistical significance and/or practical significance regarding this study.

To address the first research question, a paired t-test was used to compare the results of

the pretest and posttest scores for the experimental and control lessons. That is, statistical significance was determined by finding out if the hypothesis for Research Question One was true; and, practical significance was when researcher's findings could be beneficial to other future criminal justice studies pertaining to digital storytelling in a law enforcement education setting.

To address the second research question, the *Digital Storytelling: Respondent Interest and Motivation Survey (RIMS)* was used to measure respondents' perceptions and attitudes toward the use of digital storytelling as an instructional strategy for promoting long term knowledge transfer into the field. The survey was administered once at the conclusion of both days, but only to the cadets who had completed the experimental lesson with the embedded digital stories. Due to the ordinal nature of the data, the median was calculated for each question as a measure of central tendency.

A qualitative component was added to this research study. After calculating the responses, the findings would be displayed in a distribution table (i.e., numbers that agree, disagree, etc.).

Limitations of the study

The purpose of this study was to: (1) determine the effect of digital storytelling on academic performance of police cadets in a law enforcement academy; and (2) determine police cadets' perceptions of digital storytelling as an instructional strategy for promoting long-term knowledge transfer into the field. The following limitations were factors that prevented a generalization of the findings.

1. Sample size**.** Because of the small sample size (N=64), the results may not be generalizable beyond the specific population, which included the Tarrant County

region in Texas; the student cadet population was chosen from a police academy covering the Tarrant County jurisdiction. Both cohorts started with approximately 45 students each, but this number was not realized until testing actually took place. During the course of a policy academy program, various numbers of cadets would fail or withdraw for a multitude of reasons. In addition, the study small sample size did reduce the weight of the study and could increase the likelihood of a Type II error which could result in a skewing of the results found by this study.

2. Lack of longitudinal perspective. Beyond the scope of this particular research, further testing past the initial police academy experience would be valuable. In an effort to decrease the possibility of unauthentic variables affecting this study, only two cohorts were being tested; however, it still lacked a longitudinal perspective as the cadet's police careers continued.
3. Lack of comparison to other comparable entities. The study focused on two cohorts of students from one police academy located in Tarrant County and may not be compared to other police academies in the State of Texas. Therefore, the findings may be viable only when used within the scope of this or a similar population.
4. Influence. The researcher in this study who is also an instructor at the academy may have influenced the attitudes and motivation of the cadets in this police academy study unintentionally. A condition could have been created which alters the behavior by the subjects of a study due to their awareness of being observed, known as the Hawthorne Effect.
5. Limitations of survey research. The limitations of survey research did not allow a deeper look into the research field and was only designed to take a sample of the

whole. The survey was based on respondent's experiences, personal inhibitions, and indifferences at the time of this study only.

6. Limitations of Likert scales. Likert scales were subject to three limitations that could influence the responses in this study. Central tendency bias could be caused by the avoidance of using the extreme response categories such as 1 = Strongly Disagree or 7 = Strongly Agree. Cadets may also agree with the statements as presented, which is known as acquiescence bias. The cadets may also want to portray themselves or their organization in a more favorable light, which is known as social desirability bias. Although the researcher has attempted to avoid these limitations during the instruction phase of the survey administration, they still could be present.
7. Other variables. Other potential variables included: cadets' perceptions and knowledge during the testing period and motivation of the students during the experiment. In addition to those listed above, student interest in the subject, the length and structure of the lessons, perceived quality of the learning experience, perceived professional value of the information, and the surrounding environment of the normal distractions were evident in this type of law enforcement environment. These seminal factors may have an effect on this study, but every attempt was made to minimize the effects of these variables on the results.

Summary

Police cadets are entering the law enforcement profession without the needed cognitive and reasoning skills needed for their actual police role in the community. This chapter described the methodology that was used when conducting this research study: introduction, setting, participants, protection of human subjects, data collection, qualitative instrument, selection of

content, treatment, control group, treatment group, data analysis, and limitations of the study were also examined. In the next chapter, the results obtained during this study will be presented, organized by research question.

CHAPTER IV

RESULTS

Introduction

The purpose of this study was to determine the effect of digital storytelling on the academic performance and perceptions of police academy cadets. The following research questions were addressed:

1. Does digital storytelling improve academic performance in the cadet police training?
2. Does the use of digital storytelling increase the police cadet's interest and motivation in the topic being taught at the law enforcement academy?

To answer the first research question, the researcher utilized an analysis of covariance to determine if a statistically significant difference existed between the pretest and posttest scores of the experimental and control groups. To answer the second research question, the means and standard deviations of eight survey questions were calculated. Two open-ended questions were included in the survey to gain greater insight into the experimental groups' perceptions regarding the inclusion of digital stories into their instructional materials. This chapter discusses the results obtained during this study organized by research question.

Results for Research Question One

To answer the first research question, "Does digital storytelling improve academic performance in the cadet police training?" the means and standard deviations for the pretest and posttest scores for the experimental and control groups were calculated. Sixty-four students participated in the study. They were randomly selected and assigned to one of two groups of 32

participants in each group. Table 2 below presents the means and standard deviations for the pretest and posttest scores for the control and experimental groups.

Table 2

Means and Standard Deviations of Pretest and Posttest Scores Presented by Group

	Pretest			Posttest	
Group	*N*	*Mean*	*SD*	*Mean*	*SD*
Control group	32	16.38	7.03	25.38	4.47
Experimental group	32	17.38	7.78	27.13	6.10

To verify that the difference between the mean squares for both groups were statistically significant, an ANCOVA was applied with the pretest as the control variable, and the posttest as the dependent variable. Table 3 below presents the differences between the mean squares of both groups. There was a statistically significant difference in the means found for Groups on the posttest, while controlling for the pretest, $F(73.3, 387.4) = 11.\ 55$, $p = 0.001$.

