

Video-Surveillance's Impact on Crime: Comparing public areas in Chicago and Washington D.C.

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Introduction

The increased use of technology in cities can be seen as a defining feature of urban life in the 21st century. The objective of this study is to examine whether new surveillance technologies are making cities safer to live in. In doing so, this study seeks to examine the relationship between new technologies, particularly improved camera surveillance and levels of crime in surveillance-enabled public spaces. Although some studies have examined U.S. cities (Nieto, 1997; Yesil, 2006; Welsh and Farrington, 2003; Welsh and Farrington, 2009), there is limited recent literature using a quantitative design that examines innovative surveillance technologies and how they impact the safeness of a U.S. city. This study hypothesizes that new surveillance technologies will have a positive effect on crime, thus making surveillance-enabled areas safer.

In addition to examining the effect new technologies have on the safety of a city, this paper also looks at some critical questions, such as: are some cities more willing to adopt new technologies and become so-called 'smart cities'; are the public and urban communities ready to accept new technologies, and lastly how are municipal governments embracing new technologies? This is a significant area of research in the field of urban studies because of the claim that new technologies; such as improved surveillance systems, prevent crime and improve public safety. It is important to examine not only if new technologies do make cities safer but also to look at how new technologies are changing the urban environment. The privacy implications as well as how policy is being legislated are issues to examine in order to come to a better understanding on how new technologies are altering the urban landscape.

Literature Review

Previous literature on new technologies and cities has been quite fragmented. Although there have been several European studies that have examined the use of surveillance technology in urban areas (Galdon-Clavell, 2013; Koskela, 2002; Koskela, 2000; Winkler and Rinner, 2011) there have been a limited number of studies focusing on North American cities. Additionally, previous research has tended to concentrate on either video-surveillance or smart cities. There has not been considerable research, employing a broader context on new technologies and offering an exclusive analysis on North American cities. In order to become familiar with new technologies and how they are used in cities, the following section of this paper will review previous literature on urban areas pertaining to video-surveillance and smart technologies.

While a considerable amount of research has been done on cities in the United Kingdom, (Galdon-Clavell, 2013; Koskela, 2003; Koskela, 2000; Martinez et al., 2013), Nieto's (1997) report is one of few study's incorporating North American cities. Literature on new technologies and the role it plays in urban areas has predominantly focused on public video-surveillance and the potential it has as a crime prevention tool. Examining the effectiveness of public video-surveillance in preventing crime was the key focus of Nieto's (1997) report. Through examining the multiple uses of video-surveillance and other visual technology to combat crime, Nieto's work offers a fairly comprehensive account of surveillance technologies. Advances in digital video technology have made surveillance less labor intensive and capable, thus helping law enforcement agencies solve crime (Nieto, 1997). As of 1997, there were at least thirteen American cities where law enforcement officials utilized closed circuit television (CCTV) video surveillance to prevent crime. This number has increased significantly since the release of this report. Although the results vary from city to city, generally the data suggest that crime went

down in areas where new CCTV video-surveillance systems were installed. Published by the California Research Bureau, Nieto's (1997) report is a great resource to look at, in order to get an idea of how and where surveillance systems are being employed. Moreover, the report also examines potential pairings with other technologies such as GIS and offers a direction for legislation regarding public video-surveillance. Nieto's work provides a great foundation for current research on video-surveillance technologies, but it is somewhat limited in the data it presented at the time of the report. The age of this report also affects its relevancy, as advancements and innovations have taken place, since the release of Nieto's (1997) report.

The attraction of using video-surveillance as a crime deterrent was discussed in Nieto's (1997) report, but his work does not go in great detail about how surveillance is altering the urban landscape. Conversely, Koskela (2000) studied how increasing video-surveillance is altering the nature of urban space and how those spaces relate to power structures. By postulating theoretical space-concepts, Koskela (2000) conceptualizes surveillance and space from three distinct views. Concerned with crime, power-relationships, and the emotions which surveillance creates, Koskela (2000) avoids utilizing a form of analysis that would produce only dystopian views of totalitarian power. Focusing on surveillance in publicly accessible urban spaces, this article seeks to see whether surveillance can make space more available. According to Koskela (2000), not only is surveillance changing the nature of space, it is also producing a new kind of space. One that can be understood in three ways; space as a container, power-space, and emotional space. Moreover this article presents a sound analysis of how video-surveillance is changing the nature of urban space, particularly publically accessible spaces. Some strengths of Koskela's (2000) study are, how it critically examines the roles video-surveillance plays in forming and changing urban space, and how it touches on the other aspects of video-surveillance,

