

# Surveillance Cameras and Resistance: A Case Study of a Middle School in China

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China has rapidly evolved into a surveillance society. While much attention has been paid to describing the leviathan represented by the presence of surveillance cameras in China, empirical evidence on the mechanisms of the creep of surveillance remains limited. Using data collected through fieldwork and in-depth interviews, this study explores the spread of surveillance cameras and the resistance encountered in a middle school in northern China. We find that surveillance cameras were first introduced for security purposes, but their application was quickly expanded to discipline students and avoid responsibilities in school management. We further explore the resistance to the creep made possible by the existence of exempted spaces, the difficulty of self-surveillance, and what might be called the boomerang effect. Through the case study of a middle school, this research sheds light on the formation of the Chinese surveillance society from a bottom-up approach and contributes to the global literature on surveillance creep.

KEY WORDS: function creep, surveillance cameras, school, China

### INTRODUCTION

When walking into R Middle School, located in northern China in late 2021, we felt as if we were entering a surveillance camera fair. There were 690 cameras on a campus of 0.1 sq. km, the size of 14 football fields. In other words, 49 cameras were used to cover the space of a single football field. The number of cameras has continued to grow. When the school was first built in 2014, there were already 410 cameras, itself a huge number. In 7 years, the number increased by 70 per cent. If we had not seen it with our own eyes, it would have been hard to imagine that there could be so many cameras in an ordinary middle school, which provides education for children usually aged 13-15 years old, or in grades 7-9. In the central control room, facing a big display screen made up of 24 'key areas', the director of the school's security department (with five staff) talked to us about the location of each camera, its purpose, and the 'cases' it had recorded. A moment later, after we had left the central control room and were entering the elevator in the teaching building alone, the camera at the top of the elevator suddenly began to rotate, and there came a playful voice of the security director, 'Hey! I see you!'. Although schools

as sites of surveillance are nothing new  $(Taylor\ 2013a)$ , it is undoubtedly astonishing to learn that there were 690 cameras in a regular middle school, a non-security institution with education as its primary goal.

According to the Chinese Ministry of Public Security—the central police authority in China, by the end of 2021, 90 per cent of middle schools, primary schools and kindergartens across the country had installed CCTV surveillance systems (Xinhua Net 2021). While the official justification for the use of school surveillance cameras was student safety, these cameras were quickly utilized to monitor students' behaviour (Sina 2018a), a phenomenon we have elected to describe as the creep of surveillance cameras, a process that has also been widely observed in Western countries. For instance, surveillance cameras introduced for crime control have increasingly been used for the purpose of dealing with public disorder or disciplining citizens (Hope 2009; Lyon 2018). However, empirical research on the mechanism of the creep of surveillance cameras remains very limited in China, a country pioneering the use of surveillance cameras in the world (Huang and Tsai 2022; Xu and He 2022).

Using data collected through field observation and in-depth interviews in R Middle School in northern China, where there exists a high density of cameras, this research aims to unveil what has been occurring. We reveal that surveillance cameras were first introduced for student safety. However, function creep took place soon after the introduction of these cameras. On the one hand, they quickly became utilized to discipline students. On the other hand, they were also used to avoid responsibility in school management. We further explore the resistance to the creep of surveillance cameras. First, while full coverage of cameras was claimed by the school authority, some spaces such as teacher's offices, students' dormitories and school toilets were intrinsically private and exempted from surveillance. The existence of exempted space provided a potential to resist the power of surveillance. Second, while cameras have become a powerful weapon to discipline students, some may not internalize the so-called deterrence effect, alleged to be a correlate of the working of a panopticon, which demonstrates the limit of the surveillance system and the potential to prevent the formation of a digital panopticon in school. Third, while the school may strategically present evidence captured by cameras to its advantage in management, the boomerang effect may arise when parents or other parties ask to examine video footage.

This research contributes to the existing literature in three ways. First, it provides one of the very first pieces of empirical evidence of what is transpiring in China's schools. Second, it also reveals how various forms of resistance limit the spread of surveillance cameras. Third, while previous studies have focussed on the role of the Chinese party-state in the making of a surveillance society (King et al. 2014; Su et al. 2021), the current study provides a bottom-up approach to examine how non-state actors have also contributed to its formation.

## FUNCTION CREEP, SURVEILLANCE CREEP AND CREEP OF SURVEILLANCE CAMERAS

Three concepts need to be clarified for this article: the creep of function, surveillance and surveillance cameras.

The concept of function creep describes 'a gradual expansion of the functionality of some system or technology beyond what it was originally created for (Koops 2021: 30). There are several layers of meaning associated with the concept. First, unlike the rather neutral term 'expansion', creep connotates a negative meaning such as being stealthy or sneaky. Second, creep emphasizes imperceptibility: the expansion happening without much notice being taken. Third, it happens gradually—a slow process (Koops 2021: 34).

