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Digital Verses 35 mm for Crime Scene Photography

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ABSTRACT

In this new technologically advanced day and age, it is beneficial to consider whether or not 35mm photography is still up to par or contemplate the possibility that digital photography is the future for law enforcement. Digital photography is rather new in the courtroom and the question of tampering or manipulating photographs have come into play, bringing forth admissibility questions. The author used a survey form with five questions regarding the use of digital photography. This survey was distributed to thirty police officers. The author also contacted three county district attorney's officers. Printed literature and Internet articles were also utilized. The author also interviewed police photographers and photo shop employees. Interestingly, it was discovered by the author that courtroom admissibility regarding digital photo issues are not as problematic as initially proposed. The cost efficiency of digital photography is very small compared to traditional 35mm film. However, if a police agency takes several thousand photographs a year, digital photography is more cost efficient. Digital photography is advancing rapidly and many major camera companies are producing digital cameras that produce photographs that are very close to or as good as traditional 35mm film. The author finds that most police agencies are utilizing digital photography and finding success in the criminal courts. Digital photography will only improve over time and seems to be becoming the industry standard for police agencies nation wide.

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INTRODUCTION

Technology has progressed at a rapid rate and does not seem to be slowing down any time in the near future. For years, 35 mm photography has been the standard for law enforcement. With new technology and developments, digital cameras have improved greatly over the years and capture photographic images as well as traditional 35 mm photography equipment.

Currently, several camera manufacturers including: Cannon, Nikon, and Kodak have produced adjustable digital International Standards Organization (ISO) cameras. On every box of film is an ISO number (i.e. 100, 200, or 400). This number refers to how sensitive the film is to light. Digital manufacturers provide an ISO rating for their cameras. The ISO number reflects the sensitivity of the film that would be used if a traditional 35 mm camera were being utilized. The majority of consumer model digital cameras are rated at 100 ISO (Daniels). The basic digital camera needs a wide-open aperture or a slow shutter speed to capture low light images.

A few manufacturers produce adjustable ISOP digital cameras, which allow the capturing of low-light images. However, digital photography has not been widely accepted throughout the court system. The issue of altering photographs has been the key focal point. Today some law enforcement agencies elect to use some form of image security software such as “Original Decision” by Cannon, which is capable of detecting if one pixel has been altered from its original state. (McNamara, 2004).

The purpose of this research is to consider whether or not digital photography is the future means of recording a visual image for law enforcement. Indications at this time show a trend towards digital photography. The intended method of inquiry for this research will be

through: a survey of law enforcement agencies, contacting District Attorney Offices, researching magazine articles, and reviewing Internet sources, or other written literature.

Digital photography is cost effective due to the fact that recording mediums (i.e.: CD, memory sticks, and diskettes) are affordable and can be reused. Photographs are taken from the camera and uploaded to a secure server in a computer file. Photographs can be retrieved from the computer and printed out on a computer printer. This eliminates the need for outside photo development and simplifies the chain of custody.

Digital cameras are user friendly and each image captured can be viewed instantly to ensure each photograph is of viable quality. With all these advantages digital photography is not only the future for law enforcement, but also the future for the public consumer. The field of law enforcement and criminal courts can benefit from this new technology because of its high quality, cost effectiveness, and efficiency.

REVIEW OF LITERATURE

The name “Photography” is owed to Sir Herschel, who in 1839 first used the term, the year the photographic process, became available to the public. The word photograph comes from the Greek words for light and writing. (Leggat, 2003). Technology has progressed over the years and there have been many forms and processes for capturing an image and developing that image. Currently the most common form of still photography is 35 mm film, which is widely used by the public, professional photographers, and police agencies around the world. It seems some things do not stop one being time and the other being technology.

Digital photography is a fairly new trend, although the technology has been around for nearly two decades. Digital cameras have been on the market for quite some time. Apple introduced the first digital camera, the Quick Take 100 in 1994”as stated by. (Alsop 1997, Fried

2005). In order to grasp the concept of the new technology being developed in the field of digital photography it is important to understand how it works and how it differs from conventional film photography. (Fried, 2005). Conventional photography utilizes a chemically treated plastic film. When this film is exposed to light the chemical burns the image onto the film. The process of creating a digital image is a simple principle to understand. Light falling onto a grid of light detectors known as a charge coupled device, or CCD, produces a pattern of electrical charges that are measured, converted to numbers, and then stored. The process can be compared to a group of drinking glasses set into a grid to collect rainwater. Each glass will collect different amounts of rainwater depending on the pattern of rainfall. Then each of the glasses are taken to a metering device which measures the amount of water in each glass and converts that amount into a number. (Berg, 2000).

