

Status of Closed Circuit Television Camera Usage in Batangas City: Basis for Enhancement

**Dennes M. Manalo, Kim Alvin Mapoy,
Kim Joem K. Villano, Kenneth Angelo D. Reyes,
Merwina Lou A. Bautista**

College of Criminal Justice, Lyceum of the Philippines
University, Batangas City, Philippines

Abstract – *The study aimed to determine the problems encountered in using closed circuit television cameras in Batangas City, Philippines. More specifically, it sought to identify the percentage of CCTV camera usage in the same locality among commercial establishments, residential areas and streets; to assess the impact of CCTV usage, and to determine the problems encountered in its installation. The study utilized 52 police officers, 20 commercial establishment owners and 19 residents/homeowners as respondents and used descriptive research method. Results showed that the common impact of installation of CCTV is improving general security and safety around properties. It also showed that CCTV camera deters crime and reduces anxiety by creating an image of a safe environment to the residents. It can also be viewed through the results that the respondents agreed that the most common problem encountered in the installation of CCTV cameras was the absence of personnel to do the monitoring and at the same time, they agreed that there occur chances of strategic positioning of the CCTV cameras which affect mainly its performance.*

Keywords: *Closed circuit television camera Usage, Problems Encountered*

INTRODUCTION

Closed Circuit Television (CCTV) is a surveillance technology which are used to monitor and record images of what takes place in a specific location in real time (National Community Crime Prevention Program). More specifically, it is a “system in which a number of video cameras are connected in a

closed circuit or loop, with the images produced being sent to a central television monitor or recorded.” The term closed circuit television was originally used to differentiate between public television broadcasts and private camera-monitor networks. These days CCTV is used as a generic term for a variety of video surveillance technologies (Ratchliffe, 2012).

For over 20 years, businesses, individuals and commercial and residential associations have embraced video surveillance technology as a means to protect residential privacy and property against intrusion and other forms of crime (Marcus, 2010).

CCTV is an environmental crime prevention tool where possible effects include the function that may work to deter people from committing crime in the area. It might also signify to the public that an area with CCTV is a safe place and the increase use of the space means that crime is likely to happen as there are more potential witnesses. People also believe that the presence of CCTV may act as a prompt to remind people to take other security measures as locking their car (Welsh & Farrington, 2010; Gill & Spriggs, 2005).

Research suggests that the CCTV is most successful in reducing or solving crime when there is an active police interest in providing surveillance information to inform the setting up of CCTV, being involved in monitoring the CCTV and using the evidence it can provide (Welsh & Farrington, 2010).

The use of CCTV cameras in the Philippines have helped in capturing thieves, violators, employees, and even suspects for killings. However, not all video footages caught by CCTV are helpful to all in solving crimes. “If they only capture the tops of people’s heads they are less than useless,” one comment from Gloria Laycock, a criminologists and director of Jill Dando Institute of Crime Science at University College of London (UPLB Information Technology Center, 2012).

The late Interior and Local Government Secretary Jesse Robredo urged all local chief executives to install closed circuit television technology (CCTV) cameras in their localities to help deter and solve crimes. He said the installation of CCTV cameras will support the peace and order initiatives of local governments,

particularly cities and municipalities with high demographic concentration and robust economic activities.

“As local authorities are mandated under the Local Government Code to ensure peace and order as well as public safety in their localities, they should employ strategies and means to keep their communities crime-free and ward-off would-be criminals,” he said.

Robredo said in his directive during his term as Naga City Mayor that the local governments decide to make use of a CCTV system should ensure that such surveillance equipment should be installed in strategic places and at heights free from human intervention. “It has to be manned 24/7 by at least five trained local government personnel,” he said.

A number of LGUs have already passed ordinances requiring businessmen to install CCTV equipment. Among them are the cities of Iloilo, Pasig, Mandaue, Muntinlupa, Iligan and Quezon (Department of Interior and Local Government).

In community consultations exploring situational crimes prevention alternatives, CCTV is often suggested as a solution that would make them feel safer (Crime Prevention Victoria, 2011). CCTV is often spoken of as if it is a panacea that will immediately reduce crime and cure fear of crime. However, the evidence for CCTV as a solution for fear of crime and as a crime reduction tool is conflicting and still open for debate (Sherman et al., 2009).

