

Police Reform, Training and Crime: Experimental evidence from Colombia's Plan Cuadrantes

Daniel Mejía
Universidad de los Andes

Daniel Ortega
CAF and IESA

Juan Felipe García
Fundación Ideas para la Paz

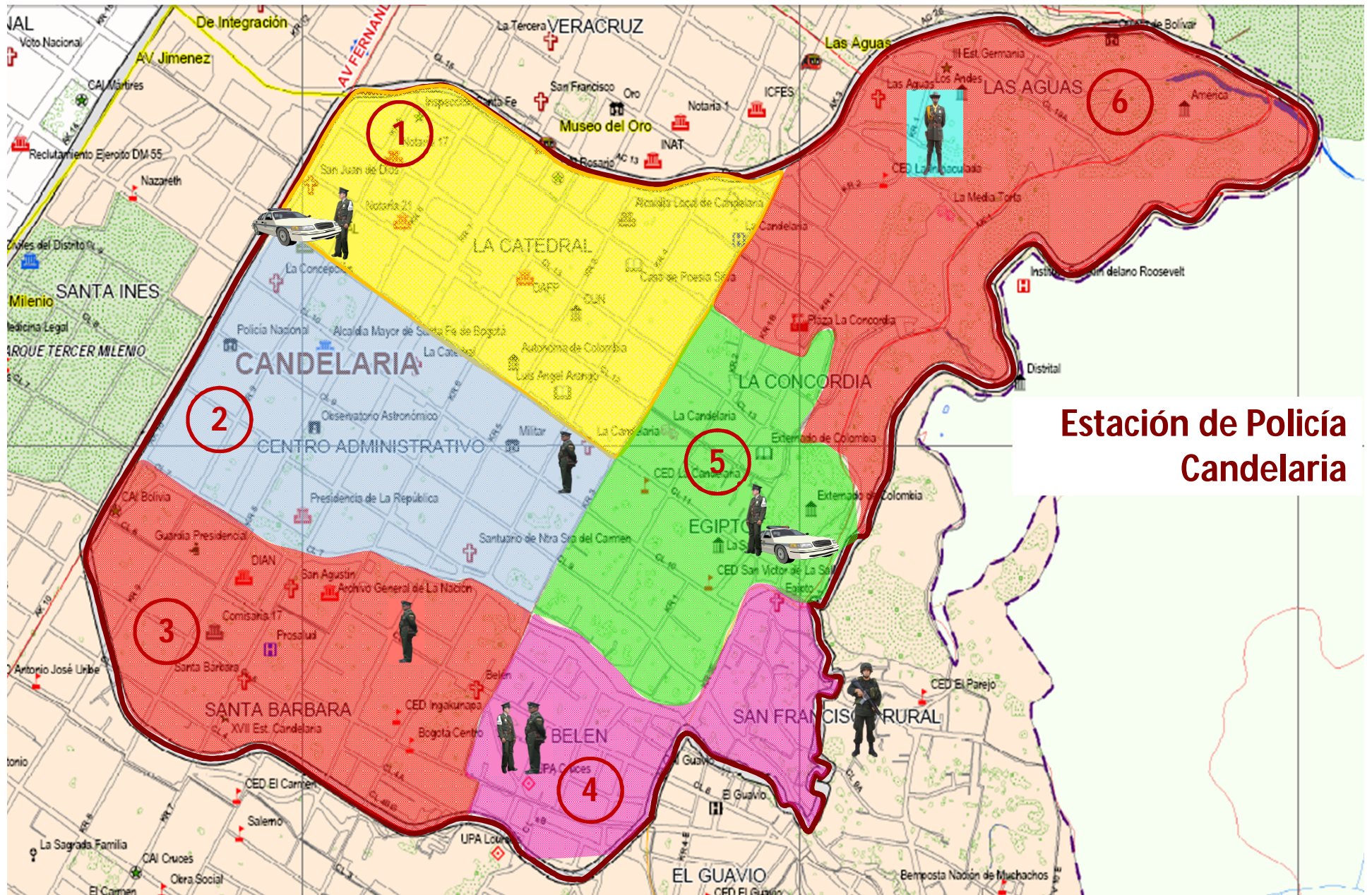
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Diagnosis: 2008 - 2010