Surveillance creep refers to how the surveillance in one area can expand to other areas which were not previously intended to be surveilled (Nelkin and Andrews 2002; Marx 2005). This subtle change takes three main forms. First, surveillance technology may be used to monitor an expanded target. For example, DNA fingerprinting tests were first used on rapists, but were subsequently extended to all military personnel, convicted felons, non-violent offenders and misdemeanants, and even immigrants (Nelkin and Andrews 2002). Second, multiple surveillance technologies may work together as an assemblage and significantly improve their surveillance scope and power (Haggerty and Ericson 2000). For instance, newly emerged school surveillance technologies, comprising biometric measurement, electronic detection, substance screening, video observation and data monitoring, have greatly shaped practices of observation within educational institutions (Hope 2015). Third, data collected for one purpose may also be integrated with other data to increase the power and scope of the surveillance (Brayne 2017, 2020), in the format that has often been called 'dataveillance' (Van Dijck 2014).

The creep of surveillance cameras is based on the concept of function creep and surveillance creep, but with a specific focus on surveillance cameras. More specifically, it refers to the function expansion of surveillance cameras from the planned surveilling scope to other, unintended ones. For example, cameras introduced to counter terrorism have subsequently been used to regulate minor violations such as littering, bin usage, public urination, fly-posting, dog fouling and dangerous driving in the United Kingdom (Haggerty 2012). In school settings, surveillance cameras initially introduced to safeguard against external intruders were used to monitor student behaviour and teacher performance (Taylor 2013a; Taylor and Gill 2014). Although the three concepts are interconnected hierarchically, function creep and surveillance creep are much wider, while the creep of surveillance cameras is a more focussed concept, which will be the principal point for analysis in this article.

The creep of surveillance cameras has become a global phenomenon. It may lead to the normalization of surveillance cameras by the public, which in turn subconsciously contributes to the expansion of social control. School, as an educational institution, is not immunized from the problem. In the United Kingdom, it was reported that CCTV cameras were installed in secondary school toilets to reduce the problem of misuse of paper towels and soap (BBC 2009; Taylor 2011). In Australia and New Zealand, surveillance cameras have become a powerful weapon to discipline students (Taylor and Kearney 2018). In addition, they may also be used to evaluate teachers' performance (Page 2016). Indeed, they have been transformed from an intrusive device into a banality (Goold *et al.* 2013), making the next generation of students to be accustomed to surveillance.

Much research in the area has been conducted in the English-speaking world (Deakin *et al.* 2018). China, as a police state with more efficient and constantly increased securitization in public and semi-public spaces (e.g. airports, subways, schools and hospitals) (Scoggins 2022), has received little scholarly scrutiny. An in-depth examination of school surveillance cameras in China, therefore, should serve to enrich our understanding of how their use is shaped by different political and cultural contexts.

#### SCHOOL SURVEILLANCE CAMERAS IN CHINA

## The process of school surveillance cameras becoming a banality

School surveillance cameras in China have experienced tremendous growth over the past decade and reached full coverage in most of its developed cities (Xinhua Net 2021). In keeping with the worldwide trend, they have largely become a banal commonplace in China. Their stateled installation started in 2010. It was reported that from 23 March to 30 April, there were five consecutive school homicide cases across the country in less than 40 days. The attacks, committed by offenders who entered schools from outside, resulted in a total of 9 students killed and 50 students and 3 teachers injured. The intensive media coverage of school attacks raised public

fears about school safety. In response, schools were required to increase their safety measures, such as increasing the number of security guards equipped with anti-riot devices (Figure 1).

On 1 May 2010, the Chinese Ministry of Public Security held an emergency meeting about campus security, requiring all schools and kindergartens in urban areas to install surveillance cameras. Driven by state policy, schools across the country began to install cameras as part of their security measures. In Beijing, surveillance camera systems were deployed in all 1,807 primary and middle schools, covering the school gate and 200 m around the school (China News 2010). Even in less developed regions, surveillance cameras were installed in a high proportion of schools. In Ju County in Shandong Province, for example, the local government invested 4 million yuan¹ in 2011 to install 2,274 video surveillance cameras in its 47 primary and secondary schools, rapidly escalating the spread of full CCTV surveillance coverage, with an average of 50 video surveillance cameras in each school (Education Bureau of Rizhao 2011).

Along with the increased number of cameras on campuses, more and more areas are under surveillance. In July 2021, the Guangdong Provincial Department of Education announced that the CCTV surveillance of all middle schools, primary schools and kindergartens in the province had achieved 'full coverage', including the campus walls and the sidewalks outside the school (Guangzhou Daily 2021). Inside the school, cameras were widely installed inside classrooms. In 2018, it was reported that a middle school in Chongqing installed more than 400 cameras in 83 National College Entrance Examination (gaokao) rooms, with five cameras in each classroom (Sina 2018b). It remains unknown to what extent these cameras have reduced crime and disorderly behaviour.

## Creep of school surveillance cameras

There is growing evidence that the use of cameras has gone beyond the original purpose of student safety. They have been extended conveniently to manage students' day-to-day behaviour in study and discipline. For instance, Hengshui Middle School, the so-called nationally known 'Factory of College Entrance Examination' for the enormous size of its student body



**Fig. 1** Three security guards, equipped with anti-riot helmets and defensive tools, were escorting the arrival of students in the morning in front of a kindergarten in Guangzhou (photo taken by authors: November 2021).