Now that the digital imaging process has been explained, one must consider how digital photography affects the law enforcement community. When examining whether or not digital imaging is better than 35 mm for crime scene photography, it is helpful to recognize that each method has its advantages. For example, 35 mm has better resolution with up to 20 million pixels, though in reality it varies in range anywhere form 8 to 15 million pixels. Subsequently, digital pixilation averages around 6 million, but 1.3 to 2 million is the normal range. (Templeton, 2002). This plays a major role when enlarging an image for court preparation because the lower number of pixels gets blocky out of focus when enlarged. However, the eye is not as critical when looking at a photograph in the normal context, as it is when it is enlarged. It can be argued that a digital photograph of around 9 million pixels would look as good as a 35 mm shot except when it is enlarged. (Templeton, 2005). According to Doug Daniels, “There are some low light

shots that can not be made with a fixed lens digital camera" (D. Daniels, personal communication, April 7, 2005).

He also states that in lowlight situations the pixels are enlarged when using a digital camera, which makes for poor resolution. However, Templeton notes that the Cannon D60 is capable to do some night exposures, and works decently at 400 ISO as well.

Another advantage to digital photography is the ability to instantly view your shots. This enables one to retake the picture if the quality is poor, unlike the 35 mm in which one must wait until the film is processed to see if the exposures come out. The advances in digital technology are getting close to 35 mm quality. Cannon has released its D60, which at 6 million 12-bit pixels could eliminate the use of 35 mm film for most application. The newer 1Ds may have many professional photographers planning on making the switch from 35 mm film to digital; the 1Ds have 11.5 million pixels. (Templeton, 2002).

Stepping into the digital age has brought up the question of admissibility of digital photographs in the courtroom. The most commonly argued issue is the alteration of digital photographs. Some officers believe that digital photographs are not admissible in the courtroom. Up until just a few years ago a lot of prosecutors did not want to touch the digital issue. More recently, there have been several case laws which have set the groundwork for digital admissibility.

The State of Washington Vs. Eric Hayden, 1995, cites a homicide case that was taken through a Kelly-Frye hearing in which the defense specifically objected on the grounds that the digital photographs were tampered with. The court authorized the use of digital imaging and the defendant was found guilty. In 1998, the Appellate Court upheld the case on an appeal allowing the use of digital photographs.

The State of California Vs. Phillip Lee Jackson, 1995, cites that the San Diego, California Police Department used digital image processing on a fingerprint in a homicide case. The defendant asked for a Kelly-Frye hearing, but the court denied the hearing stating it was unnecessary, suggesting that digital processing is now a readily accepted practice in forensics, confirming that no new information was added to the image. (Staggs, 1999).

Digital photography is admissible as evidence based on the testimony that the photograph submitted is an accurate representation of the scene and accurately portrays the scene as the witness viewed it. (Horak, 2005). The steps that law enforcement agencies should take to help ensure that the digital photographs submitted are admissible as evidence include the premise that: photographs should be recorded on a writable CD, the photographs should include information about its creation, the agency must strictly control custody of digital photo files and establish a secured location with limited access, all department personnel who prepare digital photographs for court presentation should be trained in digital image processing, photographs should be saved it their original formats, and departments should establish strict chain of custody standards for digital photography. (Kammen & Blitzen, 2005, Staggs, 2001).

There are also many other methods that can be utilized to help ensure the integrity of digital photographs. Some agencies are utilizing digital cameras with image protection technology such as the Cannon line. Cannon has developed a Data Verification Kit or DVK-E2. The DVK-E2 is capable of detecting if one pixel has been altered from its original form.

The last issue considered in this research with regard to digital photography is its departmental cost efficiency. On the surface, digital photography appears to be much more cost efficient since it can simply be downloaded and printed. However, black ink cartridges retail for $21.99 at Office Max, the color cartridges retail for $ 32.99 and photo paper is approximately $1

to $2 a sheet. Film processing at CVS pharmacy is $6.99 a roll, for 24 exposures up to $8.00 at a photo shop. The same 24 exposures of digital at CVS pharmacy are $6.96, a whole 4-cent savings. Additionally, if a police department already has a photo quality printer in place, the amount of photographs printed will determine the department's overall savings.