Table 3

Results of the One-Way ANCOVA to Examine the Statistical Significance of the Difference in the Means for the Control and Experimental Groups

Source	Sum of Squares	*df*	Mean Squares	*F*	Sig.	Partial Eta Squared
Pretest	151.36	1	151.36	23.83	.000	.28
Group	73.32	1	73.32	11.55	.001	.16
Error	387.39	61		6.35		

Item Difficulty

In an effort to determine the quality of the instrument, item difficulties were calculated on each of the 20 questions. Reynolds, Livingston, and Willson (2009) defined item analysis as a procedure to examine individual items separately, not the overall test. Item analysis is helpful in determining which questions were difficult and which ones were easy to answer. For maximizing the reliability of the items in question an optimal item difficulty level is .50. This

will indicate that the question with a difficulty level of .50 resulted in 50% of the test takers answered the question correctly, and the other 50% did not answer correctly. It should be noted that a difficulty level of .50 is just a guide, as different levels in different testing applications may be required. The results of the item difficulty analysis on the pretest are presented in Table 4 below.

Table 4

Test Item Difficulty Conducted on Pretest Results

	Control Group		Experimental Group	
Question #	# of Questions Correct	Item Difficulty	# of Questions Correct	Item Difficulty
1	25	0.78	27	0.84
2	10	0.31	13	0.41
3	24	0.75	15	0.47
4	6	0.19	4	0.13
5	21	0.66	27	0.84
6	10	0.31	13	0.41
7	18	0.56	21	0.66
8	17	0.53	19	0.59
9	18	0.56	19	0.59
10	3	0.09	5	0.16
11	12	0.38	8	0.25
12	11	0.34	14	0.44
13	2	0.06	2	0.06
14	19	0.59	12	0.38
15	1	0.03	4	0.13
16	20	0.63	24	0.75
17	15	0.47	17	0.53
18	26	0.81	27	0.84
19	22	0.69	19	0.59
20	25	0.78	22	0.69

The researcher discovered an interesting correlation in Questions 1, 3, 5, 19, and 20; these questions contained a large number of correct answers during the pretest administration in both the control and experimental groups. Although the majority of the students answered these questions correctly, when given the posttest, more students answered those questions correctly. A reexamination of the questions was conducted, and the researcher noted that these questions

could have been answered with previous knowledge not necessarily pertaining to Body Worn Cameras, but to exposure of the other facets of the police academy curriculum administered prior to the test administration. Although these questions had an item difficulty of 0.65 or higher, the other questions did provide confidence in determining academic performance. Although the assessment asked specific questions pertaining to body worn cameras, these questions could have been answered if the body worn camera information was removed from the questions.

Results for Research Question Two

To determine if digital storytelling increased police cadets' interest and motivation in the topic being taught at the law enforcement academy, the researcher developed a survey that included eight Likert-type questions and two open-ended questions. The survey was given to participants of the experimental group only since they were the only subjects to be exposed to the treatment (digital stories embedded in the lessons). A total of 32 out of the 64 (N=64) completed the survey. The results below show their responses to all 10 questions. The last two questions were open-ended questions, and the responses received were categorized at the end of this report.

In Table 5 below, the scale contained a total of eight survey questions with a Likert-type scale; the Likert scale ratings ranged from 1 to 7 and included the following descriptions: 1 = Strongly Disagree, 2 = Somewhat Disagree, 3 = Disagree, 4 = No Opinion, 5 = Somewhat Agree, 6 = Agree, and 7 = Strongly Agree. The questions were categorized into two groups: Motivation and Interest. Motivation in education can be defined as empowering individuals to achieve high levels of performance in overcoming barriers to learn the information being taught. Interest relates to the student's ability to acquire, maintain, or increase knowledge depending on intrinsic or extrinsic elements.

Highlights

The highest frequencies in Table 5 below came from Questions 1, 3, 4, and 6. Questions 1, 3, and 6 had a total of 26 out of 32 total participants resulting in a total of 81.25 percent of the total responses in those questions. The highest frequencies were reported in the Likert rating of

(6 = Agree) and (7 = Strongly Agree) in Questions 1, 3, 4, and 6: "The videos embedded in the online lesson were interesting and kept my attention" (Question #1); "the videos incorporated into the online lessons enabled me to understand the lesson material more clearly" (Question #3); and, "if the program adopted digital storytelling as an instructional strategy, it could help to sustain the interest and motivation of the learners" (Question #6). The highest frequency was noted in Question #4: "The videos embedded in the online lesson helped me to recall key information," which accounted for 27 out of 32 responses resulting in the highest percentage of 84.375 of the recorded responses.

Table 5

Number of Survey Respondents for Each Likert-type Level

Item	1	2	3	4	5	6	7
1. The videos embedded in the online lesson were interesting and kept my attention. (**Interest)**	1	-	-	1	4	15	11
2. The videos embedded in the online lesson provided me with an enhanced personal experience, which was more enjoyable than reading text alone. **(Interest)**	1	-	-	2	5	9	15
3. The videos incorporated into the online lessons enabled me to understand the lesson material more clearly. **(Interest)**	1	-	-	2	3	14	12
4. The videos embedded in the online lesson helped me to recall key information. **(Motivation)**	1	-	-	2	2	14	13
5. The videos embedded in the online lesson will help me to recall the key information after I have graduated. **(Motivation)**	-	1	-	2	5	13	11
6. If the program adopted digital storytelling as an instructional strategy, it could help to sustain the interest and motivation of the learner. **(Motivation)**	-	1	-	2	3	14	12
7. The content presented through videos in the online lesson added value to my learning. **(Motivation)**	1	-	-	1	5	14	11
8. The videos embedded in the online lesson enhanced my learning and assisted me in recalling detailed points in the lesson. **(Motivation)**	1	-	-	1	5	10	1

As shown in Table 6 below, the means and standard deviations were calculated for each question of the eight Likert-style questions (*N*=32). As previously indicated, only students from the experimental group participated in the survey.