(approximately 10,000 students), has been reported for using cameras in its classroom to monitor students' learning performance. It was stated that high-resolution cameras could even enable teachers to read students' writing from their offices (Sina 2018a). A high school in Jiangsu Province has launched a so-called 'Smart Classroom Behaviour Management System', which could capture students' expressions and movements through cameras installed in the classroom. By scanning each student every 30 s, the system could supposedly identify six types of student behaviour, including reading, writing, listening, standing up, raising hands and lying on the table, as well as seven kinds of expression, namely, happiness, disgust, sadness, fear, surprise, anger and neutrality. It was claimed that the collected data could be used to analyse students' attentiveness in the classroom and improve their learning performance (The Paper 2018).

## School surveillance creep in general

In addition to surveillance cameras, various biometric devices, such as facial recognition systems, have been adopted in some Chinese schools, although it should be noted that their use has aroused widespread resistance in the United States and United Kingdom for being invasive, misleading and even racist (Taylor 2016; Carlile 2018; The Guardian 2023). In 2021, in Liuzhou City, Guangxi Province, the municipal government invested 10 million RMB<sup>2</sup> in installing facial recognition equipment in 361 schools. As a result, each student must pass a three-second facial scan to enter the campus (Liuzhou Daily 2021). Recent media reports have suggested that facial recognition devices are not only used for access control but also for on-campus payments, such as for lunch and snacks. At a middle school in Shanxi province, the school replaced cash payments with facial recognition. The system automatically sent details of the lunch items purchased by students to parents' mobile phones via text message, which was applauded for the claimed effect of improving payment efficiency and tackling unhealthy eating among students (Sohu 2021). As China's domestic technology companies constantly create and market monitoring devices with novel applications (Huang and Tsai 2022), sporadic but chilling evidence of more intrusive devices finding their way into Chinese schools has emerged. Eleven middle schools in Guizhou Province bought and used 'smart school uniforms' in 2018, which could locate students through GPS chips. If a student was late, absent or left school without permission, the system would automatically alarm his or her parents and teachers (Global Times 2018). A purchase project plan from a middle school in Guangdong Province showed that the school authority spent 4.84 million RMB<sup>3</sup> on electronic watches, which had a variety of functions, such as recording students' movement data, GPS positioning and, more intrusively, recording the number of times students raising their hands in class (Sina 2019).

In sum, there exists a clear creep of surveillance cameras in Chinese schools, part of the wider trend of surveillance creep (Marx 2005; Hope 2018). Surveillance cameras, as part of the surveillance assemblage, have become normalized (Goold et al. 2013). However, empirical studies of how the surveillance system in general and surveillance cameras in particular expand their functions in Chinese schools remain limited.

# RESEARCH QUESTIONS, DATA AND METHODS

## Research questions

Through a case study of R School, we seek to explore the creep of surveillance cameras and the resistance it may encounter. More specifically, we address the following two questions: (1) How did the functions of surveillance cameras expand in R School? (2) What types of resistance have arisen in response?

- 2 Approximately \$1.4 million or £1.2 million.
- 3 Approximately \$0.68 million or £0.58 million.

#### Research site: the R School

The empirical data were mainly collected in R School, which was located on the outskirts of a medium-sized city in northern China. The School was founded in 2014. It covers an area of 0.1 sq. km, with a population of 4,500 students and 150 teachers by the end of 2021. It offers seventh- to ninth-grade education for elite students aged 13-15 in R city and the neighbouring region. As a private school, students are admitted through competition. They need to pay a yearly tuition fee of roughly RMB25,000<sup>4</sup> while public schools require no such fees. The School is one of the top key middle schools in the province, with 99 per cent of graduates entering senior high school and continuing their studies, while the nationwide rate is only around 50 per cent. It derives most of its income from students' tuition fees and receives only limited financial assistance from the government. The school's security investment is entirely self-funded, including the hiring of security guards and the installation of surveillance cameras.

#### Data collection

We conducted fieldwork from October 2021 to January 2022, over a period of 7 weeks. Before entering R School, we obtained permission from the school principal, a family member of a friend of the research team. Upon learning about our interest in studying school surveillance, he proudly showed us the surveillance system he had built, including 690 surveillance cameras and a facial recognition system. As an important part of the school's hardware facilities, he believed (without providing much evidence for such claims) that surveillance devices greatly benefited the school administrators and protected the security of the campus.

During the fieldwork, the school principal worked as our main gatekeeper. He granted us full access to the campus, including the security office, the central control room, the teaching building and the teacher's office for observation. To minimize the impact of the presence of researchers on daily teaching, we avoided entering the classroom. Field notes were taken about the overall setting of surveillance cameras, and how they were operated in the daily management of the school. Photos were also taken to demonstrate how cameras were installed on campus.

In addition to field notes, semi-structured interviews were conducted with teachers and the school management team about their use and perception of the surveillance cameras. In total, we conducted 15 semi-structured interviews with one principal, one vice-principal, one security department head, two security guards, three grade coordinators (年级主任, in charge of seventh to ninth grade) and seven homeroom teachers (班主任, in charge of each class). All interviewees were introduced by the school principal with their consents obtained. To protect the privacy of the participants, all interviews were conducted in the office or lounge on a one-to-one basis. Each interview lasted 30-60 min. The research follows the guideline of research ethics in the authors' university. For confidentiality, all names appear in the paper are pseudonyms. In addition, we collected information about R School (e.g. tuition fees and enrolment rate) from school websites and statistics about surveillance devices (e.g. quantity and spatial distribution) from school administrative documents.

