

Article Lateral Surveillance in Singapore

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Abstract

With its high internet penetration rate, and the dense saturation of audio-visual-capturing mobile smartphones among its citizens, Singapore provides a ripe technological infrastructure for a surveillance society. Its citizens have been serendipitously capturing, on photo or video, socially undesirable and controversial incidents of daily living. Widespread adoption and use of social media have enhanced the viewership of these captured behaviours and provided a platform for responses of criticisms.

Panopticism, in the modern day context, is used as a metaphor to describe the effect of surveillance by authorities that shapes and manipulates social behaviour. Lateral surveillance is the opposite of panopticism, which portrays the impact of surveillance of the few by the unseen many. This study explored the perception and impact of these activities on citizens' social behaviours. Respondents were questioned on their awareness of surveillance in different milieu of their daily lives, such as commuting, driving, interactions in public spaces, and checking into, or uploading of photos onto social media, and its impacts on their social behaviours in those public spaces.

This study recruited a sample of 223 university students, aged between 18 and 26 years, comprising of both genders, to undergo an online survey. These students were directed to an online survey, which did not capture identifiable information, by the authors who have access to the students at their university.

Data collected provided descriptive statistics of the awareness and impact of panopticism, and lateral surveillance, by media-rich and media-savvy young citizens. Comparisons were made between panopticism versus lateral surveillance's effect on social behaviour. This study found that lateral surveillance had a more powerful effect on social behaviours, contributed to significantly by the presence and usage of publicity channels such as Facebook and other local popular news websites.

Introduction

With the recent leakage of top-secret American intelligence data by Edward Snowden, surveillance by the government has once again surfaced as a contentious issue. While little is known about the Singapore government's surveillance activities, it is clear that its position favours national security over individual privacy (Wong 2013). As such, it is no surprise that the Singapore government has installed many sophisticated digital closed-circuit television (CCTV) cameras at major road junctions, expressways, public areas, public housing areas, commercial buildings, elevators in public housing blocks, and public transport systems (Ho 2012). Currently, over 600 CCTV cameras provide coverage of the roads in Singapore. The Mass Rapid Transit (MRT) surveillance system costs more than S\$29 million, consisting of a camera in every train, train station, and train depot (Yeo 2008). There are at least five to eight CCTV cameras on each bus, depending on whether it is single or double decked (Tan 2006). While these surveillance mechanisms are primarily meant to capture or deter terrorist or criminal activities, they have also served to influence social behaviours (Ho 2008).

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But in Singapore the authorities are not the only ones undertaking surveillance work. Ranked first in the world for smartphone penetration rate (Sterling 2011) with a mobile population penetration rate of 154.3 per cent (Infocomm Development Authority of Singapore 2013), and boasting a smartphone ownership rate of about 88 per cent (Blackbox Research 2013), Singapore's citizens have been serendipitously capturing, on photo or video, incidents of daily life—whether socially desirable, or undesirable and controversial—and sharing these via online media. Examples include photos of healthy looking commuters sitting on seats meant for the elderly, disabled or pregnant women, typically located near the entrances and exits of public transportation; and videos of bullying incidents and heated arguments in public spaces. Motorists have also installed video cameras in their vehicles to record the actions of unruly and errant road users. Widespread adoption and use of social media have enhanced the viewership of these behaviours captured on tape, and provided a platform for mass public responses, whether criticisms or praise.

The Singapore government has also played a role in creating a surveillance society. First, the leeway given to citizen journalism through the website, STOMP, set up by the government-authorized Singapore Press Holdings, has fuelled this culture (Cheam 2007). Second, the authorities have acted on some of these video recordings to investigate, warn or prosecute offenders, thereby lending weight to the recordings' credibility (Mokhtar 2013a). Examples include the police acting on video clips showing a lorry driver hitting a motorcyclist and another showing two cars racing recklessly on the expressway (Y.L. Lim 2013). Moreover, policy considerations are in motion to reduce insurance premiums for cars that have video cameras installed—implying that, with such devices in place, motorists are more likely to drive cautiously (C. Tan 2013). As such, while Singapore is realizing the prospect of becoming a surveillance society through panopticism and lateral surveillance, there is a dearth of knowledge about surveillance's effects on public social behaviours and the source of this disciplinary power. As such, this paper seeks to address this lacuna. This paper begins with a review of two prominent surveillance phenomena.