- Increasing insecurity in major cities
- Increased perception of insecurity
- High levels of trust in the Police as an institution but low levels of trust in patrol policemen
- Internal to the police:
 - Perception of ineffective interagency cooperation
 - Low accountability of police officers

Components of the PNVCC

- It is currently (with the appointment of Gral. Leon as chief of the National Police) Colombia's main citizen security strategy
- Sub-division of the territory into small geographical units: "cuadrantes"
- Specific set of activities by the police (list of minimum daily, weekly and monthly activities) including, for example, meetings with community leaders and NGOs, interviews with school authorities, etc.
- Permanence of the officer in a particular cuadrante for 3 years
- Individual responsibility for the state of affairs (crime and contraventions) in the cuadrante, backed up by a set of financial and development incentives



**Estación de Policía
Candelaria**

A sense of the magnitude

- The 8 pilot cities have different “cuadrante” structures:

	Population	Stations	Cuadrantes	Cuadrantes / Station	Police officers	Population / Cuadrantes
Bogota	7,347,795	19	768	40	4,610	9,567
Medellin	2,309,446	26	184	7	1,045	12,551
Cali	2,207,994	27	198	7	1,165	11,151
Barranquilla	1,182,493	12	93	8	520	12,715
Cartagena	899,200	14	85	6	528	10,579
Cucuta	597,385	7	77	11	350	7,758
Bucaramanga	567,286	9	84	9	500	6,753
Pereira	383,623	6	81	14	465	4,736
Total	15,495,222	120	1,570		9,183	

Implementation

- The program was “officially” implemented (a set of instructions and orders issued) in July 2010
- Six months into implementation, a (management) survey of police officers was undertaken by an external evaluator (Fundación Ideas para la Paz, FIP) to measure the extent to which protocols were being followed, the officers’ understanding of the program and the “organizational culture”. FIP is also generally responsible for the entire monitoring and evaluation process of the program

Diagnosis on the implementation

- The survey showed very low levels in five indicators:
 - Problem solving orientation (coherence between local diagnosis, strategy and implementation of local solutions)
 - Complementarity (between departments and within them)
 - Corresponsibility (police relationship with the community)
 - Follow-up and evaluation (extent to which operational procedures are followed)
 - Management (permanence in the cuadrante, adequate working conditions, etc.)
- Conclusion: "Police officers don't understand the program nor have the skills to adequately implement it"

Theory of change

- Organizational change requires not only formal instruments such as rules and guidelines, but also “soft” skills and “cultural adaptation”
- The initial diagnosis was that the program was in fact NOT in effect in most places...
- Additional training in soft skills should provide the appropriate boost to its functioning on the ground