Table 6

Survey Question Means and Standard Deviations Based on a 7-Point Likert Scale

Question	*Mean*	*SD*
1. The videos embedded in the online lesson were interesting and kept my attention.	6.00	1.17
2. The videos embedded in the online lesson provided me with an enhanced personal experience, which was more enjoyable than reading text alone.	6.03	1.29
3. The videos incorporated into the online lessons enabled me to understand the lesson material more clearly.	6.03	1.27
4. The videos embedded in the online lesson helped me to recall key information.	6.09	1.23
5. The videos embedded in the online lesson will help me to recall the key information after I have graduated.	5.94	1.12
6. If the program adopted digital storytelling as an instructional strategy, it could help to sustain the interest and motivation of the learner.	6.03	1.10
7. The content presented through videos in the online lesson added value to my learning.	6.00	1.20
8. The videos embedded in the online lesson enhanced my learning and assisted me in recalling detailed points in the lesson.	6.09	1.23

Listed below and grouped by categories are the results from open-ended questions 9 and 10, which solicited feedback on participants' perceptions and experiences with digital storytelling.

Summation of Student Responses

Question 9: What did you like about the use of videos integrated into the online lesson?

Reinforcement of the information: Participants reported that the digital stories helped them retain the information and provided easier recall of the information being taught. They also reported that it was an excellent way of obtaining the information.

Improved student attention: Participants also stated that it was useful in hearing officers speak about topics that they were interested in. This similarity in their chosen profession helped in keeping their attention.

Provided enjoyment to students when learning: Participants reported that the preferred viewing was the videos instead of reading. A strong pattern emerged from the received responses that the participants preferred viewing the videos instead of reading.

Provided another aspect of learning: A group of participants reported that digital stories gave them other angles in the approach of learning. They also believed that it was an attractive option to other types of learners.

Question 10: What did you not like about the use of videos integrated into the online lesson?

Student issues with the individuals telling the "stories": A pattern emerged when it pertained to the type of officers that were recorded telling their digital stories. It appears that students were also influenced by the "way and delivery" of the person giving the story in a digital manner. Students stated they preferred digital storytelling, but preferred another manner than that of a monotone type of voice.

Technology Issues: A negative pattern was noted from these participants' responses pertaining to the technology available in the area. When all students were viewing the digital stories via the Internet, technology issues were also discovered and were mentioned by students

in this question.

Positive feedback**:** Even though this question asked what the participants did not like about the use of videos some still reported positive experiences.

Categorized Student Reponses

Question 9: What did you like about the use of videos integrated into the online lesson?

Reinforcement of the information:

Hearing and reading the subject matter helped me better obtain the information

Good videos help you retain the information

The visual with audio information helped me retain information. Hearing from different officers from different assignments also kept me interest in learning.

I am an auditory learner so it helped me retain information easier

Helped recall key information

Improved student attention:

It kept my attention to the subject longer

It was very useful to hear other officers talk about the body worn cameras

Summed up the info quick

Help relate to my job in the future

It made it more interesting

Provided enjoyment to students when learning:

Was much better than reading and they were short

Enjoyed someone talking rather than just reading content information

Better than reading long paragraphs

Provided another aspect of learning:

Added a "multiple angle" approach to learning the information

It gave a visual and voice to the material learned

It felt easier to follow the flow of information; I am a verbal learner so I often read aloud to myself. It helps immensely to hear the topic

Question 10: What did you not like about the use of videos integrated into the online lesson?

Student issues with the individuals telling the "stories"

How monotone everyone was

Some had monotone voices

Too "Robotic"

It was just repeating what the text already said

Lack of emotion/monotone

Technology issues:

The sound was low

They are more restricted in when they can be accessed since there was no place the sound was acceptable

Wasn't always clear

Positive Feedback:

Nothing, they helped

Everything was useful

Summary

A total of 64 cadets from the police academy participated in this study. The purpose of this study was to answer two specific research questions: Does digital storytelling improve academic performance in the cadet police training? Does the use of digital storytelling increase the police cadet's interest and motivation in the topic being taught at the law enforcement academy? This chapter presented the results from the analysis and survey used to answer these questions. The next chapter will present the conclusions, interpretations, and implications suggested by these results.

CHAPTER V

CONCLUSIONS, INTERPRETATIONS, AND IMPLICATIONS

Introduction

The purpose of this research study was to: (1) determine the effects of digital storytelling on the academic performance of police cadets in a law enforcement academy; and (2) determine police cadet's perceptions of digital storytelling as an instructional strategy for promoting long-term knowledge transfer into the field. The previous chapter presented the results obtained from the statistical analysis when the research hypotheses were tested. The following chapter presents the conclusions and interpretations of both research questions followed by implications and recommendations for further research.

Conclusions and Interpretations for Hypothesis One

Research Hypothesis One asked: Does digital storytelling improve academic performance in the cadet police training? Other studies revealed similar results. For example, McLellan (2006), Czarnecki (2009), and Malita and Martin (2010), showed that digital storytelling, as an instructional technique, has demonstrated favorable outcomes from its implementation in the educational discipline when used to address students' academic performance. In a later research study, Robin and McNeil (2012) also found that a group of students had favorable outcomes, concluding that the introduction of digital storytelling in the classroom did have a substantial positive effect on academic performance.

Although this improvement was noted for traditional educational groupings, (i.e., elementary, secondary, and collegiate levels), what would be the outcomes or progress when digital storytelling was utilized in a more occupational field such as law enforcement education? From the onset, this departure from conventional research appears to step into an "undiscovered territory" as very little scholarly work has been done in this sub-field of education. From the survey data collected in this study, it can be observed that cadets in the police academies, exposed to digital storytelling did have statistically significant positive influence on their overall academic performance versus those cadets without digital storytelling instruction. Table 2 in Chapter 4 indicated that the adjusted mean obtained for the experimental group (pretest) 17.38 and (posttest) 27.13 was statistically higher than the adjusted mean of the control group (pretest) 16.38 and (posttest) 25.38. Therefore, the results of this study indicate that for the cadet participants, storytelling can improve overall academic performance.

The results of this study indicated that participants who received the experimental lesson that included digital storytelling practices had a statistically significant higher score on their posttest as compared to those who were part of the control group. There was a statistically significant difference in the means found for groups on the posttest, while controlling for the pretest $F(73.3, 387.4) = 11.55$, $p = 0.001$. The outcomes of the ANCOVA showed that the results of this research did indicate a statistically significant conclusion: Academic performance improved when digital storytelling media is used.

