

# Effectiveness of Installed Closed Circuit Television on Senior High School Behavioral Self-Control

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## ABSTRACT

It is important to explore the effectiveness of installed closed-circuit television (CCTV) cameras on senior high school students' behavioral self-control. Thus, this research aimed to determine the impact of CCTV on the behavioral self-control of senior high school students. This study employed a non-experimental descriptive research design and included 132 students through purposive sampling. Findings show that CCTV cameras are highly effective in enhancing students' behavioral self-control. The researchers found that CCTV makes students more self-conscious, knowing they are being monitored by surveillance technology. Additionally, installed CCTV cameras provide a sense of safety by securing the school premises. Further analysis revealed no significant difference between male and female students in terms of the perceived effectiveness of CCTV, as both genders responded similarly to the technology. In conclusion, CCTV cameras are highly effective in promoting behavioral self-control among students, as the awareness of being monitored encourages them to behave appropriately. Moreover, students are generally not bothered by the presence of CCTV cameras, as it helps them stay on track with their schedules and responsibilities. Schools are encouraged to periodically evaluate student feedback regarding surveillance to address any concerns and improve the system. Lastly, the study recommends further exploration of the effectiveness of CCTV on junior high school students as well.

**Keywords:** *CCTV Cameras, effectiveness, behavioral self-control.*

## INTRODUCTION

For several decades, closed-circuit television (CCTV) has been a ubiquitous tool for security and surveillance in both private and public spaces. Its applications range from enforcing helmet-wearing policies on roads (Satiennam et al., 2019) and reducing urban crime rates (Vasegh et al., 2019), to monitoring sewer system defects (Kumar et al., 2018). More recently, schools have adopted CCTV systems to oversee student behavior during unsupervised periods and to enhance overall security (Department of Education, 2021). This widespread implementation raises questions about the effectiveness of CCTV in managing student self-control and behavioral issues.

CCTV systems transmit video signals to specific, secure locations, where they are monitored by operators. These systems have evolved significantly since their inception, with the introduction of VCRs in the 1970s allowing for data storage, and widespread availability in the 1990s (Britannica, 2023). Today, CCTV is commonly found in high-traffic areas such as banks and schools (Amaechi et al., 2018), serving both as a deterrent to undesirable behavior and a tool for data collection (Habas, 2023; Sholekah & Mahmudah, 2020).

The use of CCTV in educational settings has been motivated by the desire to foster a safer and more controlled learning environment. However, its impact on student self-control, particularly among Senior High School (SHS) students, remains under-explored. Prior studies have demonstrated the effectiveness of CCTV in reducing violence and monitoring behavior in various contexts (Tran et al., 2022; Robles, 2019), but there is limited research specifically addressing how CCTV influences the behavior of high school students, especially within the context of the Philippine educational system (Birnhack & Perry-Hazan, 2020; Formoso, 2018).

The purpose of this study is to investigate the relationship between CCTV usage and the self-control of SHS students in the Philippines. By examining how students' behavior changes in the presence of CCTV, this research aims to address the gap in existing literature regarding the nuanced effects of surveillance on adolescent students' self-discipline and privacy perceptions. The study explore how different age groups or grade levels may experience varying impacts from CCTV surveillance.

This research is particularly timely given the broader adoption of CCTV in schools worldwide and the specific challenges faced by Philippine schools in balancing surveillance with student rights (Gupta & Margam, 2020; Valeriana et al., 2018). Through an analysis of student behavior and the effectiveness of CCTV as a behavioral management tool, this study seeks to contribute valuable insights into how educational institutions can enhance security while fostering a supportive learning environment.

In summary, this study will utilize a mix of observational and survey methods to assess the influence of CCTV on student self-control and behavior. It aims to provide a comprehensive understanding of how CCTV impacts student discipline, privacy, and overall school atmosphere, offering recommendations for future implementations and policy adjustments.