such as the emotional, gender, privacy, and power implications. While not as dated as Nieto's (1997) study, Koskela's work has its limitations and drawbacks. One of particular importance is the lack of concrete data. Although the article does a great job of reviewing previous literature on public video-surveillance, it offers little in terms of quantitative evidence.

Yesil's (2006) study on the intensifying use of video-surveillance to prevent violent acts in public spaces, is one of few studies exclusively focusing on U.S. cities. By offering a historical account of public video-surveillance programs in U.S. cities and exploring different modes of control, Yesil's study sees discipline and deterrence as driving forces in supporting surveillance in urban space. Observing the importance of the September 11th terrorist attacks and the following legislative developments surrounding homeland security, this article makes the claim that video-surveillance is too attached to certain political and social goals, and thus should be investigated as a juncture of social control and power. Published in the field of cultural studies, Yesil's article is critical in assessing the importance of the September 11th terrorist attacks, and how it prompted several initiatives that led to an increase in public video-surveillance. Similar to the work of Koskela (2000), this article is effective in reviewing previous developments and literature, but does not present concrete primary data on the impact which video-surveillance has on crime.

Furthermore, Welsh and Farrington's (2009) updated systematic review of public area CCTV and crime prevention is one of the most relevant literatures included in this review. Based on their analysis of forty-four evaluations, Welsh and Farrington's findings suggest that CCTV surveillance cameras caused a significant decrease in crime when compared to control areas. Through using meta-analytic techniques the results of their study suggests that CCTV is most effective in reducing crime in car parks, particularly vehicle crimes. Examining both European

and U.S. cities, the results of their study indicate schemes evaluated in the United Kingdom were more effective in reducing crime than ones in the United States. The methodology used in this study is quite rigorous as it includes over forty evaluations that all adhere to certain criteria established by the authors. Additionally, CCTV was most effective as a crime prevention tool in the United Kingdom than in other countries. Conversely, the results of CCTV schemes in other public areas such as town centers and public housing did not see a significant effect on crime. Welsh and Farrington's (2009) research is certainly one of the most comprehensive studies examining the effectiveness of CCTV video-surveillance as a deterrent to crime. A strength of their study is the extensive nature of their methodology. By incorporating several evaluations domestically and internationally, all of which fit their selective criteria, Welsh and Farrington's (2009) study presents considerable data on the effects of CCTV on crime in public spaces.

While CCTV video-surveillance has been seen as an effective tool in crime prevention, other new technologies are also altering the urban landscape. Galdon-Clavell's (2013) study on smart solutions and the global drive to outsmart competing cities, draws on previous surveillance literature and suggests that the legal, social and ethical impacts of smart environments are being overlooked. Building on previous literature in the area of smart and surveillance-enabled technologies, Galdon-Clavell's (2013) article illustrates the risks and impacts of surveillance-enabled smart environments. By defining what a 'smart city' is, and discussing current developments in smart solutions, this article provides a launching point for public debate on the matter of surveillance and other smart technologies. While this article is rather speculative and does not offer any statistical analysis, it is relevant to the issue of other emerging new technologies and how they are conditioned to change the dynamics of urban life.

As Galdon-Clavell's (2013) article suggests, there is a lack of attention to the legal, social and ethical implications of smart and surveillance technologies. Winkler and Rinner's (2011) study on user-centric privacy awareness focuses on a concept that looks to create a balance between the needs of camera operators and those of civilians being monitored. Their study suggests using smartphones as a prototype to register and map new surveillance cameras. According to Winkler and Rinner (2011), public awareness and concerns about privacy can put increased pressure on camera operators to integrate privacy protection strategies in public surveillance systems. The concept of a user feedback mechanism in which citizens use their smartphones to gain insight on public surveillance camera systems, proves to be practical and feasible according to the results of their performance analysis based on a prototype implementation as stated by Winkler and Renner. This study is a significant area of research because it presents a concept for user-centric privacy awareness in video-surveillance. Due to the conceptual nature of their study, Winkler and Renner's (2011) work is somewhat limited in reality. Currently, there are not any real life examples of their user-centric concept, but in a future study they intend to investigate their concept further.