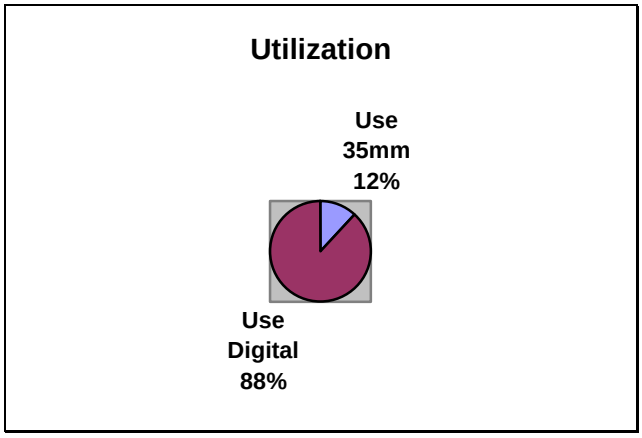
METHODOLGY

The purpose of this research is to consider whether or not digital photography is the future means of recording a visual image for law enforcement. Indications at this time show a trend towards digital photography. The author's purpose is to establish the value of, and need for the use of digital photography for crime scene photography.

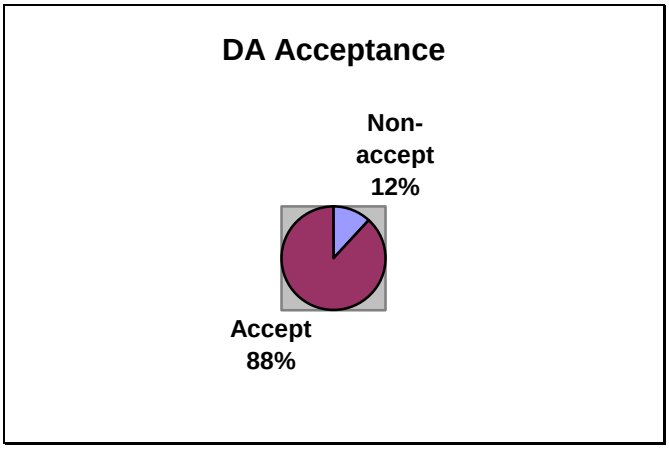
The author hypothesizes that this research will confirm that both officers and law enforcement agencies benefit when the use of digital photography is utilized when capturing a crime scene and or evidentiary images. Additionally, the author contends that this study will also assert that utilizing digital photography it is ultimately more time and cost efficient for law enforcement agencies. Having established these results through research, the author ultimately hopes that digital photography will become the industry standard for law enforcement agencies nation wide. Moreover, data has been collected from 30 Texas law enforcement officers through out the state. This has been accomplished through the administration of a survey utilizing categorical and close-ended, force response questions. Survey participation was requested of officers from agencies of varying size and geographic location within the state of Texas, and resulted in 100% response rate. Analysis of this data will produce statistics regarding the percentage of agencies currently employing the use of digital photography for evidentiary purposes.

FINDINGS

Based on the survey information the author found that eighty eight percent of the departments utilize digital cameras for crime scene photography.

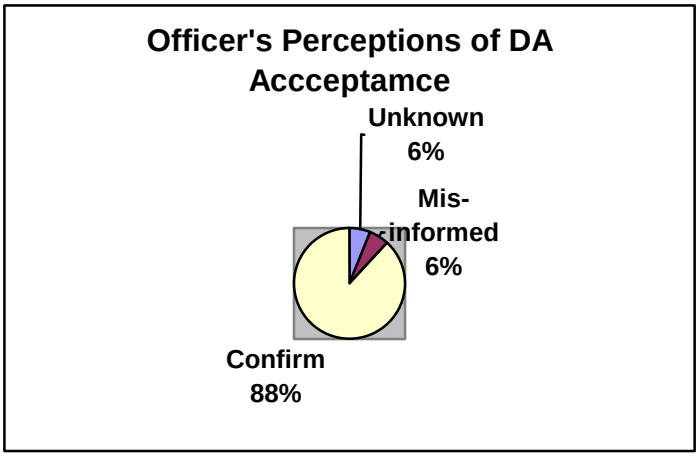


All of the 88 percent state that their county prosecutors accept digital photography as evidence.