Dogan (2007) and Rudnicki (2009) conducted a comparable dissertation study pertaining to digital storytelling, and the results correlated with the results of this study. These findings showed that digital storytelling also had a positive effect on the performance of students when it was used in instruction. Rudnicki (2009) concluded, in general, most students had a positive

experience participating in digital storytelling leading to an improvement in academic progress.

A majority of law enforcement students are adult learners, and digital storytelling may be preferred over other modalities of instruction for adult learners (Grange & Miller, 2018). Robin (2008) also noted that digital storytelling is easily able to capture the attention of average people in a short period of time.

When the ANCOVA was conducted for this study, it showed a statistically significant conclusion. In addition, other researchers such as Sy-ying Lee (2012) and Glonek and King (2014) have also concluded that the use of digital technology greatly improved storytelling and helped students achieve higher scores in their classes. Due to the statistically significant difference in the means found for the groups on the posttest while controlling for the pretest, it is safe to conclude that digital storytelling does improve academic performance among police cadets.

Furthermore, a simple review of the correct answers on the pretest versus the posttest showed an increase in the raw scores after the experimental group was given the digital storytelling lesson. The students were then asked to provide feedback on a Likert scale and to answer several open-ended questions. Based on the statistical data, this research provided invaluable verification that digital storytelling does improve academic performance. The first research hypothesis has been accepted, and this study resulted in a statistically significant positive relationship between digital storytelling and its effect on the performance of police cadets in a law enforcement academy.

Conclusions and Interpretations for Hypotheses Two

Research Hypothesis Two addressed: Does the use of digital storytelling in classroom instruction increase the police cadets' interest and motivation in the topic being taught at the law enforcement academy? Qualitative data was obtained from 10 survey questions administered at the same time as the quantitative data collected in Research Question One; a total of 32 out of 64

students (*N*=32) completed the survey. Table 5 in Chapter 4 showed that students, when asked if digital storytelling positively affected their interest and motivation, the majority responded in areas within 4-7, where 4 represented No Opinion, and 7 indicated Strongly Agree on a Likert scale. In Table 6 in Chapter 4, all of the 8 questions means were over 6.00 on a 7-point scale, and all standard deviations were over 1.00; only Question 5 had a mean score of 5.94.

The most valuable informative responses to the survey were Questions 9 and 10; these open-ended questions provided a strong relationship with the student's feelings pertaining to interest and motivation. Question 9 concentrated on students' feelings to positive experiences with digital storytelling, while Question 10 discussed what the students did not like about their experiences. When participants responded to Question 9, they reported that the digital information helped them to better understand the instructional material, or to reinforce the written information; some respondents stated that the use of digital media helped them recall critical information or kept their attention.

However, when answering Question 10, the respondents primarily focused on their assessment on the instrument quality or the instructors' performances. Some reported that the sound volume was too low, or the sound quality was not always clear; others objected to some of the main characters, mainly sworn on-the-job police officers who were depicted in the videos as sounding too robotic, or lacked emotions, or were monotone. Generally, however, the survey results favored the use of digital storytelling as an effective instructional tool with the participants reporting that it did greatly increase their interest and motivation in the particular topic being presented. A limited number of pertinent research has been found in the field of law enforcement, and this study should influence further detailed study in digital storytelling. All students who were given the opportunity to participate in the survey did so. In a seminal study

of digital storytelling, student interest, and motivation, Hewson et al. (2015) found that, at the completion of all the surveys specific to the study, the survey results all showed positive responses.

In this study, the majority of the responses were favorable although a few answers were negative due primarily to the constraints of the technology in use. Therefore, it can be concluded that this study is no different than its predecessors such that student's interest and motivation are strongly affected when digital storytelling is used within the classroom environment. The results of this survey can also be linked with a similar conclusion from other researchers (Brady, 1990; Butcher, 2006) that adult learners who are mainly in law enforcement could benefit from the infusion of digital storytelling and may even become imperative in the public service arena.

When analyzing and evaluating the survey findings of students' interest and motivation on the use of digital storytelling, one significant facet is evident: although students may inherently favor digital storytelling usage, technology may influence, either positively or negatively, students' experiences with electronic media. This conclusion would suggest that effective computer usage in the classroom should include considerations such as the technical infrastructure, i.e., the bandwidth and attributes of the network communications link that significantly impact sound quality, or specific audio-visual measures such as films/tapes selected for actual instructional presentation.

In particular, law enforcement agencies that elect to implement digital storytelling within their pre-service instructional programs must already have a robust reliable technological foundation. For this study, the regional police academy did have both a dependable and an effective system; however, at times, the network communication system used caused some electronic issues thereby reducing positive student interest and motivation. It should be noted

that students reported issues with the individuals telling the "stories"; some stated that the instructors were "monotone," had "robotic" feedback, and lacked any emotion or feelings. The researcher believes that this correlation could be a result of not having any personal or individual contact with the storytellers. In most digital storytelling scenarios, the comparison of how the students see themselves, and how they place themselves in the story, is imperative.

Both Hewson et al. (2015) and Alismail (2015) recognized the correlation between students and digital storytelling; their final research conclusions were that digital storytelling not only impacted perceptions of students, but also increased their feelings pertaining to the material presented. Regarding interest and motivation, these educators understand that learning can take place in almost any manner, but some learning approaches are more effective than others. When learners of varied age, ethnicity, and economic status are involved, determining effective learning strategies can become challenging. In this study, this researcher felt that strong interpretations could be replicated from the above results.

Therefore, within the parameters of this study, it can be concluded that digital storytelling, regardless of its technological shortfalls, can still positively impact student interest and motivation. In the field of law enforcement education, students have long struggled to learn the complexity of criminal and civil laws, codes of criminal procedure, and tactics such that their cognitive levels and interest in the materials have been challenged to the point that learning no longer takes place. It is past time for a more effective solution, and the researcher feels that the implications are great in this sub-field of study. These implications will impact not only all previous studies in the field of digital storytelling; it can also become the catalyst to the creation of a stronger law enforcement educational strategy at a time when society demands judicious action from our sworn police officers.