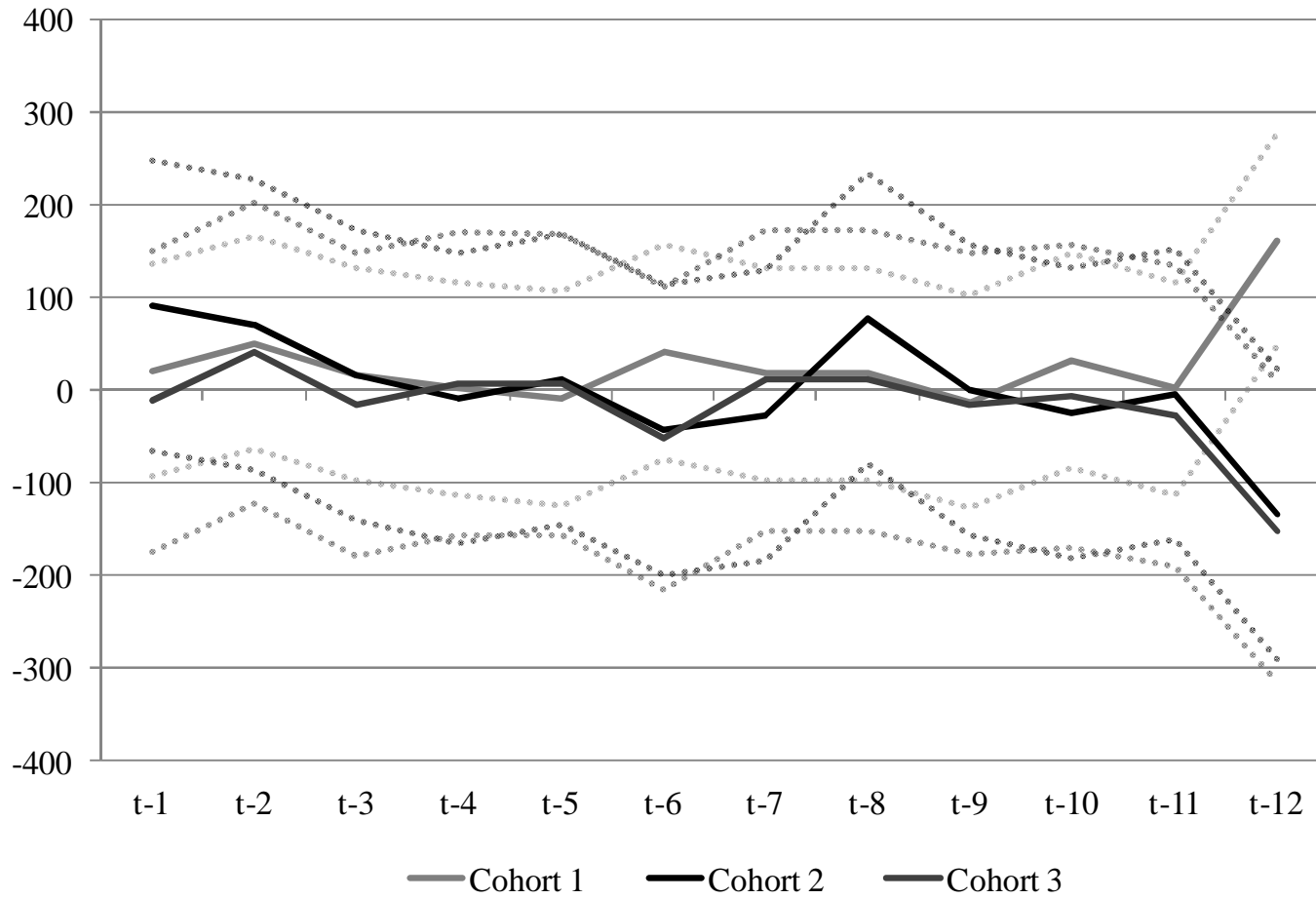
Further intervention

- An additional training program was designed to provide police officers with the soft tools to engage with the community and interact among themselves more effectively:
 - Organizational change
 - Team work
 - Decision making and problem solving
 - Conflict resolution and negotiation
 - Leadership