## **LITERATURE REVIEW**

Closed-Circuit Television (CCTV) refers to a system that transmits television signals from a camera to a specific audience without public broadcast (Martin, 2023). CCTV systems are widely used to enhance security and reduce crime in various environments, including both public and private spaces (Formoso, 2018; Welsh et al., 2019; Gupta et al., 2020; Jyotsna & Amrutha, 2021). This review explores the role of CCTV in crime prevention, its application in schools, and its impact on student behavior and privacy.

CCTV systems serve multiple purposes, such as crime reduction (Piza et al., 2019; Tran et al., 2022), providing safety, and increasing situational awareness (Amaechi et al., 2018). Strategic placement is crucial; common locations include school entrances, exits (Formoso, 2018), and road intersections (Yuan et al., 2022). In residential areas, CCTVs are typically installed at entry points like doors, while in schools, they are often placed in high-traffic areas such as classrooms, hallways, and entrances to monitor student interactions (Habas, 2023; Formoso, 2018). Libraries may also utilize CCTV to deter theft and vandalism (Gupta et al., 2021; Bindhu et al., 2021).

CCTV systems provide valuable, real-time data, including time and date stamps, which are useful for identifying and prosecuting criminals (Kim et al., 2021; Kim & Park, 2019; Ifedola et al., 2022; Jyotsna et al., 2021). This data is highly reliable and serves as solid evidence (Sholekah & Mahmudah, 2020).

In schools, CCTV usage is closely tied to behavior management. Studies show that active supervision, which involves direct interaction and feedback, reduces disruptive behavior (Haydon et al., 2019). CCTV can complement this by increasing self-awareness among students. The presence of surveillance technology often leads to documentation of misconduct, which can result in disciplinary actions (Sholekah & Mahmudah, 2020). However, while CCTV offers increased security, it may also raise concerns about student privacy. The presence of surveillance can sometimes create a negative atmosphere, affecting students' sense of security (Birnhack & Perry-Hazan, 2020; King & Bracy, 2019). Thus, the balance between effective behavior management and privacy considerations is essential.

Behavioral issues, such as bullying, are common in schools. Studies reveal that a significant percentage of students experience bullying on a monthly basis (Richardson & Hiu, 2018). Interventions, like transferring students to alternative schools for repeat rule violations, have shown some success (Owens, 2019). However, inconsistent enforcement and overly harsh punishments can exacerbate problems, leading to calls for more equitable behavioral policies (Morrison, 2018).

Demographic factors also affect behavior. Older students, who typically possess more advanced social skills, are generally more aware of bullying compared to younger students (Gonzales & Madrigal, 2021). Additionally, gender differences are notable. Males are more likely to exhibit poor self-control and aggressive behavior due to societal expectations, while females are often less involved in bullying (Richardson & Hiu, 2018; Gonzales & Madrigal, 2021).

Overall, CCTV systems play a crucial role in monitoring and managing behavior in schools and other settings. While they enhance security and provide reliable data, they also raise privacy concerns. Future research should focus on balancing security and privacy, as well as developing behavioral policies that address the diverse needs of students while promoting a positive and supportive environment.

## **METHODS**

This study is quantitative in nature, and used a non-experimental descriptive research design. Descriptive design refers to the description of variables and their natural relationships between and among one another (Katzukov, 2020). Descriptive research design was applied to describe, analyze, and interpret the classification of the effectiveness of CCTV cameras on senior high school students' behavioral self-control. The researchers also conducted an open-ended question and transcribed all responses and categorized them by themes. Therefore, the researchers chose to use descriptive research design, as it was applicable for this quantitative study.

Participants in this study are senior high school students enrolled in the Adventist University of the Philippines in Puting Kahoy, Silang Cavite. This study was conducted during the second semester of the academic year 2023-2024. The total population of senior high school students is 309. There are nine sections in senior high from grade 11 to 12. Using Slovin's Formula with a 5% margin of error, the target sample was at least 174 students. The researchers would gather at least 19 students per section among the 9 total sections from grades 11 to 12.

