Breaking Through the Permafrost:

The Impact of Procedurally-just Supervision on Police Resistance to New Technology

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Backdrop

Despite the fairly widespread claim that police are resistant to change, police services have been prolific adopters of new technology over the past two decade.

Many of these new technologies have GPS capabilities that track frontline officer movements and use of discretionary time.

To date, little research has examined the cultural factors that impede or obstruct the diffusion of technology through police organisations.

Today, the term Luddite is often used to refer to people who do not like new technology, however it originated with an elusive figure called Ned Ludd. He was said to be a young apprentice who took matters into his own hands and destroyed textile apparatus in 1779. The group of workers that followed him said they were taking orders from "General Ludd" and issued manifestos using his name. That said, there is little evidence of his actual existence. Ned Ludd has assumed a mythical 'Robin Hood' reputation. He has become the legendary character others would use to create a namesake for their cause. The Luddites were using a name to shock the government into submission.
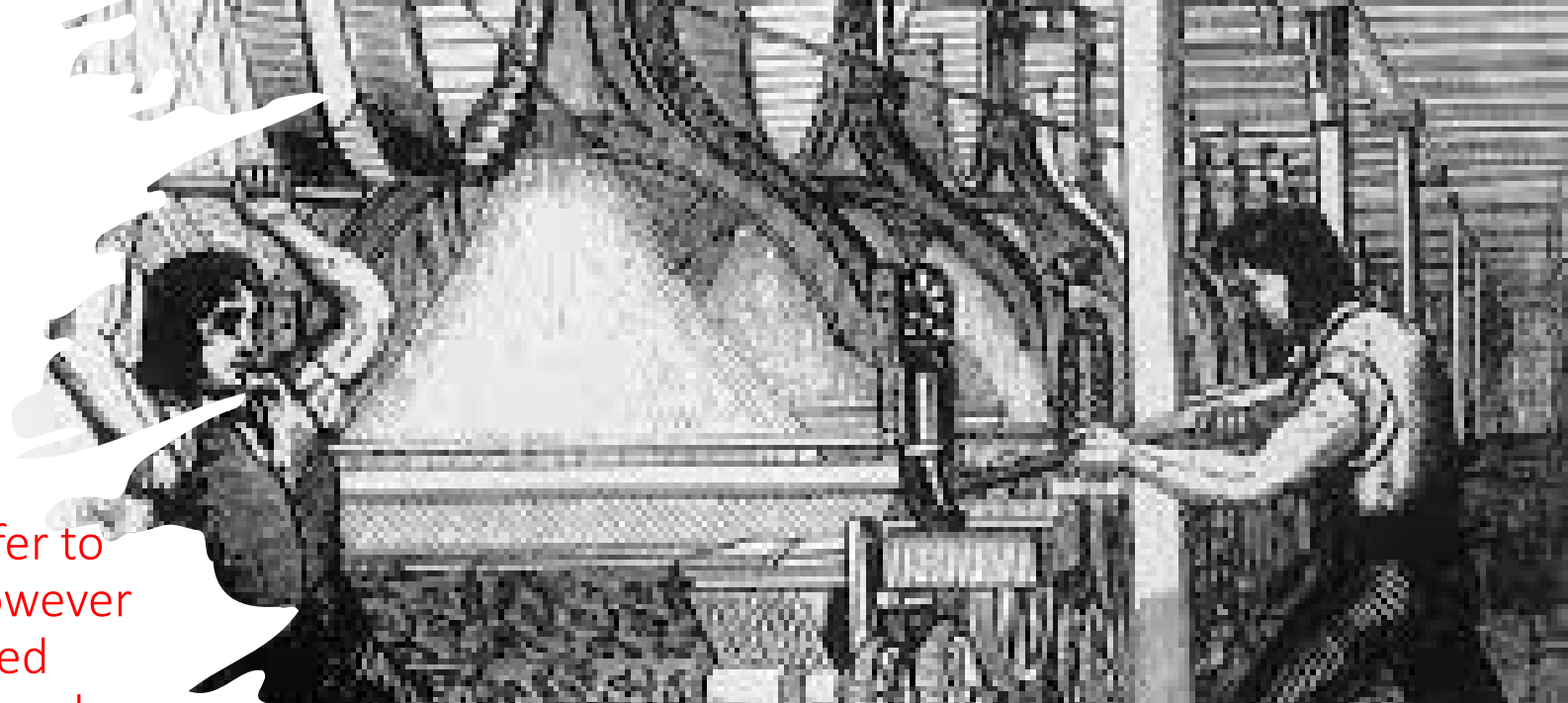
Resistance to new technology

- Organizational approval is required within policing organizations prior to the adoption of an innovation. Therefore, the individual does not have the option of resisting the organizational agreement (Reynolds, et. al, 2018; Rogers, 2003).