# SURVEILLANCE CAMERAS AS PART OF THE SURVEILLANCE ASSEMBLAGE

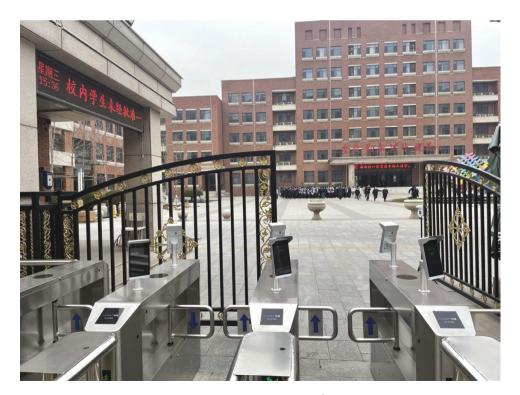
Globally, new surveillance technologies are constantly emerging, and schools themselves have become 'institutional incubators' for newfangled digital monitoring devices (Taylor 2016). In R School, a surveillance assemblage has been formed, including facial recognition systems, tracking apps and video surveillance cameras.

## Facial recognition system

The first part of the surveillance assemblage is the facial recognition system. R School installed a series of such devices at the school gate and outside the classrooms. The facial recognition system functioned in two ways: access control and attendance monitoring. At the school gate, all those entering must pass through the system's verification checks (Figure 2), and anybody not registered in the database would be identified as a stranger, triggering an alarm to be intervened by security guards. Outside the classroom, each student and teacher could register their attendance by scanning their faces through the Smart Classroom Management System. The replacement of traditional verification and inspection carried out by security personnel and teachers with biometric devices signifies a significant shift in control. Automatic control has replaced traditional face-to-face control, and the body has become the direct object of monitoring because biometric surveillance systems 'reduce the body to an identificatory signifier' (Kruger et al. 2008). Before adopting this facial recognition system, the school administrator did not collect additional biometric information from students and teachers but instead used data from previously collected photos to make campus cards. Operating in a silent way, this type of data creep (Reidenberg 1999; Hope 2018) avoided potential resistance from students and teachers, enabling surveillance to become a banal practice.

# **Tracking Apps**

The second part of the surveillance assemblage is tracking Apps. R School has been employing the so-called Parents-School Communication App since 2021, which notified parents of their



**Fig. 2** The facial recognition system at the entrance of R School (photo taken by authors: November 2021).

children's arrival and exit times through an App on their smartphones. When students entered school, parents would receive a text message, and when students returned home from school, parents also needed to confirm their homecoming on the App to keep teachers informed. In justifying the use of the App, one teacher explained that some students hid in an Internet café after school, 'fooled around' with school dropouts, or had been knocked down by cars outside the school. In response, all parents were requested to install the App and confirm the students' status every time the student arrived home to reduce his or her unsupervised time. Once a student's status exceeded by 2 h the standard commuting time calculated by the background database, the system would automatically send warnings to teachers and parents to call for their attention.

## The surveillance cameras

The third and most significant component of the surveillance assemblage is surveillance cameras. With its 690 surveillance cameras within an area of 0.1 sq. km, R School achieved a so-called full coverage of cameras. The school gate, the playground, the footpath, the lawn, the canteen, an eight-floor teaching building and a six-floor teaching building were all under video surveillance. Inside each classroom, two cameras were installed at the front and the rear. The teachers' offices, students' dormitories and toilets were the only areas, not covered by cameras.

The density of cameras was high. For instance, there were 46 cameras on both sides of the school's 700-m main road, with roughly seven cameras every 100 m, pointing in different directions (Figures 3 and 4). In R School, the 690 cameras formed a meticulous monitoring web, ensuring continuous and all-sided surveillance (Table 1). Any behaviour on campus would be



Fig. 3 Four cameras were installed on one lamp post. Another four appeared around 20 m away. The campus wall was fenced with barbed wire, a common device used in maximum security institutions, such as prisons (photo taken by authors: November 2021).

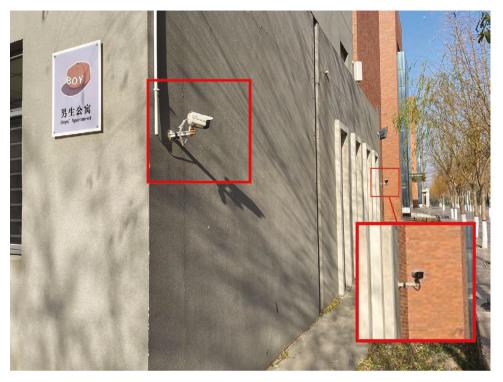


Fig. 4 Two cameras were installed on each side of the dormitory for male students (photo taken by authors: November 2021).

recorded by at least one camera, most of the time by many. In the central control room, those videos were stored on the hard drive and retained for 30 days, and authorized users could access and view videos.

In a nutshell, a surveillance assemblage has been formed in R School and surveillance cameras are the most important part of the assemblage.

## THE FUNCTION CREEP OF SURVEILLANCE CAMERAS

In China's official discourse, the reasons for the wide use of school surveillance cameras largely focus on campus security. However, we would argue that, although surveillance devices in R School were ostensibly employed to deal with crime, a notable function creep has occurred for the school authority to discipline students and avoid responsibilities in management.