Simple random sampling was applied in this study. Every section has an attendance sheet that arranges all officially enrolled students by alphabetical order, are each assigned a number, and are separated based on sex. The researchers used a random number generator in order to gather respondents as a sample of the study, and balanced out participants based on their assigned sex. The researchers checked the answered survey questionnaire and cleaned up the data for statistical treatment.

The researchers used a survey to gather reliable data. The instruments used in this study were a combination of self-modified and adapted questionnaires that are based on the concepts taken from the review of related literature and studies. There are some questions that were revised by the researchers to suit the current inquiry and characteristics of the population of the study. Some questions on Self-Control were adapted from a quantitative analysis about self-control by Tangney, et al. (2004); Manapat, et al. (2019), while some other questions were created by the researchers.

## **RESULTS AND DISCUSSION**

The presentation and discussion are presented according to the sequence of research questions.

Table 4 shows that installed CCTV camera is highly effective (overall mean is 3.85 and standard deviation is 0.80) for students' behavioral self-control. The respondents agreed that installed CCTV cameras prevent them to do offense (mean=4.15; SD=0.82), to do bad habits (mean=3.95; SD=1.00), keeps them to maintain well-behaved (mean=3.86; SD= 0.89), and gets them to control

their behavior (mean=3.76; SD=1.05). However, the results of senior high school students keeping track of their class schedules on time with installed CCTV cameras came out as moderately effective (mean=3.48; SD=1.16). As observed in our study, the students who responded to our survey answered all questions based on their perceptions towards installed CCTVs and if CCTVs have been effective during the academic school year. These data suggest that installed CCTV cameras have been highly effective to senior high school students on their behavioral self-control.

**Table 4**

<b>Installed CCTV Camera....</b>	<b>M</b>	<b>SD</b>	<b>RS</b>	<b>Verbal Interpretation</b>
1. ...prevents me to do any offense	4.1	0.82	Agree	<i>Highly Effective</i>
	5			
2. ...prevents me to do bad habits.	3.9	1.00	Agree	<i>Highly Effective</i>
	5			
3. ...prevents me to act without thinking of the consequences.	3.8	1.00	Agree	<i>Highly Effective</i>
	9			
4. ... makes me not do bad habits.	3.8	1.01	Agree	<i>Highly Effective</i>
	9			
5. ...helps me to well-behaved	3.8	0.89	Agree	<i>Highly Effective</i>
	6			
6. ...helps me to resist temptation.	3.8	0.97	Agree	<i>Highly Effective</i>
	6			
7. ...can resist negative temptations.	3.8	1.00	Agree	<i>Highly Effective</i>
	2			
8. ...stops me from disturbing other students.	3.8	1.04	Agree	<i>Highly Effective</i>
	0			
9. ...controls my Behavior	3.7	1.05	Agree	<i>Highly Effective</i>
	6			
10. ...can count on me to keep on my class schedule.	3.4	1.16	Moderately Agree	<i>Moderately Effective</i>
	8			
<b>Effectiveness (grand mean)</b>	<b>3.8</b>	<b>0.80</b>	<b>Agree</b>	<b><i>Highly Effective</i></b>
	<b>5</b>			

***Effectiveness of Installed CCTV Camera to Behavioral Self-Control***

**Legend:** 1-1.49 = SD.; 1.50-2.49 = D; 2.50-3.49 = MA; 3.50-4.49 = A; 4.50-5 = SA

Prasetyo et al. (2022) found that the results of their research show that the surveillance system using installed CCTVs in improving the security of the campus environment can be said to be effective, where effectiveness is closely related to the comparison between the level of achievement of goals and plans that have been prepared previously, or the comparison of real results with planned results. The study mentioned above showed that the environment of the

campus is organized and peaceful which indicates that installed CCTVs are effective to students in their campus environment.

The study conducted by Birnhack & Perry-Hazan (2020) examined high school students’ perception on installed CCTVs in schools which resulted in ways students conceptualize school surveillance and resolve conflicts between their privacy and security concerns that are embedded in their perceptions of their overall schooling experience. The students adopted various metaphors to describe these experiences.