Panopticism

Panopticism is a concept intimately related to surveillance and nowadays it is used as a metaphor to describe the effect of surveillance that shapes and manipulates social behaviour. The etymology of panopticon comes from the Greek *pan* that means "all" and *optikós* which means optic, visual, as such, "to see all." The concept comes from Jeremy Bentham, an 18th century English philosopher who created the perfect prison design of a crescent-shaped building with a centred tower. This shape gave the guardians, those in authority, the ability to monitor the inmates' behaviour, and most importantly, maximized the difficulty for the prisoners to see the guards, leaving the prisoners with the uncertainty of when they were being watched. Foucault claims that this model is the perfect representation of the disciplinary power exercise that can be observed "from the penal institution to the entire social body" (Foucault 1975: 298). As such, by extension of Foucault's description, the authority's ability to punish the prisoners with further sanctions (penalties) beyond their jail term contributes significantly to this disciplinary power (Haggerty, Wilson and Smith 2011; Hegarty and Bruckmüller 2013).

Applying the concept of Panopticism to the technological age, it refers to surveillance activities via the use of video cameras, carried out by the authorities, such as the government on its citizens (Lyon 2001). Take the case of Atlanta where cameras were used in the surveillance of public places. The Atlanta police chief mentioned that when "people begin to realize that their actions are being monitored, the deterrent effect of cameras comes into play" (Griffin 2011: 64). The director of operations and public safety for the Atlanta Downtown Improvement District said that "the perception people have about cameras can be just as powerful" (Griffin 2011: 65), accounting for a 34 per cent reduction in crime since the camera program started. According to surveillance experts, Britain, with 4.2 million CCTV cameras installed, is known as the most intensely monitored country in the world; this is equivalent to one for every 14 people as the report on the surveillance society recorded. In step with technological advances, normal CCTV cameras

are being replaced with High Definition (HD) technology models, resulting in "129,299 HD CCTV cameras in the UK by the end of 2012 and HD CCTV Alliance has predicted that number would rise to over 3.7 million by 2016... and has proven effective in reducing antisocial behaviour on our streets, a key factor in whether people feel safe and comfortable in their communities" (BBC 2012). While intended to police criminality, these surveillance cameras have effects on social behaviours.

Again, by extension, the source of disciplinary power is derived from the authorities' ability to prosecute and impose fines or sanctions on the social deviants. Logically, the capture of deviant activities on video would not serve as a deterrent unless there is a perceived threat of punishment, associated with its capture, by the deviants. While the fear of being considered deviant also contributes to the source of disciplinary power (Foucault 1975), arguably the potential tangible punishment able to be meted out by the authorities is very significant. Unfortunately, this concept has not been frequently discussed in the surveillance literature (Haggerty, Wilson and Smith 2011).

In Singapore, the level of surveillance activities by the authorities has increased dramatically, especially in public places such as on public transport or roads, which improves the efficiency of policing and keeping order. Together with the UK and the US, it has been included in the list of countries with "endemic surveillance" (Zetter 2007: 1). In general, panoptic surveillance has been well received by society at large, as it is willing to trade off part of its privacy for security. So it is not difficult to hear comments from the public such as this: "the cameras installed in my estate in Bangkit are definitely welcome...with surveillance cameras watching our every move, we must obey or face the penalty" (The Straits Times 2013: 1).

However, the development of new technologies has created an interconnected society under a multidirectional surveillance scheme. While "the degree of collaboration with surveillance depends on a range of circumstances and attitudes" (Lyon 2003: 22), new metaphors are needed as surveillance is not only a vertical model anymore; surveillance nowadays takes place in multiple directions and is conducted by different people. Therefore, an explosion of new terminologies has taken place in the field of Surveillance Studies in order to conceptualize, analyze and explain more accurately this new reality.