Additionally, Lyon (1994) builds off of George Orwell's 1984 novel and Foucault's work on the Panopticon by drawing on the theoretical literature pertaining to surveillance. Through evaluating electronic panopticism and examining issues of a modern surveillance society, Lyon's book published in 1994, is a significant piece of literature in the field of public video-surveillance. Although it is somewhat dated, this book is a great starting point for scholars looking to conduct research on surveillance environments.

La Vigne et al., (2011) report evaluated the use of public surveillance cameras for crime control and prevention in both Chicago and Washington D.C. First, discussing the origins of

Chicago's extensive camera surveillance system, this report goes on to examine the planning process, implementation, uses and impacts that public video-cameras has had in two Chicago neighborhoods, Humboldt Park and the West Garfield Park area. Running a statistical analysis the results of their study suggest that crime went down with the use of cameras in the Humboldt Park area, but fluctuations in crime in the West Garfield Park area could not be solely explained by cameras. A significant difference with this study, when compared to Welsh and Farrington's report, is how camera implementation in the case of the Humboldt Park area led to considerable decreases in various kinds of crime, whereas Welsh and Farrington's (2009) report only observed significant reductions in parked car crimes. Moreover, La Vigne et al. (2011) also looked at Washington, D.C. and the results of their study indicate that cameras were not the main reason for changes in crime. While certain kinds of crime went down, others such as larceny actually increased after cameras were implemented. This suggests that there are other factors at play that determine the crime levels in Washington, D.C.

Similar to La Vigne et al. (2011), Shah and Braithwaite's (2013) article analyzes the effectiveness of Chicago's camera network on crime. In evaluating two studies that examine Chicago's use of cameras to deter crime, Shah and Braithwaite found that the use of cameras were highly effective in reducing crime in high crime areas. Conversely, in other areas cameras had a minimal effect in crime reduction. In a similar fashion, Schwartz's (2012) report from the ACLU of Illinois examines Chicago's video-surveillance cameras, and highlights some of the privacy and regulation concerns associated with Chicago's extensive surveillance network. A main claim by Schwartz in this report is that "Chicago's camera network invades the freedom to be anonymous in public places, a key aspect of the fundamental American right to be left alone" (p. 3). Privacy invasions as well as misuse and abuse of camera systems are serious issues that

arise with the extensive use of public video-surveillance. Schwartz's (2012) ACLU report proposes that there should be a moratorium on the deployment of more cameras, a comprehensive review of Chicago's surveillance system and new safeguards to ensure privacy and rights of the public.

Discussion of Location

The unit of analysis for this study are surveillance-enabled public spaces in two U.S. cities Washington D.C. and Chicago, Illinois. These two cities were selected because they are both unique in their character and make for a sound comparison. Washington D.C., being the nation's capital as well as a city once known as the murder capital of America, has a considerable need for surveillance technology. Similarly, Chicago is a city subjected to high violent crime rates and has a need for surveillance. In the case of Chicago, the question of how much video-surveillance is needed arises. With over 20,000 cameras in operation, Chicago video-surveillance system can be considered the most integrated and extensive in the U.S. (Cox, 2013). Furthermore, it makes sense to look at crime rates over a period of time, before and after new surveillance systems were implemented in order to effectively assess the credibility of video-surveillance technology and its ability to prevent crime. The independent variable is the use of video-surveillance cameras, while the dependent variable would be the crime rate in surveillance-enabled public spaces. A key element in this research design will be selecting public areas of the city worth analyzing, particularly public areas that have been subjected to high crime rates in the past. This will enable the research to observe what effect video-surveillance technology has on crime rates.