Although it gives big help to the police works, it has its own disadvantage. Criminals may use surveillance cameras to monitor the public. For example, a hidden camera at an ATM can capture people's PINs as they are entered, without their knowledge. The devices are small enough not to be noticed, and are placed where they can monitor the keypad of the machine as people enter their PINs. Images may be transmitted wirelessly to the criminal (MacCahill & Norris, 2010).

The researchers choose to conduct the study about CCTV cameras due to the increasing number of crimes that were solved through the use of CCTV footages. This study could be used as a basis for the improvement of the future generation technology.

OBJECTIVES OF THE STUDY

This study generally aims to determine the status of using Closed Circuit Television Cameras (CCTV) in Batangas City.

More specifically, to identify the CCTV users; to determine the percentage of CCTV camera usage in Batangas City; to determine the impact of CCTV usage; to determine the problems encountered in the installation of CCTV's; to establish if there is significant difference between user's perception and impact of CCTV usage; and to propose strategies to enhance the impact of CCTV.

Hypothesis: There is no significant difference between users' perception and impact of CCTV usage.

METHODS

Research Design

This research work was intended to determine the status of the installation of Closed Circuit Television Camera in Batangas City and to identify the percentage of CCTV usage among commercial establishments, residential areas and streets.

With this objective in mind, the researchers used the descriptive type of research. Descriptive type of research, according to Key (2009), is used to obtain information concerning the current status of the phenomena to describe "what exists" with respect to variables or conditions in a situation. The method involved data from the survey which describes the status quo, the correlation study which investigates the relations between variables and determine changes over time. It was also defined by Shuttleworth (2010) as a valid method for researching specific subjects and as a precursor to more quantitative studies.

Participants

The respondents of the research work were the 52 police officers chosen from the total population of 177 personnel, 20 commercial establishment owners, and 19 residents of Batangas City who were aware of the presence of CCTV cameras in their vicinity. Respondents were chosen using proportionate stratified random sampling.

Instrument

The researchers used a self-made questionnaire which is designed to obtain substantial information regarding the impact of the installation of CCTV cameras in various aspects.

The study undergone thorough collection and data gathering procedure from books, internet and some other relevant literature in order to come up with the best set of questions that serve as the purpose of conducting this research study. The questionnaire is composed of three parts. Part 1 deals with the demographic profile of respondents. Part 2 deals with the impact of the installation of CCTV cameras. Part 3 deals with the problems encountered in the installation of CCTV cameras.

Procedure

The researchers presented a questionnaire to their research adviser and people considered to have broader knowledge and expertise on the field for validation and approval.

The researchers personally disseminated the questionnaire to their respective respondents. They were given ample time to answer the questions and then it was retrieved afterward for interpretation and evaluation.

Data Analysis

The data gathered by the researchers were organized, tallied, tabulated and analyzed. SPSS software was used in analyzing statistical data. Frequency count, ranking and Weighted mean were utilized to describe the usage and impact of CCTV while ANOVA was used to test the difference of impact of CCTV Camera usage when grouped according to profile variable.

RESULTS AND DISCUSSION

Table 1. Percentage of CCTV Users

	Frequency	Percentage	Rank
Police Officers	52	57	1
Commercial Establishments Owners/Occupants	20	22	2
Residents/Homeowners	19	21	3
Total	44	100	

The distribution of respondents according to profile is presented in Table 1. It can be gleaned that most of the respondents were police officers with 57 percent. It was followed by commercial establishments' owners which attained 22 percent. On the other hand, residents/homeowners achieved the last number of respondents with 21 percent only of the total population.

Table 2. Percentage of CCTV Camera Usage

	Frequency	Percentage	Rank
Commercial Establishments	28	64	1
Residents/Homeowners	16	36	2
Total	44	100	

Table 2 showed the percentage of closed circuit television camera usage in Batangas City. In the survey made by the researchers along P. Burgos Street, it was found out that only 28 out of the 91 respondents have closed circuit television camera installed in their commercial establishments. Sixteen homeowners out of the 91 respondents have closed circuit television camera installed in their houses.

The researchers were able to determine that more number of commercial establishment's owners had their place installed with CCTV cameras. The reason behind this is that commercial establishments had large number of transactions everyday such as communications and selling. Through the use of CCTV cameras, They were able to monitor the transaction done inside their establishments throughout the day. Also, they were able to monitor any unnecessary incidences inside their establishments.