**Summary of Feedback on Effectiveness of Installed CCTV Camera to Behavioral Self-Control**

This table shows the summary of feedback from the open-ended question of the study survey which indicates that a total of 101 responses out of 132 agrees that installed CCTVs are highly effective. The researchers transcribed each response gathered and categorized them by themes with 21.21% as the highest percentage and has the most frequency of 28, agrees that installed CCTV cameras are effective because it makes senior high school students feel self-conscious of being monitored. There is one theme that resulted in a way that is not as psychologically related compared to most transcribed themes which CCTVs protect us and the school property can still be understood as a factor on senior high school students’ behavioral self-control with the supported studies mentioned below Table 5.

**Table 5**

**Summary of Feedback on Effectiveness of Installed CCTV Camera to Behavioral Self-Control**

Feedback	Frequency	Percentage (%)
It makes us feel self-conscious of being monitored	28	21.21
It reminds us about our behavior and its consequences	27	20.45
CCTVs prevents us from misbehaving	16	12.12
CCTVs controls our behavior	10	7.52
CCTVs protect us and the school property	8	6.06
It helps us in monitoring our daily activities	7	5.30
CCTVs scares us because it might capture our inappropriate behavior and use it against us	5	3.78



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In a study conducted by Ghimire and Rana (2022), installed CCTVs were predominantly aimed at controlling students’ non-compliant behaviors to promote academic performance. This highlights the challenges of maintaining a surveillance system to minimize risk factors and to create an educational environment in schools. The study explored how these schools utilized surveillance technology to their advantages, findings contributing to the practical understanding of the technology.

According to the study of Fantony (2021), Students, Faculty Members, Non-Teaching Staff and Utility/Maintenance strongly agrees on the benefits of installed CCTV cameras in the school campus as it means of ensuring safety and security in the school campus as well as installed CCTV cameras as a means of monitoring the respondents’ activities and performance in the school campus. Installed CCTV cameras help create a safer school environment, encouraging students to prioritize their academics and exhibit better behavioral self-control by ensuring the security of both students and faculty.. Installing CCTV cameras can help students prioritize their academics and behavior more because installed CCTV cameras serves as a form of security for educational institutions.

**Effectiveness of CCTV cameras to students when Sex is considered**

Table 6 presents the results that there is no significant difference in participants of the study in terms of interest when grouped according to sex. Male participants (66) had a mean of 3.87 and a standard deviation of 0.78 and a standard deviation of 0.78 while the female (66) had a mean of 3.82 and a standard deviation of 0.83. Therefore, the researchers concluded that the null hypothesis is rejected. In terms of CCTV camera effectiveness, it was found that there is no significant difference when grouped according to sex. The male (mean = 3.87; SD = 0.784) and female (mean = 3.82; SD = 0.839) in effectiveness of installed CCTV cameras had the same number of participants as interest with a t-value of 0.313 and associated probability of .755. Therefore, it was concluded that the null hypothesis is accepted.

**Table 6 Effectiveness of CCTV cameras to students when Sex is considered**

	Sex	N	Mean	SD	t	Sig	Verbal Interpretation
<b>Effectiveness</b>	Male	66	3.87	0.78	.313	.755	Not Significant



Female                      66                      3.82                      0.83

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**Total 132**

Numerous factors can influence people's attitudes toward installed CCTV cameras. According to some scholars, the largest differentiating factor in views on surveillance is gender. Both male and female students had a favorable attitude toward the effectiveness of installed CCTV cameras as senior high school students. However, Messick (2023) found that women are more likely than men to prefer being surveilled by cameras in public places, suggesting that women prioritize security over privacy. The study suggests that women may feel more invested in this issue and consequently hold different opinions about surveillance than men. Therefore, seeking female representation in discussions on surveillance technology and policy-making is essential, as women deserve to use public spaces as freely as men. These findings indicate that females are more likely to view CCTV cameras as a source of security over privacy, which can also impact behavioral self-control for both genders."Gurinskaya (2020) found that males hold more negative view towards cameras compared to females, while income, victimization status, and perceived level of disorder do not predict support for cameras. Trust in the effectiveness of surveillance technology partially mediates the effect of these factors and predicts a higher level of acceptance.