Some of the more relevant new concepts are *Synopticism* or *Inverted Panopticism*, where many are able to see the few. The term Synopticon is derived from the Greek *syn* that means together or at the same time, and *optikón* that means optic, as in visual. It is identified as "the bottom-up surveillance" typically conducted by those not in authority on those that are in authority (Mathiesen 1997). An example is the filming of police brutality (BBC 2010). Another new term is the voluntary or "participatory" panopticon, that is different from the traditional system because it is consensual (Whitaker 1999). People decide to participate because they see an advantage in doing so. An additional and very interesting concept is the self-surveillance described by Meyrowitz as "the ways in which people record themselves (or invite others to do so) for potential replaying in other times and places" (2007: 1). One of the most common examples of this is the video camera drivers install in their cars. While these are some of the most well-known new concepts in this field, the focus will be on lateral surveillance, as it is extremely prevalent in Singapore.

Lateral Surveillance

Lateral surveillance is "not the top-down monitoring of employees by employers, citizen by the state but rather the peer-to-peer surveillance of spouses, friends and relatives" (Andrejevic 2005: 481). Andrejevic claims that it is to be "understood as the use of surveillance tools by individuals, rather than agents or institutions public or private" (2006: 488) but not "in the sense of reciprocal monitoring but in the asymmetrical sense" (2006: 397). As such, lateral surveillance is characterized as the surveillance of peers by peers. Intuitively, lateral surveillance is the most common and efficient surveillance system in any society as it is omnipresent and ubiquitous. As such, it may elicit a greater disciplinary effect on social

behaviours. It is not the unseen Big Brother who is watching anymore, but the neighbours, the fellow commuters on the bus, or the other drivers on the road, who are the "Big Other." This concept would, as such, cover citizen journalistic activities frequently found in societies.

As such, while many societies experience the presence of panopticism and lateral surveillance, few studies explore the public perceptions of surveillance (Jansson 2012). Specifically, this study attempts to examine the awareness of surveillance, and their (panoptic and lateral surveillance) disciplinary power on public behaviours. The measure of disciplinary power will be conceptualized as its impact on social behaviours.

Lateral Surveillance in Singapore

Singapore has witnessed a high prevalence of lateral surveillance (Chin 2011; Ho 2008; Cheng 2013; Y.L. Lim 2013; Lin 2013; Lin 2013; Lin and Sih 2013; Mokhtar 2013a, 2013b; B. Sim 2013; R. Sim 2013; W. Sim 2013; C. Tan 2006, 2013; R. Tan 2013; Tham 2013; Zaccheus 2013). Citizens have been known to record video clips of socially undesirable behaviour on the MRT, such as sleeping on seats that are reserved for those in need, not giving up seats for those in need, making a nuisance of oneself on the train, not queuing up prior to boarding the train and so on. On the bus, many incidents of not giving way to those in need of a seat, and verbal arguments have also been captured. Of course, there were also socially desirable behaviours (good deeds) that were captured. An example was when a foreigner donated his slippers to a person who did not have any and then walked bare-footed all the way home (W. Sim 2013). Another example was a boy's kind act of helping an elderly person which was captured (R. Sim 2013). Drivers have also been recording videos of their driving experiences and publicizing controversial driving behaviours of other drivers. In the event of serious motor vehicle accidents, the police have also used these recordings for prosecution purposes. As such, anecdotal accounts suggest that Singapore's citizens are active participants of lateral surveillance using STOMP, a popular citizen-journalist website to upload such video footage (Singapore Press Holdings 2013).

Disciplinary Power

Foucault argues that disciplinary power is due to the fear of being perceived as deviating from social norms. It is this power, together with the perception of surveillance, that moderates social behaviours (Foucault 1975). In that same line of argument, this disciplinary power should be present in lateral surveillance too. Yet literature is relatively silent on what this disciplinary power is (Haggerty, Wilson and Smith 2011). Anecdotal reports suggested public shaming as the main contributor to the disciplinary power of lateral surveillance (Almenoar 2009). While lateral surveillance has resulted in tangible legal punishments, such footage usually shamed the social deviant (Y.L. Lim 2013; J. Lim 2013; Lin 2013; Mokhtar 2013a, 2013b). Moreover, shaming has a strong effect in Singapore's culture. With many values essentially adopted from the east, including China, such shaming activities would pose a huge deterrent to social deviants (Qi 2011).