In brief, this study is examining whether video-surveillance can be utilized as an effective means for reducing and preventing crime rates in public urban spaces. As a hypotheses, this

study believes video-surveillance technology will have a significantly positive effect on crime by lowering crime rates in surveillance-enabled space. By looking at two U.S. cities and employing a quantitative research design, this method will best uncover the statistical relationship between video surveillance technology and crime levels. A key element of this research design will be to objectively observe what generalizations can be taken away from the results of the study. In addition to examining the effect that new technologies have on the safety of a city, this study also will explore some critical questions such as: are some cities more willing to adopt new surveillance technologies, are the public and urban communities ready to accept new surveillance technologies, and lastly how are municipal governments embracing new surveillance technologies?

Some strengths of this approach are its ability to complement previous literature in this area of research that has incorporated other research designs, such as the qualitative survey approaches used in Nieto's (1997) report and Welsh and Farrington's (2003) systematic review approach. Descriptive statistics can offer considerable insight on this area of research as well as help make proven persuasive arguments. Also quantitative techniques are designed to have strong internal validity (Greener, 2011). Conversely, some limitations of this approach could be the sampling issues that come about during the data analysis of this study. Also with quantitative designs it is possible that the results may end up being very far from the results officials want to see and may be very challenging to explain or account for.

Conclusion

To sum up, as cities continue to grow, they will be presented with numerous challenges that threaten the quality of life of its citizens. For any given city, public safety is a key concern that can determine how attractive a city is to live in. With the emergence of public video-

surveillance in some of American's largest and most notable cities, other cities will soon follow suit and continue to change the nature of urban life. If more cities follow the steps Chicago has taken to prevent crime, the U.S. could soon be a realization of George Orwell's novel '1984', which views a society that has video-cameras on every corner. In examining the effect new technologies have on the safety of a city, this study hopes to reveal what impact video-surveillance has on crime. This study will look to answer some critical questions such as: are some cities more willing to adopt new technologies and become so-called 'smart cities'; are the public and urban communities ready to accept new technologies; and how are municipal governments embracing new technologies? This is a significant and new area of research in the field of urban studies. It is important to examine not only if surveillance technologies make cities safer, but also to look at how new technologies are changing the urban environment. Privacy implications as well as how policy is being legislated are key areas to investigate in order to come to a better understanding on how new video-surveillance technologies are altering the urban landscape.

References

- Cox, T. (2013, May 9). Number of Chicago Security Cameras 'Frightening,' ACLU says. Retrieved May 1, 2015, from <http://www.dnainfo.com/chicago/20130509/chicago/rahm-boosts-number-of-security-cameras-frightening-number-aclu>
- Galdon-Clavell, G. (2013). (Not so) smart cities?: The drivers, impact and risks of surveillance-enabled smart environments. *Science and Public Policy*, 40(6), 717-723.
- Ian Greener. (2011). *Designing social research: A guide for the bewildered*. Sage Publications.
- Koskela, H. (2000). 'The gaze without eyes': video-surveillance and the changing nature of urban space. *Progress in Human Geography*, 24(2), 243-265.
- Koskela, H. (2002). 'Cam Era'—the contemporary urban Panopticon. *Surveillance & Society*, 1(3), 292-313.
- La Vigne, N. G. (2011). Evaluating the use of public surveillance cameras for crime control and prevention.
- Lyon, D. (1994). *The Electronic Eye: The Rise of Surveillance Society-Computers and Social Control in Context*. John Wiley & Sons.
- Nieto, M. (1997). *Public video surveillance: is it an effective crime prevention tool?* (pp. 97-005). Sacramento, CA: California Research Bureau, California State Library.
- Shah, R., & Braithwaite, J. (2013). Spread too thin: Analyzing the effectiveness of the Chicago camera network on crime. *Police Practice and Research*, 14(5), 415-427.
- Schwartz, A. (2012). Chicago's Video Surveillance Cameras: A Pervasive and Poorly Regulated Threat to Our Privacy. *Nw. J. Tech. & Intell. Prop.*, 11, ix.
- Welsh, B. C., & Farrington, D. P. (2009). Public Area CCTV and Crime Prevention: An Updated Systematic Review and Meta-Analysis. *Justice Quarterly*, 26(4), 716-745.
- Winkler, T., & Rinner, B. (2011). User-centric privacy awareness in video surveillance. *Multimedia systems*, 18(2), 99-121.
- Yesil, B. (2006). Watching ourselves: Video surveillance, urban space and self-responsibilization. *Cultural Studies*, 20(4-5), 400-416.