## Security

In R School, surveillance cameras serve security purposes through two approaches: prevention and investigation, consistent with the role of public CCTV cameras in previous studies (Ashby 2017). The surveillance camera coverage spread from the campus gate to the entire campus, and the surveillance targets crept from off-campus to on-campus. While the original target was to prevent outsiders, once they were at work, the behaviour of insiders, including students, teachers and staff, was monitored.

First, as a possible deterrent against outsiders, surveillance cameras prevent outside perpetrators from entering the campus by denying unauthorized entry. Since the establishment of the

Table 1. Distribution of surveillance cameras in R School

Location	Quantity	Types of surveillance cameras	Authorized user
School gates	7	CCTV, facial recognition camera	Principal, security department
Main roads	46	CCTV	Principal, security department
Footpaths	54	CCTV	Principal, security department
Playgrounds	16	CCTV	Principal, security department
Teaching buildings (corridors, stairs, and outer walls)	182	CCTV	Principal, security department, grade coordinators
Teaching buildings (classroom)	346	CCTV, digital camera	Principal, security department, grade coordinators, homeroom teachers
Canteen	22	CCTV	Principal, security department
Others (e.g. shops, warehouses, and parking lots)	17	CCTV, digital camera	Principal, security department
Teachers' offices	0		
Total	690		

Source: School administrative documents.

school in 2014, there has been only one criminal case committed by outsiders, in which around RMB2,000<sup>5</sup> in cash was suspected to have been stolen from the teachers' office by a construction worker. The deterrent effect on crime should not be seen as a stand-alone effect brought about by cameras. The low incidence of crime was likely to have been linked to school securitization through the implementation of a variety of other security measures. It installed a large number of surveillance cameras and facial recognition devices and hired private security guards. The campus walls were fenced with barbed wire, a common device used in maximum security institutions, such as prisons. These target-hardening practices worked together to reduce crime opportunities.

The preventive function of surveillance is to deter not only outside intruders but also the possibility of undesirable behaviour by the staff, especially physical abuse by teachers. Apart from the seven cameras at the school gate, the rest were distributed throughout the campus. The principal admitted that the cameras were also used to deter teachers who might physically punish and abuse students. In recent years, following several cases of teacher abuse exposed by the Chinese media (China News 2021), internal safety on campus has become a recognized social problem. Schools increasingly rely on surveillance equipment as a weapon to prevent physical abuse from teachers. When discussing how they felt about working in the highly surveilled school, a grade coordinator with over 30 years of working experience said:

In the past, the physical punishment of children was quite common. At that time, it was called 'education,' but now it is called 'abuse.' We are now extremely cautious to avoid physically disciplining our students. Very few teachers dare to do it because the students may tell their parents at any time, and then the parents will complain to the principal or even report to the

Education Bureau. Last year, a teacher was fired because he beat one student after class. He was fired in three days .... You know, cameras are everywhere. If you hit a student, you will be recorded for sure. (Interview with a grade coordinator Li)

Second, the surveillance cameras could record illegal behaviour inside the campus, assisting the school authority in investigating security incidents. If something happens, the school may not report them to the police but instead use surveillance video independently to investigate transgressions. The director of the security department said:

A few years ago, a teacher lost his new motorcycle. He parked it at the back of the canteen, and it then disappeared. He was going to call the police at first, but we told him not to do it as we could handle it. We checked the surveillance footage and found that it was a canteen worker who had stolen his motorcycle. We asked him to return the motorcycle, and the next day the principal fired the worker. (Interview with the director of the security department)

The security department director admitted that within the campus, property violations committed by students, teachers and staff might occur from time to time. Functioning as an after-the-event forensic tool, cameras vastly empower school authorities' capacity for internal investigation. The desire to detect these cases partially motivated the school authority to install and use cameras. The security head remarked that these surveillance cameras allowed them to deal with those cases as if they were a police department. In the central control room, he proudly showed us how he had reproduced the scene of one incident and found the perpetrator by carefully reviewing the surveillance footage at different times, locations and angles.

Benefiting from the vast number of cameras, the school authority has monopolized access to surveillance and handled most safety, legal and ethical matters internally without intervention from third parties, by which private justice might be achieved (Henry 1983). While the original function of surveillance cameras was related to campus security, once installed, they were quickly expanded to discipline students and manage the school. A clear function creep was observed.

# Net-widened discipline

On the one hand, surveillance cameras were widely used for disciplinary purposes at R School. Teachers routinely monitored students through remote surveillance during self-study, and even recess time. The phenomenon was a significant manifestation of surveillance creep in the school setting, allowing surveillance devices introduced for security purposes ending up being used to discipline students' behaviour (Taylor 2013b; Hope 2018). Although there is a long tradition of classroom discipline in Chinese schools (Ding et al. 2008; Shen et al. 2009; Riley et al. 2012), the proliferation of surveillance cameras has significantly widened the net of discipline as described by Cohen (1985), through time–space compressed surveillance, intensified surveillance, lowered threshold of surveillance.