Implications

The findings of this research study have demonstrated to a certain extent that digital storytelling can positively influence law enforcement education. While responses to both research hypotheses produced favorable results, more rigorous and comprehensive research is still essential. Although using digital storytelling should not be the exclusive instructional technique, other instructional techniques, both conventional and innovative practices, should also be tested and used. The findings of this research correlated with earlier studies conducted in the field of digital storytelling and education. Because police academy instruction is considered a non-academic environment, other studies such as those from the United States Air Force (1993), Robin (2008), and Keller (2012) were also considered and compared in relation to this study; the findings were all consistent and provided a suitable base to conclude that digital storytelling has an enormous implication on how education should be conducted in the future.

The study does help to advance the understanding of this new issue related to the infusion of digital storytelling in learning, and can be used as a springboard for further progress and study in this field as well as in other closely educational disciplines. This research contributes a significant body of knowledge that digital storytelling can impact law enforcement, which has been struggling for years to develop new techniques in educating new officers. The time for change has long past, and this study's findings has the potential to influence future law enforcement education supported with critical research and findings. The threats and challenges that law enforcement face today must be addressed by state-of-the-art teaching strategies and methodologies; the community-at-large cannot wait for the gradual development of improved education for first responders.

Recommendations for Further Research

The researcher recommends further study in this specialized field since the findings suggest that future research can only assist in increasing effectiveness in the classroom. Other

variables that could be addressed are how the use of digital storytelling impacts criminal justice professionals.

1. This study was a cross-sectional study focusing only on a brief time period to gather its variables; further studies could measure police officers from the academy experience through 5, 10, or 15 years of service, to retirement, and could also address how digital storytelling impact police officers' long-term knowledge retention.
2. In this study, it was determined that technological hardware/software seemed to be detriments to students' interest in digital storytelling; a further study could address all the electronic shortcomings that may occur in the classroom setting. A similar research study could include a pretest/posttest in a controlled environment with strong, reliable, and sustainable technology.

As previously stated, little systematic academic research exists in the field of law enforcement education. This vital facet of public service relies heavily on constant innovative and knowledgeable training efforts – particularly since much of current police academy practices and preparation are still conducted as it has been since the early 1900's. To be functionally effective in today's changing societal pressures and environments, all law enforcement agencies need to consider and adopt technological advances, such as the integration of digital storytelling or other electronic media, into its educational programs.

As other professions discover and utilize digital storytelling within their own instructional or training programs, the benefits, advantages, and successes become more evident and widespread within and outside the formal academic settings. With the increased usage of technology in today's educational, professional, and business worlds, digital storytelling has become an invaluable tool in teaching students at all levels from elementary, secondary, and

collegiate; additionally, digital storytelling has been found to be an effective and essential training resource for instructing adult learners in formal academic environments and for training professionals within the corporate world.

Although the field of digital storytelling itself has been heavily examined and studied in various instructional disciplines, law enforcement education specifically is an area of study rarely contemplated or visited by researchers. Suitable subjects for future review could address the following questions: How does digital storytelling, or the use of other electronic media, in law enforcement education affect and impact overall student retention and success at the police academy; are there other societal or technological variables that may influence successful academic achievement at the police academy; or, what weight do students' previous life backgrounds and knowledge, geographic environments, family upbringing, or social experiences have on successful achievement and program completion at the police academy? Additional informative research is, therefore, needed to answer these and other related queries; importantly, other pertinent variables must also be considered within all facets of law enforcement education, particularly as they relate to the growing needs of public service to the community.

Summary

In addition to the specific conclusions and interpretations previously discussed, there were two important research hypotheses that were addressed by the research data: (1) Does it have an effect on academic performance, and (2) Does it increase interest and motivation of police cadets in a law enforcement academy? One strong and relevant outcome of this study was to provide additional support to the small field of study pertaining to digital storytelling. Although digital storytelling has greatly been discussed in education, it has little interest or development in the non-traditional educational fields. This researcher sought to explore this

subject with consistency and attentiveness required for academic rigor. Not only were both research questions answered favorably, but the findings reflected the findings of many other scholarly studies, dissertations, and fields of study. It is not surprising to discover why corporations, companies, and public sector organizations have started to incorporate digital storytelling into their training programs.

The findings from this study could impact how law enforcement education is administered and provide students with another existing and successful instructional strategy; this trend could influence and change current practices in law enforcement education by addressing student interest through the use of digital storytelling. Such a development could help to reduce use-of-force complaints from the politicians and the public, increase police officer knowledge retention, and make law enforcement education more interesting and effective. Not only will this enhancement have the potential to improve education and law enforcement, it can have long lasting effects on the safety of our society as a whole.

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APPENDIX A

APPENDIX A

TEXAS ADMINISTRATIVE RULE 217.1

MINIMUM STANDARDS FOR ENROLLEMENT AND INITIAL LICENSURE

The Texas Commission on Law Enforcement (TCOLE) requires that all police cadets in the police academy meet or exceed *Texas Administrative Rule 217.1 Minimum Standards for Enrollment and Initial Licensure* before enrollment in a Texas police academy and before initial licensure is obtained. As stated in Chapter 3 the requirements of these standards rule and govern the police academy and therefore this study will have to navigate through them.

§217.1 Minimum Standards for Initial Licensure.

(a) The commission shall issue a license to an applicant who meets the following standards:

(1) age requirement:

(A) for police officers and public security officers, is 21 years of age; for 18 years of age if the applicant has received

(i) an associate's degree; or 60 semester hours of credit from an accredited college or university; or

(ii) has received an honorable discharge from the armed forces of the United States after at least two years of active service;

(B) for jailers is 18 years of age;

(2) minimum educational requirements:

(A) has passed a general educational development (GED) test indicating high school graduation level; or

(B) holds a high school diploma;

(3) is fingerprinted and is subjected to a search of local, state and U.S. national records and fingerprint files to disclose any criminal record;

(4) community supervision history:

(A) has not ever been on court-ordered community supervision or probation for any criminal offense above the grade of Class B misdemeanor or a Class B misdemeanor within the last ten years from the date of the court order; but

(B) the commission may approve the application of a person who received probation or court-ordered community supervision for a Class B misdemeanor at least five (5) years prior to application if an agency administrator sufficiently demonstrates in writing with supporting documentation that mitigating circumstances exist with the case and with the individual applying for licensure, and that the public interest would be served by reducing the waiting period;