Research Question

Thus far, the review has highlighted the need to explore surveillance from a few angles. First, this study attempts to measure people's reaction to surveillance (RQ1) by capturing their perception of being under surveillance and the impact of such surveillance on their social behaviours. Specifically, this study examines the perceptions of surveillance and its impact in public places (henceforth known as domains) such as MRT trains and stations, public buses and on the roads. While there is no theoretical motivation to compare across domains, these three key domains have frequently surfaced in media reports of surveillance activities taking place. As such, it would be interesting to explore these individually and collectively. This study will differentiate between surveillance by the public (lateral surveillance) and the authorities (panoptic surveillance), which are the major phenomena taking place in Singapore.

Second, this study attempts to explore the characteristics of disciplinary power associated with Lateral Surveillance (RQ2). Specifically, this study examines people's perceptions of the usage of popular publicity channels in Singapore, namely STOMP, Facebook, Yahoo Singapore, The Straits Times, YouTube and Twitter, and how it impacts on their social behaviours.

The detailed research questions are highlighted below.

RQ1(a): To what extent do people believe they are under surveillance?

RQ1(b): How does surveillance impact social behaviours?

RQ2(a): How are publicity channels perceived?

RQ2(b): How do publicity channels contribute to the impact on social behaviours?

Measures and Instruments

Based on the review, the participants' perceptions of surveillance, by the public and authorities, have been recorded in three main domains—MRT trains and stations (MRT), on public buses (BUS), and while driving (CAR). Perceptions of public surveillance, or lateral surveillance (LS), on socially undesirable behaviours (SUB), were measured on a 7-point Lickert scale with high scores indicating strong disagreement (versus "Strongly Agree"). Awareness of surveillance by authorities, or panoptic surveillance (PS), was also measured on the same scale in the three main domains.

The impact of surveillance on certain behaviours, widely highlighted in the mass media, was measured on a 7-point Lickert scale, with high scores indicating a very large effect on behaviour (versus "No impact at all"). This study included behaviours such as littering, display of romantic affections, and returning of trays, which have been featured in the mass media, but are not specific to any of the domains. While there are opportunities for surveillance by authorities of these behaviours outside the domains, there is currently no evidence of such activities going on, nor is there evidence that people perceive there to be.

The publicity channels that people fear their SUB would be publicized on were also captured. See Table 1 (below) for a list of relevant questions used in the online survey.

Perception [Strongly Agree (1) — Strongly Disagree (7)]:

- 1. I believe that commuters on MRT trains / Bus / Drivers or Pedestrians will take a photo/video of me if I display socially UNDESIRABLE behaviours.
- 2. I believe that I am under video surveillance by the AUTHORITIES while commuting via MRT / Bus / when on the road driving.

Impact [No impact at all (1) — Very large effect on my behaviour (7)]

To what extent video/photo surveillance by MRT COMMUTERS / AUTHORITIES would affect the following behaviours:

- 1. How loud I talk.
- 2. Whether I would sit on the empty reserved seat (for disabled, elderly or pregnant people) located near the doors.
- 3. Whether I would give up my seat to those in need.
- 4. Whether I would move to the centre of the train carriage to allow easy boarding/disembarkation of other commuters

- 5. Whether I would stand or sit.
- 6. Whether I would make movements (e.g. bobbing of head) to the music I am listening to.
- 7. Whether I would sleep on the train.
- 8. Whether I would stand behind the queue line while waiting for the train.
- 9. Whether I would give way to disembarking commuters before boarding the train.
- 10. How I behave in general.
- 11. How I dress in general.