- Perceptions of fairness or scepticism by police officers of organisational changes, has the potential to cause a disconnection with the organisation that affects job performance and can lead to self-protective behaviours. (Reynolds, et. al, 2018).

- There are concerns that implementing change can feel invasive to patrol officers, and an infringement upon officer privacy (Wain, 2017). Acceptance of changes is dependent on organisational culture, and management approaches.

- Technological advances have the potential to improve policing work. However, it is important that decisions are perceived as right and just by those at operational levels within the organization as well as those at the higher levels who implement them (Loui, 2019).

- According to Deputy Commissioner Peter Martin of the Queensland Police, it is widely known that there is a permafrost that separates the distinct cultures of the mid-level and senior police management.

- The diffusion of any police innovation must permeate this dividing line. But what is the best way to break through the permafrost?

- New ideas and technologies are often proposed at the senior management level for strategic purposes, but the spread of innovation can be hampered or delayed at the mid management level if the tactical benefits to frontline officers are uncertain or in doubt.

- It is when a proposed change is perceived to have both strategic and tactical benefits that the diffusion of innovation within police organisations is most likely to occur.

- However, the strategic benefits of a proposed innovation by police leadership are not always the same as the tactical benefits to frontline officers.

- For example, police leaders first proposed the adoption of body worn cameras for all frontline officers around 2010 for the strategic purposes of increasing police accountability and reducing unjustified deadly force by the police.

- It was only after the frontline officers began to recognise the tactical benefits of the cameras that support for the technology increased. Specifically, the officers on the street began to recognise that cameras were a tool that could enhance their investigative capabilities and absolve them from unfounded citizen complaints.

Hypotheses

We hypothesize that procedurally-just police supervision will have a significant effect on officer resistance to new technology.

Procedurally-just supervision will have a greater effect on resistance to technological change than officer-level characteristics.

The effects of procedurally-just supervision on resistance will be mediated through the recognition of the safety and support benefits of the technology.

Table 1: Police Officer Resistance to GPS Tracking Technology (n=177)

Items	Mean (SD)	% Agree	% Disagree	Cronbach's Alpha
All patrol officers should wear GPS enabled technology while on duty.	2.25 (0.83)	67.3	32.7	**0.92**
Overall, the benefits of GPS enabled devices outweigh the perceived disadvantages.	2.01 (0.75)	82.7	17.3	
Requiring officers to wear GPS technology would make me feel like my supervisors do not trust me.	2.53 (0.78)	43.3	56.7	
Requiring officers to wear GPS technology would make me feel like leadership is micro-managing patrol officers.	2.70 (0.84)	50.3	49.7	
I am concerned that the GPS data will be used inappropriately.	2.96 (0.82)	70.6	29.4	
GPS technology on patrol officers seems like an invasion of my privacy.	2.19 (0.70)	22.3	77.7	
Requiring officers to wear GPS enabled technology would have a negative impact on my job satisfaction and well-being.	2.19 (0.69)	23.8	63.2	

Note: Responses were recorded using a 4-point Likert scale ranging from 1=Strongly Agree to 4=Strongly Disagree. The data have been recoded into two categories to show the frequency distribution more clearly.

Procedural Justice as Applied to Police Supervision

- Within a Procedural Justice framework, the focus is on shared values, social ties, having feelings of trust and confidence, and an obligation to adhere to requirements of the law (Tyler, 2006).

- This research addresses a gap relating to procedural justice among public servants, while offering an organizational assessment of procedural justice impacts on police officers' acceptance of technological innovation.

- While organizational justice has been applied to policing organisations, there has only been limited research on that topic and procedural justice more specifically (Donner, et. al., 2015). However, even within the application of organisational justice, the procedural justice component has been identified as a strong predictor of behaviour and attitude (Reynolds, et.al, 2018).