(5) is not currently charged with any criminal offense for which conviction would be a bar to licensure;

(6) conviction history:

(A) has not ever been convicted of an offense above the grade of a Class B misdemeanor or a Class B misdemeanor within the last ten years; but

(B) the commission may approve the application of a person who was convicted for a Class B misdemeanor at least five (5) years prior to application if an agency administrator sufficiently demonstrates in writing with supporting documentation that mitigating circumstances exist with the case and with the individual applying for licensure, and that the public interest would be served by reducing the waiting period;

(7) has never been convicted of any family violence offense;

(8) is not prohibited by state or federal law from operating a motor vehicle;

(9) is not prohibited by state or federal law from possessing firearms or ammunition;

(10) has been subjected to a background investigation and has been interviewed prior to appointment by representatives of the appointing authority;

(11) examined by a physician, selected by the appointing or employing agency, who is licensed by the Texas Medical Board. The physician must be familiar with the duties appropriate to the type of license sought and appointment to be made. The appointee must be declared by that professional, on a form prescribed by the commission, within 180 days before the date of appointment by the agency to be:

(A) physically sound and free from any defect which may adversely affect the performance of duty appropriate to the type of license sought;

(B) show no trace of drug dependency or illegal drug use after a blood test or other medical test; and

(C) for the purpose of meeting the requirements for initial licensure, an individual's satisfactory medical exam that is conducted as a requirement of a basic licensing course may remain valid for 180 days from the individual's date of graduation from that academy, if accepted by the appointing agency;

(12) examined by a psychologist, selected by the appointing, employing agency, or the academy, who is licensed by the Texas State Board of Examiners of Psychologists. This examination may also be conducted by a psychiatrist licensed by the Texas Medical Board. The psychologist or psychiatrist must be familiar with the duties appropriate to the type of license sought. The individual must be declared by that professional, on a form prescribed by the commission, to be in satisfactory psychological and emotional health to serve as the type of officer for which the license is sought. The examination must be conducted pursuant to professionally recognized standards and methods. The examination process must consist of a review of a job description for the position sought; review of any personal history statements; review of any background documents; at least two instruments, one which measures personality traits and one which measures psychopathology; and a face to face interview conducted after the instruments have been scored. The appointee must be declared by that professional, on a form prescribed by the commission, within 180 days before the date of the appointment by the agency;

(A) the commission may allow for exceptional circumstances where a licensed physician performs the evaluation of psychological and emotional health. This requires the appointing agency to request in writing and receive approval from the commission, prior to the evaluation being completed; or

(B) the examination may be conducted by qualified persons identified by Texas Occupations Code §501.004. This requires the appointing agency to request in writing and receive approval from the commission, prior to the evaluation being completed; and

(C) for the purpose of meeting the requirements for initial licensure, an individual's satisfactory psychological exam that is conducted as a requirement of a basic licensing course may remain valid for 180 days from the individual's date of graduation from that academy, if accepted by the appointing agency;

(13) has not had a dishonorable or bad conduct discharge;

(14) has not had a commission license denied by final order or revoked;

(15) is not currently on suspension, or does not have a surrender of license currently in effect;

(16) meets the minimum training standards and passes the commission licensing examination for each license sought;

(17) has not violated any commission rule or provision of the Texas Occupations Code Chapter 1701; and

(18) is a U.S. citizen.

(b) For the purposes of this section, the commission will construe any court-ordered community supervision, probation or conviction for a criminal offense to be its closest equivalent under the Texas Penal Code classification of offenses if the offense arose from:

(1) another penal provision of Texas law; or

(2) a penal provision of any other state, federal, military or foreign jurisdiction.

(c) A classification of an offense as a felony at the time of conviction will never be changed because Texas law has changed or because the offense would not be a felony under current Texas laws.

(d) In evaluating whether mitigating circumstances exist, the commission will consider the following factors:

(1) the applicant's history of compliance with the terms of community supervision;

(2) the applicant's continuing rehabilitative efforts not required by the terms of community supervision;

(3) the applicant's employment record;

(4) whether the disposition offense contains an element of actual or threatened bodily injury or coercion against another person under the Texas Penal Code or the law of the jurisdiction where the offense occurred;

(5) the required mental state of the disposition offense;

(6) whether the conduct resulting in the arrest resulted in the loss of or damage to property or bodily injury;

(7) the type and amount of restitution made by the applicant;

(8) the applicant's prior community service;

(9) the applicant's present value to the community;

(10) the applicant's post-arrest accomplishments;

(11) the applicant's age at the time of arrest; and

(12) the applicant's prior military history.

(e) A person must meet the training and examination requirements:

(1) training for the peace officer license consists of:

(A) the current basic peace officer course(s);

(B) a commission recognized, POST developed, basic law enforcement training course, to include:

(i) out of state licensure or certification; and

(ii) submission of the current eligibility application and fee; or

(C) a commission approved academic alternative program, taken through a licensed academic alternative provider and at least an associate's degree.

(2) training for the jailer license consists of the current basic county corrections course(s) or training recognized under Texas Occupations Code §1701.310;

(3) training for the public security officer license consists of the current basic peace officer course(s); and

(4) passing any examination required for the license sought while the exam approval remains valid.

(f) The commission shall issue a license to any person who is otherwise qualified for that license, even if that person is not subject to the licensing law or rules by virtue of election or appointment to office under the Texas Constitution.

(g) A sheriff who first took office on or after January 1, 1994, must meet the licensing requirements of Texas Occupations Code §1701.302.

(h) A constable taking office after August 30, 1999, must meet the licensing requirements of Texas Local Government Code §86.0021.

(i) The commission may issue a provisional license, consistent with Texas Occupations Code §1701.311, to an agency for a person to be appointed by that agency. An agency must submit all required applications currently prescribed by the commission and all required fees before the individual is appointed. Upon the approval of the application, the commission will issue a provisional license. A provisional license is issued in the name of the applicant; however, it is issued to and shall remain in the possession of the agency. Such a license may neither be transferred by the applicant to another agency, nor transferred by the agency to another applicant. A provisional license may not be reissued and expires:

(1) 12 months from the original appointment date;

(2) on leaving the appointing agency; or

(3) on failure to comply with the terms stipulated in the provisional license approval.