First, with the availability of cameras, discipline takes place in what has been called a time-space compressed model (Harvey 1991). On the one hand, it could extend beyond the time limit because the digital surveillance provided a playback function that could allow users to access videos within 30 days. According to some grade coordinators, the playback function greatly helped them to identify so-called 'unruly' students. Especially in cases when students denied their actions, teachers could cite irrefutable evidence by playing back surveillance videos. On the other hand, teachers could watch from a distance. Figure 5 illustrates how a grade coordinator was monitoring students through broadcasting. By browsing the computer screen, she could survey around 1,500 students, which was impossible through face-to-face



Fig. 5 A grade coordinator was watching the real-time surveillance video while broadcasting to the students (photo taken by authors: November 2021).

monitoring, although digital monitoring could also be challenging. Some teachers claimed that they benefited a lot from the surveillance cameras because the wide-angle lenses offered them a broader view than physically standing in the classroom allowed. Through time-space compression (playback function and distance monitoring), digital surveillance transformed the pattern of school discipline. A grade coordinator said:

In the past, after you caught an unruly student, he would always deny his way out, saying he didn't breach discipline.... Nowadays, students are very crafty.... but with cameras, it's totally different, you just need show the surveillance footage, and he will admit it. Surveillance video is conclusive evidence. (Interview with a grade coordinator #004)

Second, discipline has been intensified through surveillance cameras. R School installed a digital classroom system in 2021, the core of which was real-time monitoring with cameras installed inside the classroom. The display screen outside the classroom transmitted real-time videos of the classroom, allowing teachers and school administrators to watch remotely in their office or while walking in the corridors (see Figure 6). The so-called 'Smart Classroom Management System' was equipped with various functions, including class schedules, chat boxes and remote sharing. If used, the remote sharing function could even allow parents to watch what was going on inside the classroom, a common practice in many Chinese kindergartens. This real-time monitoring function was actively used by teachers and was regarded as 'the best invention' because it allowed teachers to observe students' behaviour from outside the classroom without students noticing, though some teachers complained that it increased the monitoring of their teaching performance. Indeed, the watchers were watched as well (Norris and McCahill 2006). After installing the Smart Classroom Management System, almost all the homeroom teachers shared they checked the footage frequently.



Fig. 6 By using the 'Smart Classroom Management System', teachers and administrators could watch the real-time surveillance video outside the classroom without arousing the students' awareness (photo taken by authors: November 2021).

A 25-year-old homeroom teacher remarked that she would spend more than 3 h a day staring at the real-time video to avoid missing the 'students who were messing around in the class'. She likened watching surveillance videos to watching social media such as TikTok, a popular social media platform. The grade coordinator's computer screen also stayed on the surveillance video all day long. It has become part of their daily work to find students who may misbehave by checking the video footage.

Third, the threshold for being disciplined has been lowered, resulting in more students' behaviour being included in the scope of regulation. Indeed, the lowering of the threshold of control caused by the new surveillance technology has become quite common (Brayne 2017). During our fieldwork, a seventh-grade homeroom teacher used a surveillance camera to catch a student waving his arms in the air during self-study. He thought the student was making 'unnecessary movements'. Although the student came to the office and explained that he was catching a mosquito, the teacher criticized him because his actions looked exaggerated on the screen. During the fieldwork, we also found that some students could be criticized by teachers for scratching their heads, lying on the desk or being in an apparent daze in class. These forms of behaviour seen from cameras were taken by the teacher to be indicators that they 'did not listen carefully' and were 'poisoning the learning environment in the class'. Although these acts may warrant a disciplinary response even before the cameras were installed, teachers acknowledged that they were difficult to detect without the help of the new technology. Accordingly, the cameras provide visibility, empowering teachers to recognize these split-second behaviours and discipline students.

#### Responsibility avoidance in management

On the other hand, surveillance cameras were widely used in school management, a significant function creep which is not possible prior to the widespread use of them. In particular, schools

have developed a monopolistic and strategic way of presenting video footage to avoid accountability in daily management. Several tactics were adopted.

The first commonly used tactic was to conceal surveillance footage in cases where it might become evidence against staff. The director of security confided that after a safety incident occurred, they always hid the existence of surveillance videos from parents. When parents insisted on watching the video, the school might use a variety of excuses, including not having permission from the public security department, the camera being turned off and the camera not having a storage function. Parents were usually in a weak position to challenge such claims because they often lacked sufficient knowledge of surveillance technology. Take the case of parental allegations about the mishandling of accidents. The director of the security department admitted that:

If our school is responsible for the accident, we will actively compensate the parents, but we usually don't show them the video. If parents insist on watching it, we can cope with it. We can show them videos from other positions and angles. You know, we have the video, and we can interpret what happened in the video from our point of view. (Interview with the director of the security department)

The second tactic was the selective use of footage. Following some contingency, such as student injury, school administrators may edit video footage from different angles to reconstruct the event. During our fieldwork, a seventh-grade student got injured in a physical education (PE) class. He was concussed by a medicine ball thrown by a classmate. We observed that there were at least 20 surveillance cameras at all angles around the 400-m playground, which could capture every move on the playground. The parents came to the school and asked to watch the surveillance footage to find out the cause of the injury. The footage from the wide-angle camera above the playground showed that the PE teacher was using his mobile phone and not paying attention to the students' dangerous behaviour. However, after running a short video filmed by a wide-angle camera, the security department director did not show the parents this crucial piece of information but instead showed them video footage from another close-up camera. From this angle, the teacher did not appear in the footage, avoiding the risk of exposing the teacher's dereliction of duty to parents. Such edited truth was a reconstruction of the reality of the incident. The security department director skilfully switched between different angles on the computer monitor, edited, played and interpreted them to the parents. Because there were sufficient cameras available on campus, he was often able to find the 'appropriate angle' while hiding some crucial parts (Figure 7). Being protective has become a common strategy for the school amid rising rights awareness among the middle class in China (Li 2010).