- When officers perceive a lack of internal justice in decisions made, they may fear a shift in focus to managerial targets as opposed to needs of frontline officers. This can negatively impact on not only acceptance of new technology, but other aspects of police work (Wain, et.al, 2017).

Table 2: Procedurally-just Supervision in Policing (n=177)

Items	Mean (SD)	% Agree	% Disagree	Cronbach's Alpha
My supervisor's decisions are equally fair to every officer on his/her chain of command.	1.99 (0.69)	82.8	17.2	**0.90**
My supervisor's decisions are always based on facts, not personal bias.	2.07 (0.73)	76.8	23.2	
I feel that my supervisor treats me with respect and dignity.	1.74 (0.62)	92.9	7.1	
My supervisor takes account of my needs/skills when making decisions that affect me.	1.97 (0.73)	81.0	19.0	

Note: Responses were recorded using a 4-point Likert scale ranging from 1=Strongly Agree to 4=Strongly Disagree. The data have been recoded into two categories to show the frequency distribution more clearly.

Table 3: Safety Benefits (Perceived) of GPS Tracking Technology (n=177)

Items	Mean (SD)	% Agree	% Disagree	Cronbach's Alpha
Overall, carrying as GPS enabled device would improve officer safety while engaging in routine patrol.	1.76 (0.72)	86.0	14.0	**0.95**
I would personally feel safer during routine patrol knowing that I had GPS support.	1.86 (0.76)	80.6	19.4	
Overall, the use of GPS improves officer safety while engaged in pursuits.	1.95 (0.84)	74.5	25.5	
I personally feel safer in pursuit situations knowing that I have GPS / AVL support.	2.04 (0.90)	71.7	28.3	
Overall, the use of GPS enabled devices would improve officer safety when responding to calls for crimes that are in progress.	1.78 (0.73)	82.4	17.6	
I would personally feel safer responding to calls for crimes that are in progress knowing that I had GPS support.	1.86 (0.78)	79.3	20.7	
Overall, the use of GPS enabled devices would improve officer safety when responding to active armed offenders.	1.68 (0.77)	84.9	15.1	
I would personally feel safer responding to an active armed offender knowing that I had GPS support.	1.73 (0.84)	79.9	20.1	

Note: Responses were recorded using a 4-point Likert scale ranging from 1=Strongly Agree to 4=Strongly Disagree. The data have been recoded into two categories to show the frequency distribution more clearly.

Findings

Table 5. Regression Model Predicting Resistance to GPS Tracking Technology

	B	Std. Error	Beta	t	Sig
(Constant)	-1.35	0.44		-3.06	0.00
*Procedurally-just supervision	-0.28	0.08	-0.27	-3.29	0.00
Age (in years)	-0.03	0.12	-0.02	-0.26	0.80
Gender (self-reported)	0.10	0.12	0.07	0.87	0.39
*Education (in years)	-0.27	0.12	-0.19	-2.33	0.02
Police rank	-0.03	0.17	-0.03	-0.20	0.84
Policing experience (in years)	-0.05	0.16	-0.04	-0.32	0.75
R=.294; R2=.087; Adjusted R=.051 *Standard Error of Estimate=.624*					

Table 6. Regression Model Predicting Safety Benefits (Perceived) of GPS Tracking Technology (Model Predicting Mediator)

	B	Std. Error	Beta	t	Sig
(Constant)	2.14	0.46		4.70	<.001
*Procedurally-just supervision	0.29	0.09	0.26	3.22	0.00
Age (in years)	-0.15	0.12	-0.11	-1.27	0.21
Gender (self-reported)	0.12	0.12	0.08	1.01	0.31
Education (in years)	0.17	0.12	0.11	1.41	0.16
Police rank	-0.06	0.17	-0.04	-0.33	0.74
Policing experience (in years)	0.08	0.17	0.06	0.45	0.65
R=.321; R2=.103; Adjusted R=.068 Standard Error of Estimate=.635					