## **CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS**

The results of the study indicate that installed CCTV cameras are highly effective in enhancing senior high school students' behavioral self-control, with an overall mean score of 3.85 and a standard deviation of 0.80. Out of 132 responses, 76.51% of students agreed that CCTVs significantly impact their behavior. Additionally, 21.21% of students explained that the effectiveness of CCTV cameras stems from the heightened self-consciousness they feel, knowing they are being monitored within the school environment.

The data further reveal no significant difference in behavioral self-control when considering the students' sex and age, suggesting that CCTV effectiveness is consistent across these demographics."

The summary of feedback from the open-ended question of the study survey indicates that a total of 101 responses out of 132 agrees that installed CCTVs are highly effective. With 21.21% as the highest percentage and having the most frequency of 28, stated that they agree that installed CCTV

cameras are effective because it makes senior high school students feel self-conscious of being monitored.

Male participants (66) had a mean of 3.87 and a standard deviation of 0.78 and a standard deviation of 0.78 while the female (66) had a mean of 3.82 and a standard deviation of 0.83. The male (mean = 3.87; SD = 0.784) and female (mean = 3.82; SD = 0.839) in effectiveness of installed CCTV cameras had the same number of participants as interest with a t-value of 0.313 and associated probability of .755.

Based on the findings of the study, the following conclusions of the study are the following: The installed CCTV cameras are highly effective towards senior high school students of Adventist University of the Philippines Academy of the school year 2023-2024 in terms of their behavioral self-control. However, the Installed CCTV cameras in the location of this institution were mostly resulted as highly effective with how CCTVs affects senior high school students' behavioral self-control.

The effectiveness of installed CCTV cameras in senior high school students' behavioral self-control is high, which means that the presence of the known security technology does have its effects on students. Installed CCTV cameras have an effect on students as it makes them self-conscious that they are being monitored by the known surveillance technology. Every senior high school student who participated in this study has their own reasons if installed CCTV cameras are actually effective based on their point of view.

The sex of the student has no significance on the effectiveness of installed CCTV cameras in senior high school students' behavioral self-control. Every student has their freedom to express how they feel with the surveillance camera installed. Every student prioritizes their safety and the presence of CCTV cameras helps students to ensure that they are safe and secured in their educational institution. With CCTV cameras installed in the school premises, students have the opportunity to explore their school hallways knowing that their behavioral self-control is still being recorded by the known surveillance technology.

To continuously assess students about installed CCTV cameras effectiveness yearly to students. The school must accept security surveys about their educational institution's security environment with CCTVs and determine if there are rooms for improvement regarding any concerns about installed CCTV cameras and apply those improvements for the upcoming school years which

Adventist University of the Philippines Academy would be glad to accept those acknowledgement about concerns and recommendations about CCTV cameras for improvement.

The researchers wanted to explore this study even further but due to several factors that hindered their way during this study such as conflicting required curricular schedules and receiving anonymous online negative criticisms that nearly affected our data gathering processes. The researchers were very ambitious enough to explore different themes regarding the concerns about installed CCTV cameras and its effectiveness to senior high school students but due to several conflicting schedules during the school year, the researchers decided to limit the study by focusing on only their understanding about the effectiveness of CCTVs. Regarding the online negative criticisms that the researchers faced during the data gathering of this study, they wanted to pursue this study more only if the researchers didn't receive anonymous negative feedback and criticisms online about research surveys by the target respondents.

The researchers want to request every educational institution, especially Adventist University of the Philippines Academy to install more CCTV cameras to furthermore observe the students' behavioral self-control to determine its effectiveness and how the known surveillance technology can be approved which can be done annually.

Researchers may conduct additional research on installed CCTV cameras by including junior high school grade levels as one of their moderator variables to see if there is a different result and different and valid explanation if CCTV cameras are effective in the school premises. Future researchers may also try to investigate issues such as how installed CCTV cameras affect the school premises' environment. It is also recommended that this study can be conducted as a qualitative research study.

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