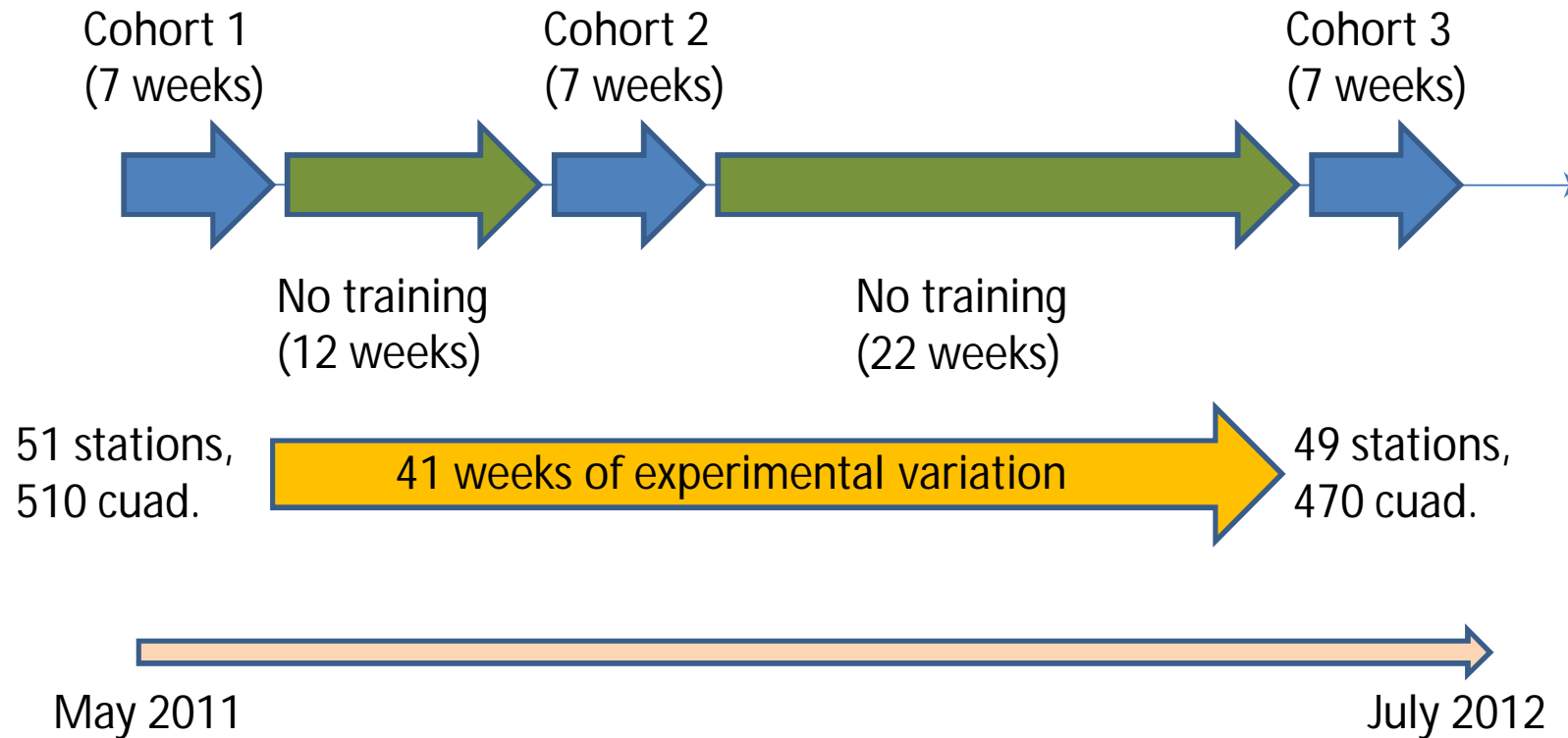
Stations within cities were randomly assigned to one of three cohorts

	Cohort 1	Cohort 2	Cohort 3	Total	
Barranquilla	4	4	4	12	} Group 1 (84 stations)
Bogota	5	8	6	19	
Cali	9	8	9	27	
Medellin	10	7	9	26	
Bucaramanga	3	3	3	9	} Group 2 (36 stations - 14 - 1 = 21)
Cartagena	6	3	5	14	
Cucuta	3	2	2	7	
Pereira	2	2	2	6	
Total	42	37	40	120	
	35%	31%	33%		

Pre-treatment crime trends



Timeline of training



The reason the begin and start dates are not 55 weeks apart is that there are two groups of cities, and the training is staggered, so it takes about 10 weeks more (65 in total)

Data and outcomes of interest

- There is administrative data on 50 crimes and contraventions (25 of each) at the block level since 2007
 - With this we can measure the effect of the program on different types of crime
- There is no data yet on communities' perceptions about the police

What is being evaluated?

1. The effect of police training on crime
2. The effect of training on management indicators
3. Channels?

New waves of the management survey

- The survey gives a station-level measure of the extent to which the program is in actual implementation, and in early 2010, before the training program, it was shown to be very poor
- A second wave of the management survey was collected approximately 10 weeks after the first cohort finished training

Baseline specification

- The reduced form, using the random assignment of training is:

$$CRIME_{it} = \theta_0 + \theta_1 TRAINING_{it} + \rho_t + \delta_i + \xi_{it}$$

where i indexes the station or cuadrante and t the time period (2010, 2011)

We compare only pre and post crime rates up to the month where the second cohort enters training (Jul – Oct 2010 vs. Jul – Oct 2011 for the 1st group). Power of the experiment falls once the 2nd cohort enters treatment

Heterogeneous effects

- We are also interested in learning whether the effects of training vary under different circumstances (criminal or otherwise):

$$CRIME_{it} = \theta_0 + \theta_1 TRAINING_{it} + \sum_{\tau=1}^{10} \beta_{\tau} 1(DECILE_{\tau}) * TRAINING_{it} + \rho_t + \delta_i + \xi_{it}$$

We use deciles of initial levels of crime, but also employ a linear form or use counts of a different variable such as the number of drug spots within the cuadrante or station.