There are 70 times more privately owned surveillance cameras as a new study revealed. The study claims that some 2.7 million CCTV cameras are owned by private businesses and individuals. The research found that the reason surrounding the use of private cameras Include the protection of property, crime detection, and safety. Footage from CCTV cameras is often used by police as evidence to convict criminals, and some people believe this help prevent crimes, However, there are others who

believed such a high number of CCTV cameras are an invasion of privacy (Mukherjee, 2013).

Table 3. Impact of CCTV Camera Usage

	WM	VI	Rank
1. It will be safer day and night.	3.23	Agree	4
2. It deters crime and reduces anxiety by creating an image of a safe environment.	3.34	Agree	2
3. Records of CCTV footages can be used as evidence of proof for the commission of crime.	3.19	Agree	8
4. It can be used as an aid for possibly identifying criminals.	3.10	Agree	9
5. CCTV footages can identify the modus operandi of the lawless elements.	2.95	Agree	10
6. It helps in monitoring the employees to avoid inside job and dishonesty.	3.21	Agree	6
7. Investors are attracted to invest in an establishment with CCTV camera because of the safe and secured feelings.	2.93	Agree	11.5
8. Police officers can immediately respond in an emergency call for response.	2.87	Agree	14
9. It eliminates the opportunities of the criminals to commit crime.	3.22	Agree	5
10. It is an aid to recording every dealing of the people and incidents that may happen within the areas.	3.27	Agree	3
11. It alleviates or increases efficiency and effectiveness of police officer who conducts patrolling especially during night shift.	2.80	Agree	15
12. It is a tool to improve general security and safety around properties.	3.38	Agree	1
13. Footages can be used to identify clearly the facial features of a suspected person.	2.93	Agree	11.5
14. The installation of CCTV cameras is considered as a low cost method of keeping an eye in different establishments.	2.89	Agree	13
15. The presence of CCTV may induce people to take elementary precautions for fear that they will be shamed by being shown on CCTV.	3.20	Agree	7
Composite Mean	3.10	Agree	

Legend: 3.50 – 4.00 – Strong Agree (SA); 2.50 – 3.49 – Agree(A); 1.50 – 2.49 – Disagree (D); 1.00 – 1.49 – Strong Disagree(SD)

Table 3 showed the impact of closed circuit television (CCTV) camera usage in Batangas City. The impact of CCTV

camera usage was identified to be agreed with the composite mean of 3.10. All items yield with values of mean ranging from 2.80 to 3.38, verbally interpreted as “agree”. Respondents agree that the installation of CCTV camera is a tool to improve general security and safety around properties (3.38) ranked first followed by it deters crime and reduces anxiety by creating an image of a safe environment (3.34); and it is an aid to recording every dealing of the people and incidents that may happen within the areas (3.27).

The last two impacts of CCTV usage were police officers can immediately respond in an emergency call for response (2.87); and it alleviates or increases efficiency and effectiveness of police officer who conducts patrolling especially during night shift (2.80).

The presence of CCTV cameras in a place such as streets, residential areas and commercial establishments serves as a deterrence to crime. People, with the knowledge that a CCTV camera was installed, refrained themselves from committing such act for the fear of being caught and punished. Also, it helps the police officers in the detection and apprehension of suspected person.

A CCTV is not a physical barrier. It does not limit access to certain areas, make an object harder to steal or a person more difficult to assault and rob. It is not an example of situational crime prevention. Although CCTV has many functions, the primary preventative utility is to trigger a perceptual mechanism in a potential offender. Camera footages can help identify potential witnesses who might not otherwise come to police. Also, though issues of image quality arise, CCTV images are used for identification purposes. The recording of the incident can help investigators gained a conviction and aid the police in the apprehension of criminals (www.popcenter.org/responses).

CCTV cameras may also encourage people to be more security conscious. These cameras drive offenders away from committing offenses that take time, as they run a greater risk of capture. At the same time, as a community safety feature, CCTV camera operators can contact medical services if they see people in the street suffering from illness or injury as a result of criminal activity or non-crime medical emergencies.