To what extent video/photo surveillance by BUS COMMUTERS / AUTHORITIES would affect the following behaviours:

- 1. How loud I talk.
- 2. Whether I would sit on the empty reserved seat (for disabled, elderly or pregnant people) located near the doors.
- 3. Whether I would give up my seat to those in need.
- 4. Whether I would move to the back of the bus to allow for easy disembarkation/boarding of other commuters.
- 5. Whether I would stand or sit.
- 6. Whether I would make movements (e.g. bobbing of head) to the music I am listening to.
- 7. Whether I would sleep on the bus.
- 8. How I behave in general.
- 9. How I dress in general.

To what extent video/photo surveillance by DRIVERS OR PEDESTRIANS / AUTHORITIES would affect the following behaviours:

- 1. Whether I would drive in bus lanes.
- 2. Whether I would park properly.
- 3. Whether I would give way to emergency vehicles (e.g. ambulance, police).
- 4. Whether I would drive properly in general.

To what extent video/photo surveillance by the PUBLIC would affect the following behaviours:

- 1. Whether I would litter.
- 2. Whether I would display romantic affection (e.g. kissing, hugging).
- 3. Whether I would return my tray (utensils) after eating.
- 4. How I would behave in general.
- 5. Whether I would dress appropriately.

Publicity

I am fearful that photos/videos of my socially undesirable behaviours may be publicized on:

- 1. STOMP
- 2. Yahoo Singapore
- 3. Facebook
- 4. The Straits Times
- 5. YouTube
- 6. Twitter
- 7. Other

Table 1. Means of perception of Surveillance

Procedure and Participants

Students, aged between 18 to 26 years old (inclusive), from National University of Singapore, were invited to participate in the study by completing an online survey. University students were chosen as they are deemed to be media savvy enough, possess the necessary recording equipment, and have great potential to be participants in these surveillance activities. In addition, the authors had convenient access to them. The study was publicized during lectures and tutorials and through emails to the students. The participants were encouraged to spread word of the online survey (snowball sampling) to their friends and classmates in the school. Such sampling method does not generate strong generalization claims, which this study cautions against. No identifiable information was collected, and the consent process was robust—participants could view all the questions before participating. The online survey was programmed to not allow missing values so as to avoid the associated computational issues that would be incurred.

A total of 223 participants, both male (n=84) and female (n=139), were included in the sample. The average age of the participants was 21.64 years [SD=1.803]. The sample included 13 participants who do not take the MRT, 11 who do not take the bus, and 156 who do not drive. Comparison of means and correlational analysis were performed on the data collected.

Findings

RQ1(a): To what extent do people believe they are under surveillance? A paired samples t-test was performed to ascertain whether there was a significant difference between the perceptions of surveillance. Figure 1 below presents the findings on the perception of surveillance.

	MRT	BUS	CAR	Overall
Perception of LS	2.30	2.85	2.87	2.67
Perception of PS	3.69	4.66	3.06	3.80
Paired Samples t-test difference	-1.39 t(222)=-10.126**	-1.81 t(222)=-12.087**	-0.19 t(222)=-1.347*	-1.23 t(222)=-11.182**

* p is significant at 0.05 level (2-tailed)

* p is significant at 0.01 level (2-tailed)

Overall, the participants believe that they are under surveillance. The differences in perceptions across the three domains, when tested with the repeated-measures ANOVA, were found to be significant with F(1.773,393.573) = 16.885, p=0.00 for perception of LS on SUB, and F(1.936,492.687) = 68.182, p=0.00 for perception of PS on SUB. Findings indicate that perception of LS is strongest on MRT, followed by BUS and then CAR. However, perception of PS is strongest for CAR, followed by MRT and then BUS. Pairwise comparisons indicate significant differences between perceptions of LS and PS, with respondents believing that the public would be more inclined to exercise surveillance, via the capturing of SUB, than the authorities.

Two-group comparisons were made between genders, between those who do and do not take the MRT, between those who do and do not take the bus, and between those who do and do not drive. Through an independent t-test, it was found that there was no statistical difference between those groups in their perceptions.

RQ 1(b): How does surveillance impact social behaviours?