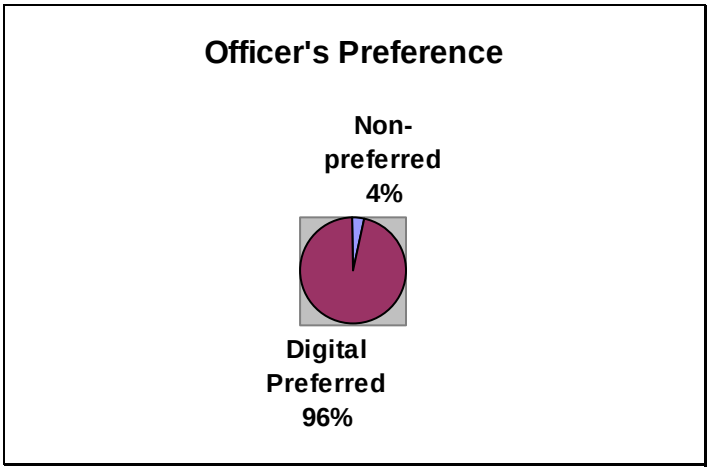
Only twelve percent of the departments surveyed exclusively utilize 35 mm for their crime scenes, of that twelve percent, fifty percent stated their county prosecutor does not accept digital photography as evidence. The author discovered that of the six percent that stated their prosecutor did to accept digital photography, were misinformed. The author's survey did not

request the county in which the police agency is located therefore it could not be determined if the remaining six percent could have also been misinformed.



The author's findings of the three county prosecutor offices are that one hundred percent accept digital photography as evidence.

The author found that 96 percent of the officers surveyed would prefer using digital rather than 35mm. The remaining four percent did not have a preference.



The author finds that the digital issue has not gone unchallenged. There have been several court cases that raised the issue that photographs or digital imaging of fingerprint had been tampered with. In these cases the defendants have been found guilty, some of these guilty finding have been upheld by the states appellate courts. The author finds that some of these

cases have been challenged, which has established the groundwork for the courtroom admissibility issue, the mass majority of criminal cases go unchallenged as far as digital evidence goes. Digital photography is rather new in the courtroom; at this time digital technology is moving forward everyday. In the future, there will be new arguments regarding digital imaging. However, at this time there is no way to determine what those arguments might be.

DISCUSSION/CONCLUSIONS

Is digital better than 35 mm for crime scene photography? Is digital photography admissible and widely accepted in the court system and is it cost effective to police departments? The author found that digital photography is close to becoming the industry standard and the future for law enforcement. Through the surveyed departments, the author discovered that the majority of departments today are utilizing digital photography for their crime scene work. The majority of the officers surveyed preferred the digital camera over the traditional 35 mm camera. The author further uncovered that, of the prosecutors surveyed, all accept digital photography as a standard form of evidentiary photography. The research determined that of the departments surveyed, the trend is moving toward digital photography. However, 35 mm is still the industry standard. The author discovered that some of the officers surveyed were just misinformed and were operating under the assumption that digital photography is not accepted when indeed it is.

Technology never stops or slows down. When purchasing any electronic equipment it is not long until the model purchased is out dated. So goes police work, police departments are slow to update from the equipment they already have unless that equipment is broken. Digital technology is improving everyday and is getting very close to 35 mm quality. The author finds that the court system has accepted digital photography and there is case law to support that. The

author further finds that law enforcement agencies should develop General Orders or Standard Operating Procedures that protect the integrity of its digital images. Departmental SOP will be one of the determining factors in the future on how digital photographs are accepted as admissible in the courtroom. If an agency cannot protect the integrity of its digital images or be able to document the procedures taken to protect those images, the admissibility will be challenged. The police community can benefit from the use of digital photography in several ways. First, the ability to immediately view the photograph taken is helpful. If it is not of good quality the officer will know and can retake the photograph until he finds it presentable. Crime scenes are usually a one time photographic opportunity. With 35 mm film a photographer does not always know if the photographic images captured are of good quality until they have been developed away from the crime scene. Secondly, the quality of digital photographs is getting close to that of 35 mm film which is now the industry standard. There are several new digital cameras on the market with very high pixel counts. These new camera are capable of capturing low light images as well as making enlargeable photographs without pixelation. This all benefits the criminal court with the ability to enlarge the photograph or produce power point presentations. Third you do not have to go outside the department to develop or print the photographs. Keeping the developing in-house shortens the chain of custody and saves the agency money depending on the amount of prints made. However, if the department is relatively small and the quantity of photographs is not in the thousands, it would be more cost efficient to out source the printing. The author believes that digital photography is the wave of the future for law enforcement and will become the industry standard, however it is not time to put the 35mm on the shelf.

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