(j) The commission may issue a temporary jailer license, consistent with Texas Occupations Code §1701.310. An agency must submit all required applications currently prescribed by the commission and all required fees before the individual is appointed. Upon the approval of the application, the commission will issue a temporary jailer license. A temporary jailer license expires:

(1) 12 months from the original appointment date; or

(2) on completion of training and passing of the jailer licensing examination.

(k) A person who fails to comply with the standards set forth in this section shall not accept the issuance of a license and shall not accept any appointment. If an application for licensure is found to be false or untrue, it is subject to cancellation or recall.

(l) The effective date of this section is January 17, 2013.

APPENDIX B

APPENDIX B

CURRICULUM AND TOPICS COVERED IN THE

643 HOUR POLICE ACADEMY

643-HOUR BASIC PEACE OFFICER COURSE

(Revised January 2013)

In accordance with Commission regulations, the Basic Peace Officer Course shall consist of a minimum of 643 classroom hours and shall include, but not be limited to, the subjects set forth below. This is the recommended sequence for teaching the course. Academies may change the sequence, if necessary.

No.	SUBJECT	HOURS
	Introduction and Orientation	2
1	Fitness and Wellness, and Stress Management	16
2	Professional Policing	8
3	Professionalism and Ethics	8
4	U.S. & Texas Constitutions, Bill of Rights, and Criminal Justice System	8
5	Multiculturalism and Human Relations	10
6	Code of Criminal Procedures	20
7	Arrest, Search, and Seizure	28
8	Penal Code	44
9	Traffic	68
10	Intoxicated Driver and SFST	24
11	Civil Process	8
12	Alcoholic Beverage Code	4
13	Health and Safety Code – Controlled Substance Act	12

14	Family Code – Juvenile Issues	10
15	Written Communications	16
16	Spanish	16
17	Force Options	24
18	Mechanics of Arrest	40
19	Firearms	48
20	Emergency Medical Assistance	16
21	Emergency Communications	12
22	Professional Police Driving	32
23	Communication and Problem Solving	16
24	Patrol/Consular Notification	42
25	Victims of Crime	10
26	Family Violence and Related Assaultive Offenses	20
27	Crisis Intervention Training (CIT) and Mental Health Code	16
28	Hazardous Materials Awareness	6
29	Criminal Investigation Including: Introduction, General, Protection of Crime Science Search, Interviewing Techniques, Booking Procedures, Courtroom Demeanor and Testimony, Case Management	44
30	Racial Profiling	4
31	Asset Forfeiture	4
32	Identity Crimes	4
33	TCLEOSE Rules Overview	3
	TOTAL HOURS	643

APPENDIX C

APPENDIX C

DIGITAL STORYTELLING: RESPONDENT INTEREST

AND MOTIVATION SURVEY (RIMS)

QUALITATIVE 8-ITEM LIKERT SCALE QUESTIONAIRE

These questions will address the qualitative portion of this study.

Do digital stories increase learner's interest and motivation in the topics being taught?							
Question	Strongly Disagree	Somewhat Disagree	Disagree	No Opinion	Somewhat Agree	Agree	Strongly Agree
The videos embedded in the online lesson were interesting and kept my attention.							
The videos embedded in the online lesson provided me with an enhanced personal experience, which was more enjoyable than reading text alone.							
The videos incorporated into the online lessons enabled me to understand the lesson material more clearly.							

The videos embedded in the online lesson will help me to recall the key information after I have graduated.							
If the program adopted digital storytelling as an instructional strategy, it could help to sustain the interest and motivation of the learners.							
The content presented through videos in the online lesson added value to my learning experience.							
The videos embedded in the online lesson enhanced my learning and assisted me in recalling detailed points of the lesson.							

Open-ended questions

1. What did you like about the use of videos integrated into the online lesson?

2. What did you not like about the use of videos integrated into the online lesson?

APPENDIX D

APPENDIX D

TEXAS ADMINISTRATIVE RULE 215.9

As stated in the Texas Administrative Rule 215.9, a training provider (i.e., police academy instructor) must distribute learning objectives to all students at the beginning of each course to ensure and validate that all learning objectives are being taught and assessed. Pursuant to Texas Administrative Rule 215.9, this study must take place outside of normal student contact hours.

§215.9. Training Coordinator.

(a) A training coordinator must hold a valid instructor license or certificate and must be a full-time paid employee.

(b) The training coordinator must:

(1) ensure compliance with commission rules and guidelines:

(2) prepare, maintain, and submit the following reports within the time frame specified:

(A) reports of training:

(i) basic licensing course shall be submitted prior to students attempting a licensing exam; and

(ii) within 30 days of completion of continuing education course;

(B) self-assessment reports as required by the commission;

(C) a copy of advisory board minutes during an on-site evaluation;

(D) training calendars-schedules must be available for review or posted on the internet no later than 30 days prior to the beginning of each calendar quarter or academic semester;

(E) any other reports or records as requested by the commission;

(3) be responsible for the administration and conduct of each course, including those conducted at ancillary sites, and specifically:

(A) appointing and supervising qualified instructors;

(B) maintaining course schedules and course files, including lesson plans;

(C) enforcing all admission, attendance, retention, and other standards set by the commission and the training provider;

(D) securing and maintaining all facilities necessary to meet the inspection standards of this section;

(F) distributing a current version of the Texas Occupations Code, Chapter 1701 and commission rules to all students at the time of admission to any course that may result in the issuance of a license;

(G) distributing learning objectives to all students at the beginning of each course;

(H) ensuring that all learning objectives are taught and evaluated;

(I) proctoring or supervising all examinations to ensure fair, honest results; and

(J) maintaining records of tests and other evaluation instruments for a period of five years.

(4) receive all commission notices on behalf of the training provider and forward each notice to the appointing authority; and

(5) attend or have a designee attend each academy coordinator's workshop conducted by the commission. No person may serve as a representative for more than one provider per conference. Each representative must be affiliated with the training provider.

(c) If the position of training coordinator becomes vacant, upon written request from the chief administrator of the training provider the commission may, at the discretion of the executive director, waive the requirements for a period not to exceed six months.