The differences in impacts on SUB across the domains, when tested with the repeated-measures ANOVA, were found to be significant with F(1.321,294.670) = 33.675, p=0.00 for LS's impact on SUB, and F(1.196,266.814) = 325.354, p=0.00 for PS's impact on SUB. Pairwise comparisons were made between the LS's impact and PS's impact on SUB in the domains, and the findings summarized in Figure 2 below.

	MRT	BUS	CAR	Overall
LS's Impact on SUB	3.10 (α=.908)	2.88 (α=.923)	3.63 (α=.924)	3.24 (α=.950)
PS Impact on SUB	2.51 (α=.946)	1-		2.82 (α=.955)
Difference	ce 0.59 t(222) = 8.01**		-1.13 t(222) = -12.66**	0.42 t(222) = 7.64**
Findings	LS impact greater	LS impact greater	PS impact greater	LS impact greater

Figure 2. Means of Impact on SUB & Reliability Analysis of Surveillance scales *p is significant at 0.05 level (2-tailed) **p is significant at 0.01 level (2-tailed)

Two-group comparisons were made between genders, between those who do and do not take the MRT, between those who do and do not take the bus, and between those who do and do not drive. Through an independent t-test, it was found that there was no statistical difference between those groups in the impact of surveillance on their social behaviours.

RQ 2(a): How are publicity channels perceived?

Descriptive statistics (Figure 3 below) suggest that the majority of participants do fear the publicity of their SUB. There was not a single entry where the participant had no fear of SUB being publicized, and on average participants fear that their SUB gets publicized on 3.57 media platforms [SD=1.617].

Fear that SUB gets publicized on:	Yes	No
STOMP	90.1%	9.9%
Yahoo Singapore	32.3%	67.7%
Facebook	84.3%	15.7%
The Straits Times	55.6%	44.4%
YouTube	63.7%	36.3%
Twitter	30.9%	69.1%

Figure 3. Frequency Distribution (%) of fear of publicity of SUB

However, the situation was very different when the respondents were questioned on their usage of publicity channels. Results show that 47 per cent would not publicize others' SUB. Of the 53 per cent who would publicize others' SUB, 86 per cent would publicize it to their friends and 25 per cent to the public through media channels. This implies that only 14 per cent of the respondents would publicize others' SUB through public media channels. On that same note, respondents generally would not capture (M=4.81) SUB of others.

RQ 2(b): How do publicity channels contribute to the impact on social behaviours? An independent t-test was performed on the impact of publicity channels on social behaviours in general and across the three domains. Two-group comparisons were made between respondents who fear and do not fear their SUB being publicized. Figure 4 below shows the statistically significant findings.

Media Channels	MRT	BUS	CAR	Public	General Public Behaviour
STOMP - Fearful - Not fearful				t(222)=0.81* 3.95 3.14	t(222)=0.54* 3.29 2.75
Yahoo Singapore - Fearful - Not fearful	t(222)=0.44* 3.40 2.96	t(222)=0.48* 3.21 2.73		t(222)=0.78** 4.40 3.62	t(222)=0.49** 3.57 3.08
Facebook - Fearful - Not fearful	t(222)=0.51* 3.18 2.67	t(222)=0.76** 3.00 2.24		t(222)=0.81** 4.00 3.19	t(222)=0.65** 3.34 2.69
The Straits Times - Fearful - Not fearful	t(222)=0.38* 3.27 2.89	t(222)=0.52* 3.11 2.59	t(222)=0.71** 3.94 3.23	t(222)=0.80** 4.23 3.43	t(222)=0.54** 3.48 2.94
YouTube - Fearful - Not fearful	t(222)=0.52** 3.29 2.77	t(222)=0.55** 3.08 2.53	t(222)=0.61* 3.85 3.24	t(222)=0.85** 4.18 3.33	t(222)=0.61** 3.46 2.85
Twitter - Fearful - Not fearful		t(222)=0.52** 3.24 2.72		t(222)=0.65** 4.32 3.67	t(222)=0.40* 3.51 3.11

Figure 4. In-Between Group Comparison on Impacts on Social Behaviours (Means)

* p is significant at 0.05 level (2-tailed)

** p is significant at 0.01 level (2-tailed)

The findings demonstrate that respondents who were fearful of publicity were more influenced in their social behaviour than those that were not fearful. Further examination with correlational studies showed that the impact on social behaviours in the domain of MRT r(223) = .238**, BUS r(223) = .283**, CAR r(223) = .198**, other public spaces r(223) = .349** and General Public Behaviour r(223) = .308** were positively correlated to the number of publicity channels feared by the respondents.