Table 4. Problems Encountered in the Installation of CCTV Camera

	Weighted Mean	Verbal Interpretation	Rank
1. Poor monitor display of pictures due to faulty electrical wiring.	3.34	Agree	7
2. Probability of loss of power supply.	3.44	Agree	3
3. Distorted image viewing due to improperly terminated video signals.	3.25	Agree	9
4. Improper setting/adjusting of shutter speed of the camera causing poor image display.	3.36	Agree	5.5
5. Appearance of dirty bright spots on the monitor due to irregular cleaning.	3.36	Agree	5.5
6. Irregular patterns of screen display.	3.24	Agree	10
7. Failure in recording crime incident due to bad or over recycled tapes.	3.33	Agree	8
8. Blurry photos causing difficulty in identifying the suspect.	3.38	Agree	4
9. Use of low-definition camera resulting in poor CCTV performance.	3.09	Agree	11
10. Unstrategic positioning of CCTV.	3.45	Agree	2
11. Absence of personnel to do the monitoring.	3.53	Strongly Agree	1
12. Lack of technical know-how in minor trouble-shooting of CCTV.	3.05	Agree	12
13. Strong light reflections due to the installation of camera behind glass.	2.97	Agree	13
Composite Mean	3.29	Agree	

Legend: 3.50 – 4.00 – Strong Agree (SA); 2.50 – 3.49 – Agree (A); 1.50 – 2.49 – Disagree (D); 1.00 – 1.49 – Strong Disagree (SD)

The problems encountered in the installation of CCTV camera are presented in Table 4. It can be viewed that it was agreed by the respondents with the composite mean of 3.29, verbally interpreted as “agree”. Results show that absence of personnel to do the monitoring ranked first with the weighted mean of 3.53, interpreted as “strongly agree”. Unstrategic positioning of CCTV ranked second with the weighted mean of 3.45 with verbal interpretation of “agree”. Strong light reflections due to the installation of camera behind glass ranked last with the weighted mean of 2.97, also interpreted as “agree”. This notion implies that respondents are aware of the problems associated with the installation of CCTV camera in their establishments and in their houses.

Table 5. Difference of Impact of CCTV Camera Usage When Grouped According to Profile Variable $\alpha = 0.05$

Profile Variable	F _c	P-value	Decision	Interpretation
Nature of Respondents	1.380	.257	Accepted	Not Significant

Legend: Significant at p-value < 0.05; HS – Highly Significant; S – Significant; NS – Not Significant

The difference of impact of CCTV camera usage when group according to profile variable is presented in Table 4. Based from the table, the computed F – value of the nature of respondents (F = 1.380) was greater than the critical value at the 0.05 level of significance, thus the null hypothesis of no significant differences on the impact of CCTV camera usage when grouped according to profile variable (nature of respondents) is accepted. This means that no significant differences exist and that respondents have evaluated the impact of CCTV usage to be the same.

Proposed Action for Improvement

In order to effectively monitor the CCTV, the authorities may employ additional manpower to be assigned to do the monitoring of the CCTV footages which will be done 24-hours and the establishments owners should ensure the recording capability of the CCTV cameras installed.

When it comes to surveillance, the authorities should ensure enough power supply within the area to avoid interruption of video surveillance and recordings. High-definition CCTV cameras are highly recommended to ensure highly defined photos used in identifying suspects. CCTV cameras should be positioned strategically to avoid unnecessary video coverage.

It is the responsibility of everyone in the community to watch over the criminals and be mindful of any uncertainties and report any incidence to authorities.

CONCLUSIONS

Majority of the CCTV users in Batangas City are police officers. There is higher percentage of CCTV usage in commercial establishments than in residential homeowners. Respondents had agreed that the installation of the CCTV have a great impact in the

society as it served as a tool to improve general security and safety around properties. The most common problem encountered in the installation of CCTV camera was the absence of personnel to do the monitoring and its unstrategic positioning. There is no significant difference between the CCTV users and impact of CCTV camera usage. A plan of action to enhance the impact of CCTV usage is proposed.

RECOMMENDATIONS

Every establishment with CCTV camera installed may hire persons to do the monitoring and maintaining of the CCTV. Additional high definition CCTV camera may be installed along streets of Batangas City to lessen the occurrences of unnecessary activities. Proper selection of areas may be done by authorities to strategically position the CCTV camera. The proposed action plan of action may be utilized and evaluated. Similar study may be conducted using different variables.

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