The third tactic was to present surveillance footage proactively when they were not responsible for certain incidents. When school administrators were confident that they had no liability for what happened, they may actively present the full video footage as evidence. In another accident on the playground, for example, a student was injured while playing basketball. The principal alleged that this was a 'normal' case, and the school was not responsible for it. Later, the parent of the injured student proposed that the school offer compensation for medical costs. During mediation, the security head unreservedly showed the parent footage from three different cameras, which clarified from multiple angles how the student's injury had occurred. These pieces of footage proved that the student had slipped and injured himself and that neither the school nor another student was responsible for the accident. Therefore, the claim for compensation from the injured student's parent was rejected. The vice-principal stated that surveillance video was powerful evidence when it came to resolving disputes. In sum, R School may selectively present, edit or hide video footage for responsibility avoidance in management.



Fig. 7 The central control room at R School (photo taken by authors: November 2021).

# DISCUSSION: THE RESISTANCE TO THE CREEP OF SURVEILLANCE CAMERAS

One major concern about the extensive use of surveillance cameras is the possible formation of a panopticon in modern society (Foucault 1991; Bentham 2010; Galič et al. 2016). Some argue that aware of being constantly surveilled, citizens may internalize the surveillance power and exercise self-policing themselves (Lyon 1993; Wood 2016). Others, however, argue that while it is appealing to use the metaphor of panopticon to describe the omnipresence of surveillance cameras, the self-surveillance effect emphasized by the panopticon metaphor could be limited due to various limitations and resistance (Norris and McCahill 2006), for example lack of real-time intervention, the attraction of transgression or simply not care (Hope 2009). In R School, although the functions of surveillance cameras have gradually expanded from campus security to student discipline and school management, the resistance to all three functions has been observed.

First, there are limits to the so-called full coverage. R School had 410 cameras in 2014. With these cameras, the campus had already become a highly surveilled space. However, not every single move of students could be captured by these cameras. For instance, on the campus, there was a piece of land covered by many trees, which blocked the gaze of the surrounding surveillance cameras. It was found that some students used the un-surveilled tree land for dating. To prevent such things from happening, the school installed several cameras under the trees. Nevertheless, unmonitored places continue to be discovered. In another case, some students complained that when they used a recharge machine to add value to their cards which they used to buy meals, the recharge was not successful when the machine took their money. After the

complaint, a camera was installed specifically facing the recharge machine. It was because of the constant discovery of the un-surveilled space, that the number of cameras increased to 690 in late 2021. However, it could be hard to say how many cameras could be enough to realize the so-called 'full coverage' when the number of cameras could become saturated. In addition, some spaces were exceptions, and not covered by cameras. Teachers' offices, students' dorms and toilets were among these exceptions. The principal expressed that 'there are no cameras in toilets. This is our principle'. However, because of the existence of such spaces, there could be a limit to the surveillance power as various displacements may happen (Xu 2012). In R School, teachers reported that some students used the toilets to smoke. Towards the end of our fieldwork, there was an incident in which a PE teacher slapped and kicked a student in the toilet during lunch break. Although the teacher was fired shortly afterward, the case reflected the limit of the full coverage, and therefore the limit of the surveillance power.

Second, the expected effect of self-surveillance could be limited. When asked about the effect of surveillance cameras on student discipline, school teachers generally remarked that video footage was very powerful as evidence in investigations. However, the effect of self-policing may only work for some, but not others. A grade coordinator said:

Generally speaking, if somebody was found for violating rules, he/she would be repeatedly caught for doing so. It was not the case that they would behave better after being caught. Very hard. (Interview with A grade coordinator Shi)

Another homeroom teacher further shared that:

It has been three months since the grade 7 students entered the school. It looked like they didn't care much about the cameras. Once I told them, I would watch them through cameras. They behaved slightly better. But after a few hours, the effect gradually disappeared. No matter how much we reminded them, the effect could not last for a day. For some, the effect may not even last for half a day. Being warned in the morning, they may violate rules in the afternoon. It seemed the cameras were not there. It's a big headache for me. (Interview with a grade 7 homeroom teacher Wang)

During the fieldwork, one homeroom teacher showed us a screenshot he had just saved, which clearly showed a male student sitting in the last row holding a Rubik's cube in his hand. He described to us how he had caught the student time and time again but could not change his behaviour in class:

Did you see the Rubik's Cube in his hand? That's what he did in English class .... he sits in the last row, and without the camera, it would be hard for me to spot him. Every time I turn on the monitor screen, I look at what he's doing first. This guy drives me crazy, I've caught him many times, but he hasn't changed much. (Interview with a homeroom teacher Zhang)

In explaining the differential self-surveillance effects, a grade 7 homeroom teacher said:

There was little effect on both those who sat in the back rows of the classroom (the poor academic performers) and those who sat in the front rows (good academic performers). They would not be concerned much with the cameras. There might be some effects on those students who sat in the middle (average academic performers). If they were caught through cameras (for minor misbehaviors), they may change a bit. For others, I think the effect of cameras was very limited. (Interview with a grade 7 homeroom teacher Xin)

In sum, almost all teachers acknowledged that frequent monitoring and certain discipline did not help these 'problematic students' to correct much of their behaviour. The self-surveillance effect embodied in the panopticon has been rather limited.