(d) Upon written request from the chief administrator of a training provider that does not have a full-time paid staff, the commission may, at the discretion of the executive director, waive the requirements in subsection (a) of this section. (e) The effective date of this section is October 17, 2013.

APPENDIX E

APPENDIX E

PRETEST AND POSTTEST QUESTIONS

Body Worn Cameras (no treatment)

Day one Assessment Pre-Test/Post-Test (randomized)

1. Which of the following is an example of a private place as it pertains to recording with a Body Worn Camera (BWC)?
   a. Library, Cafeteria, Office space
   b. Vehicle, sidewalk, meeting room
   c. Bathroom, bedroom, or living room
   d. Classroom, room accessed by card or key, jail cell

2. Your police department general orders can require officers to keep their Body Worn Camera (BWC) activated for the entire shift.
   a. True
   b. False

3. Which of the following are true? Can a citizen demand deactivation of the officers Body Worn Camera (BWC) for confidentiality purposes? (select all that apply).
   a. No, the officers must keep the camera activated at all times
   b. Yes, depending on the possibility of obtaining a complaint from the contact
   c. Yes, when a citizen requests it
   d. No, the officer must rely on his/her training, experience, and policy to determine activation/deactivation

4. What is the retention period for class C misdemeanors recorded on video recordings?
   a. 45 days
   b. 3 months
   c. Statute of limitations, 2 years
   d. 6 months

5. Driving While Intoxicated offenses recorded on Body Worn Camera (BWC) will be retained for what period?
   a. Statute of limitations, 2 years
   b. 10 years
   c. 6 months
   d. 1 year

6. A peace officer or other employee of a law enforcement agency commits an offense if the officer or employee releases a recording without permission of the applicable law enforcement agency. What is the offense level?
   a. Class A misdemeanor
   b. Class B misdemeanor
   c. Class C misdemeanor
   d. State Jail Felony

7. If a police department obtains a grant for Body Worn Cameras (BWC) and the officers Body Worn Camera (BWC) has broken he/she can use a personally owned BWC if permitted by the agency.
   a. True
   b. False

8. Which of the following is an incorrect use of a Body Worn Camera (BWC)?
   a. Presence of video evidence enhances the ability to obtain convictions and increase the number of guilty pleas
   b. Video evidence can capture verbal consent
   c. Allows supervisors to use the footage to keep track of officers
   d. Allows the juries to "see what the officer saw"

9. If Body Worn Camera (BWC) footage records the use of deadly force by a peace officer when can that footage be destroyed?
   a. When the department declares the appropriate time
   b. The District Attorney's office states that the footage is no longer necessary and can be destroyed
   c. When the statute of limitations have expired
   d. When all criminal matters have been finally adjudicated and all related administrative investigations have concluded

10. Which of the following is not required when submitting a written request in obtaining information recorded on Body Worn Camera (BWC)?
   a. Name of the officer
   b. Date and approximate time of the recording
   c. Specific location where the recording occurred
   d. Name of one or more of the person's known to be a subject of the recording.

11. _____ is a form of editing video or camera captured footage to eliminate or alter the collected/documented work.
   a. Editing
   b. Splicing
   c. Redaction
   d. Enhancement/evacuation

12. A/An_____is the request of large volumes of video captured technology.
    a. Excessive request
    b. Voluminous request
    c. Large request
    d. Extensive request

13. Section 552.301(d), Government code, a governmental body's response to a requester regarding a requested body worn camera recording is considered timely if made not later than _____ after the date of receipt of the written request.
    a. 15 business days
    b. 30 business days
    c. 21 business days
    d. 20 business days

14. The LUX rating of the body worn camera (BWC) is:
    a. The minimum amount of light that produces an acceptable image
    b. Lux abbreviation is Light Under Auxiliary
    c. The amount of megapixels the camera can take in to its lens
    d. The recording speed

15. If police department personnel have a question on how to release video to a person, the public, or media, they should consult with:
    a. The officers attorney
    b. The city attorney
    c. The district attorney's office
    d. The command staff of the police department

16. If no report is completed, and if a Body Worn Camera (BWC) is used, it can be documented on a citation.
    a. True
    b. False

17. An officer can deactivate the Body Worn Camera (BWC) should the citizen contact no longer hold investigative or evidentiary value.
    a. True
    b. False

18. Conversations with other agency peace officers that involve case tactics or strategies do not have to be recorded by the Body Worn Camera (BWC).
    a. True
    b. False

19. When redacting Body Worn Camera (BWC) footage which of the following is prohibited from being released to the public under state law?
    a. Juveniles Faces
    b. Assault victims faces
    c. Conversations with the victim that contain intimate details of her assault
    d. Conversations between clergy members and the victim

20. A Body Worn Camera (BWC) will allow a person to see what the officer sees during the recording of footage at a scene.
    a. True
    b. False

BIOGRAPHICAL SKETCH

Damon Ing was born in Dallas, Texas in 1977. After being raised by his parents Val and Patricia Ing, he completed his schoolwork at Duncanville High School in 1995. Damon started both his law enforcement and academic careers in 2002. In the spring of 2005, he received a Bachelor of Science in Criminology and Criminal Justice from the University of Texas, Arlington. During the following years, he also graduated from the University of Texas, Brownsville with a Master's Degree in Education (M.Ed.); in December 2018, Damon earned his Doctor of Education (Ed.D.) Degree from the University of Texas, Rio Grande Valley. During this time Damon has served in a variety of different law enforcement positions, such as Field Training Officer, Community Services Officer, TCOLE Police Instructor, Defensive Tactics Instructor, Public Information Officer, Evidence and Property Manager, and Detective.

He currently holds the rank of Police Sergeant in the patrol division. Damon is also a graduate of The Institute of Law Enforcement Administration (ILEA) School of Police Supervision and the Bill Blackwood Law Enforcement Management Institute of Texas, Leadership Command College (LCC) Class #79. He serves as a professor for the Tarrant County College Police Academy and in the Criminal Justice academic programs. He continues to serve in law enforcement and has dedicated his life to the quality education of others in the field of criminal justice and the police sciences.

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