Table 7. Full Regression Model Predicting Resistance to GPS Tracking Technology

|	B	Std. Error	Beta	t	Sig
(Constant)	-0.08	0.36		-0.22	0.83
Procedurally-just supervision	-0.04	0.07	-0.03	-0.53	0.60
*Safety benefits (perceived)	-0.65	0.06	-0.68	-10.95	0.001
Age (in years)	-0.14	0.09	-0.11	-1.59	0.11
Gender (self-reported)	0.16	0.09	0.10	1.73	0.09
*Education (in years)	-0.17	0.09	-0.12	-1.94	0.05
Police rank	-0.07	0.12	-0.05	-0.56	0.58
Policing experience (in years)	-0.01	0.12	-0.01	-0.08	0.94
R=.692; R2=.479; Adjusted R=.455 Standard Error of Estimate=.463					

Champions vs Resisters
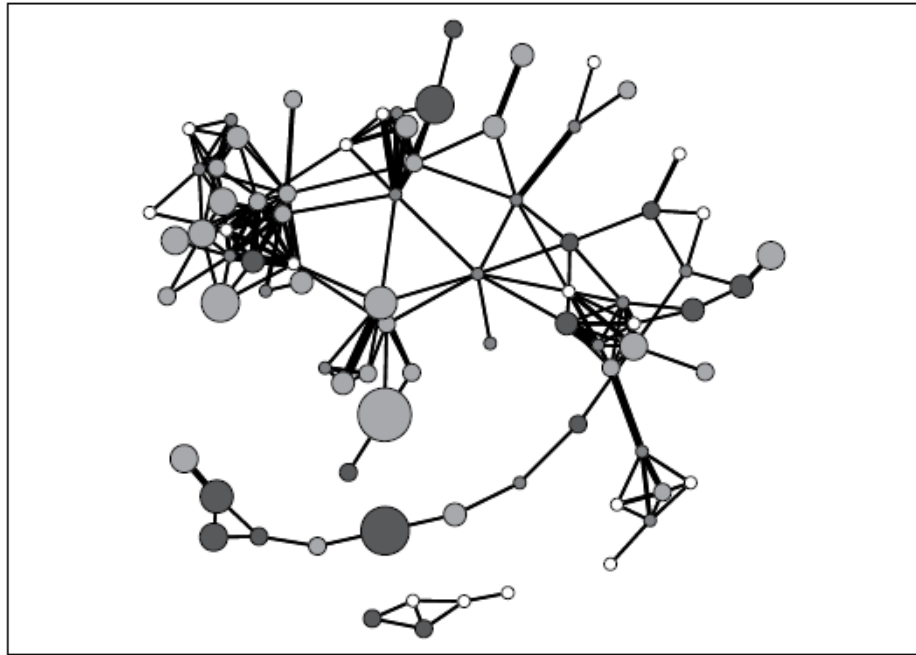
Figure 5. One-mode network of officers.
Note. Node size is proportional to change in legitimacy: darker = more negative; white = no change. Line size is proportional to number of shared incidents.

Table 2. Network Autocorrelation Model for Legitimacy.

	Model 1	Model 2	Model 3
Legitimacy (t1)	—	0.913***	0.907***
		(0.053)	(0.056)
Treatment Condition	—	—	0.062
			(0.165)
Network Effect (ρ)	0.701***	0.110***	0.107**
	(0.027)	(0.039)	(0.040)
Model Fit			
Residual Standard Error	3.103	0.903	0.708
AIC	256	201	152
BIC	260	204	156

Note. AIC = Akaike information criterion; BIC = Bayesian information criterion.
**$p < 0.01$. ***$p < 0.001$.

Concluding comments...

- The effects of procedurally-just supervision on officer resistance to new technology are statistically significant and noteworthy.

- The only officer-level characteristic that impacted resistance to new technology was formal education in years.

- When the perceived safety benefits of the technology were included in the model, they were found to be a statistically significant mediator.

- Hypothesis confirmed, as demonstrated in the Sobel's Test of mediation.

Sobel's Test (with controls)

Test Statistic: 3.081

Std. Error: .060

p-value: .002

What is the take-away?

- Findings suggest that best way to reduce resistance to change may have little to do with recruitment strategies or employee training.

- Rather, the results indicate that when supervisors treat officers respectfully, give them a voice when handing out assignments, and treat them equitably compared to others in their squad, those officers are more likely to recognise benefits of a new technology, and this in turn reduces their resistance to change.

- Sergeant-level officers serve as the transmission belt of the police organisation because they play a critical role in shaping messages that come from above, and their bonds to those on their chain of command help rank-and-file officers to recognise how a proposed change may benefit them directly rather than just leadership.

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