In addition, although video footage could be strategically used by the school in management, there could be a boomerang effect in which the captured evidence could be used against them. With the widespread use of surveillance cameras, it has now become a common practice to examine the video footage if some disputes arise. This is also the case for parents. During our fieldwork, there was an incident in which a teacher physically punished a student in his class. According to his colleagues, the homeroom teacher made the student stand up for the duration of the lesson and scolded him. The next day, the student's angry parents went to the principal and asked to watch the surveillance video. Afraid of being held responsible if the video was shown, the principal told them that the surveillance cameras in the classroom could only be watched in real time and had no storage function. The principal also explained that the surveillance cameras could not record sound and even took them to the central control room and showed them the muted videos. Misguided by the information, the parents had to give up the request. However, as for compensation, the principal promised that the teacher would be severely disciplined. Indeed, selective disclosure of video footage was widely reported during investigations of school safety incidents in China (China News 2021). While extensive surveillance cameras allow schools to do so, sometimes the availability of surveillance footage puts schools at a disadvantage. For instance, in 2021, a 16-year-old student fell to his death at a junior high school in Sichuan Province. When parents asked to watch the surveillance video, the school refused. But very soon, the police arrived at the scene, extracted the CCTV footage and began an investigation (Chengdu.Cn. 2021). Although parents could be in a weaker position facing the school authority, schools do not always have a monopoly on the interpretation of surveillance footage. When there is intervention from an external force such as the police or the education bureau, the school may not be able to hide the video. All evidence could be used to support or against the school. The boomerang effect may occur unexpectedly.

While the omnipresence of cameras has significantly empowered the school in campus security, student discipline and school management, various forms of resistance did occur, which may indicate the potential limit of the creep of surveillance cameras and the formation of a panopticon as much literature suggests (Norris and McCahill 2006).

#### CONCLUSION

Modern society has witnessed the expansion of surveillance in various contexts such as public spaces, commercial locations and industrial operations (Goold et al. 2013; Brayne 2014), and China has pioneered development in this domain. Although previous literature tends to examine how the Chinese party-state promotes widespread surveillance out of a combination of a strong political will and weak legal controls (Leibold 2020), the role of non-state sectors, especially schools, in the process of facilitating surveillance creep has been hitherto under-explored.

Using data collected through fieldwork and in-depth semi-structured interviews from R Middle School in northern China, we have examined the creep of surveillance cameras and their use and misuse in the Chinese education system. We found that surveillance devices were extensively used in R School, the institution featuring in our case study, where cameras were everywhere except in toilets, teachers' offices and students' dormitories. We also found that surveillance cameras were just part of the surveillance assemblage in R School. The creep of surveillance cameras was just part of the surveillance creep in general. We further explored the mechanisms of the creep of surveillance cameras. It was found that the school surveillance system, albeit introduced for security, has embraced a range of roles much more extensive than

crime prevention and internal investigation. They were widely used to discipline students in their daily life. In addition, the school authority strategically used surveillance cameras to manipulate the investigation process of on-campus safety incidents, selectively concealing, editing and presenting surveillance footage to avoid responsibility in management. Lastly, we reveal various forms of resistance to the creep of surveillance cameras as there could be limits of the so-called full coverage, the effect of self-surveillance could be hard to achieve and the evidence captured in video footage could be used against the interest of the school management.

We hope that this study can contribute to the existing literature in the following ways. First, it provides a bottom-up approach to examine how non-state sectors, such as schools, play a role in promoting the development of a surveillance society in China. Second, it enriches our understanding of surveillance by revealing the mechanisms through which surveillance cameras go beyond their designed purpose of security and serve for responsibility avoidance and discipline, which contributes to a global comparative perspective of surveillance creep (Marx 2005; Haggerty 2012; Pereira and Raetzsch 2022). Third, it calls for a critical reflection on the resistance to the creep of surveillance cameras. While the metaphor of the panopticon could still be inspiring in analysing surveillance cameras, the self-surveillance effect could be limited due to the resistance to the creep.

Several issues remain to be explored. First, this study mainly focuses on how surveillance cameras are being used and expanded in a school, although the lived experience of the students subjected to surveillance remains largely unexamined. Future studies could more specifically address how students perceive, adapt to or resist the surveillance system. Second, school is one of many non-government sectors. In China, surveillance cameras are widely used by ordinary people. For instance, parents use them to monitor children; adult children use them to monitor elderly parents in the name of care; employers use them to monitor domestic helpers and nannies; pet owners also use them to monitor pets. Future studies could investigate how ordinary citizens embrace surveillance cameras and contribute to the rise of banal surveillance in China (Lyon 2018; Brayne 2022). Third, as the role of commercial power is important in promoting surveillance cameras (Huang and Tsai 2022), future studies could examine the political economy of the Chinese surveillance system.

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