Homicide - cuadrantes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
TRAINING * Y2011	-0.0507 (0.113)	0.0230 (0.116)	0.0681 (0.140)	-0.0992 (0.197)	-0.0844 (0.210)	-0.0449 (0.0980)	0.0182 (0.100)	0.0545 (0.118)
TRAINING * Y2011 * Crime Decile7			-0.137 (0.294)					-0.117 (0.265)
TRAINING * Y2011 * Crime Decile8			-0.152 (0.289)					-0.134 (0.258)
TRAINING * Y2011 * Crime Decile9			-0.167 (0.306)					-0.155 (0.272)
TRAINING * Y2011 * Crime Decile10			-0.689** (0.322)					-0.622** (0.283)
TRAINING * Y2011 * Crime level in 2010		-0.0016*** (0.00056)					-0.0015*** (0.00051)	
TRAINING * Y2011 * # of Drug spots				-0.00993 (0.152)				
TRAINING * Y2011 * One drug spot					-0.0756 (0.342)			
TRAINING * Y2011 * Two or more drug spots					-0.0107 (0.441)			
Group of cities	Gr 1	Gr1	Gr 1	Bogotá	Bogotá	Gr 1 & 2	Gr 1 & 2	Gr 1 & 2
R-squared	0.001	0.007	0.005	0.002	0.002	0.001	0.007	0.004
Observations	2,300	2,300	2,300	1,470	1,470	2,644	2,644	2,644
Number of cuadrantes	1,150	1,150	1,150	735	735	1,322	1,322	1,322

Homicide - Stations

	(1)	(2)	(3)	(4)	(5)
TRAINING * Y2011	0.0703 (0.0556)	-0.00456 (0.1770)	0.0416 (0.0468)	0.065 (0.0475)	0.0171 (0.1490)
TRAINING * Y2011 * Crime Quintile2		-0.0137 (0.2350)			-0.0419 (0.1940)
TRAINING * Y2011 * Crime Quintile3		-0.0425 (0.3030)			-0.0499 (0.1990)
TRAINING * Y2011 * Crime Quintile4		0.00738 (0.2440)			-0.0327 (0.2150)
TRAINING * Y2011 * Crime Quintile5		-0.721*** (0.2270)			-0.761*** (0.1990)
TRAINING * Y2011 * Crime level in 2010	-0.00232*** (0.0001)			-0.00233*** (0.0001)	
TRAINING * Y2011 * # of drug spots			-0.00231 (0.0017)		
Group of cities	Gr1	Gr 1	Bogotá	Gr 1 & 2	Gr 1 & 2
R-squared	0.766	0.21	0.576	0.74	0.207
Observations	168	168	38	210	210
Number of stations	84	84	19	105	105

Management indicators

	(1)	(2)	(3)	(4)	(5)	(6)
	Diagnosis and follow-up	Internal complementation	External complementation	Permanence	Co-responsibility	Problem solving orientation
TRAINING * Y2011	0.0641 (0.0790)	-0.0719 (0.0492)	0.0572 (0.0851)	0.0428 (0.0714)	0.109* (0.0618)	-0.0231 (0.0551)
Y2011	0.254*** (0.0480)	0.0145 (0.0299)	0.0751 (0.0521)	0.0944** (0.0433)	0.214*** (0.0375)	0.0209 (0.0335)
Observations	206	206	198	206	206	206
R-squared	0.347	0.023	0.060	0.095	0.428	0.004
Number of id	103	103	102	103	103	103

Generally no effect, except in the co-responsibility indicator, which captures the extent to which police officers gather information and engage members of the community such as local leaders, education officials, business owners, etc.

This effect appears to be more important in areas with higher initial crime

Concluding remarks

- The training program contributed to reducing crime, especially in high-crime areas, where the effects are sizable (0.7 stdevs on homicides and home burglaries and around 1 stdev on vehicle thefts)
- Given the concentration of crime (85% of homicides occur in 30% of cuadrantes), these effects translate into approximately 20% of total homicides
- Training appears to have had a small effect on the quality of the police's relationship with the community, but not as a source of information/intelligence, instead the culture survey shows that treated police officers feel they are more accountable to the community when compared to non treated officers