Discussion and Conclusion

With the strong belief that the public (LS) and authorities (PS) are observing social behaviours, it is evident that Singapore is becoming a surveillance society. This is particularly evident in the main public domains of commuting via MRT, bus and car, or in general public spaces as this study shows. Interestingly, these perceptions vary significantly across the public domains on both LS and PS fronts, and are also different between LS and PS in the respective domains. While there is no theoretical motivation to observe surveillance in these domains, the study's findings suggest that qualitative explorations into surveillance in different public spaces are very much warranted. This study can only speculate that perception of LS increases with the perceived number of video or photo capturing devices available. If so,

it would explain the strength of perception being strongest in MRT spaces, weaker in bus spaces and weakest in driving spaces, as the MRT has the most commuters and drivers are regarded as being least exposed to surveillance by others. However, it is most striking that awareness of LS is greater than that of PS, implying that the age-old fear of PS is fading in the light of new media technologies that enable LS.

The perception of the prevalence of LS over PS further complements the findings that show LS's impact is greater than PS's, specifically in this sample. The scale developed for measuring surveillance's impact on behaviours has shown strong reliability, which bodes well for its future use to longitudinally track changing impact patterns. LS has been shown to have a greater influence, and in turn disciplinary power, over PS. As such, while Singapore is becoming a surveillance society, the strength of influence has shifted to the people, giving credence to the term the "Big Other."

However, this study notes that in the domain of drivers, PS exerts a larger influence over LS. This observation, together with the mindfulness of PS over LS, for drivers, suggests that the government's heavy reliance on video surveillance for dealing with traffic behaviours, widely known through the media (Mokhtar 2013a), may be responsible. Drivers' faces are, most of the time, not exposed in LS, and are not easily identifiable. In contrast, for PS, drivers' identity can be traced and tracked by the authorities who have further powers, such as investigative rights, beyond the punitive ones. Again, this emphasizes the need for qualitative exploration as surveillance perceptions and effects seem to be different across the domains.

While descriptive in nature, this study finds that many respondents fear that surveillance footage may be publicized through the major media channels in Singapore, with STOMP being the most feared. The study shows that fear of publicity has statistically significant impact on the respondents' social behaviours across all domains and in general. The impact on their social behaviours also increases in tandem with the number of publicity channels they fear. As such, this study supports the inclusion of publicity factors in the dialogue of the effects of surveillance. While disciplinary power is clearly internalized in the panopticism phenomenon, little is known about this disciplinary power in lateral surveillance phenomenon. This study has observed that the fear of publicity and shame associated with LS bears great weight and may have a greater impact on moderating social behaviours than panopticism, and opines that this fear is a significant contributor to the disciplinary power. The findings speculate that the media affordances of publicity channels may influence the impact on social behaviours. For example, having a 140-character capacity and requiring others to proactively add external accounts before being able to receive messages on the network (Twitter Inc 2013) may limit Twitter as an effective publicity channel for purposes of discipline.

This study has its limitations. Firstly, it would be challenging to make any generalization claims as the snow-balled sample consisted of tertiary students. Secondly, while this study could have widened its sampling criteria and recruited similar numbers of people who take the MRT, bus, and/or drive, and those who do not, in order to produce potential comparisons, it is nonetheless a step forward in engaging the phenomenon of LS.

Future studies, specifically in the area of publicity's posture and characteristics in the surveillance process, would be required to further inform this dialogue. Moreover, further investigation into the precise source of disciplinary power and its mechanisms would prove fruitful for this discourse. Nonetheless this study has illuminated further the phenomenon of LS and its disciplinary power. Adopting this framework as a departure point, further studies can be conducted for other emerging surveillance phenomena based on differences in power arrangements and ideologies at stake, as technologies evolve.

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