Cognition and Crowds

the (social) influence of cognition on riots

university of groningen

Minds & Societies | summer 2008

Problems	
Practice	Dealing with crowds and preventing riots is difficult due to the complex and dynamic nature of the phenomenon.
Science	Theory building is limited because performing experiments has controllability and ethical issues.

Questions	
Practice	Why do some crowd situations turn into a riot, while others remain calm?
Science	What mental (intra-individual) and interaction (inter-individual) processes explain crowd and riot behaviour?

Project

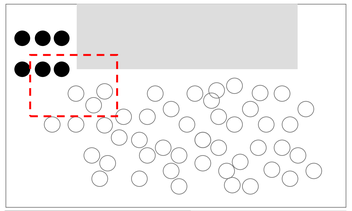
Our approach	
Model	Model individuals in a crowd context using theories from cognitive, social and behavioural sciences.
Simulation	To study the interaction process between individuals we use multi-agent simulation.

Simulation

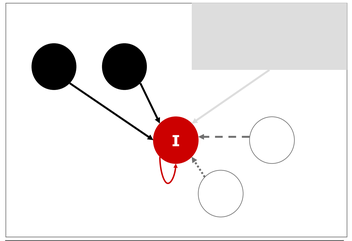
Experiments		
Multi-level analysis : to relate the levels with each other: › patterns (group) › interaction processes (inter-individual) › behaviour (individual) › internal processes (intra-individual)	*Manipulate* : influence factors, i.e. leadership, arousal. *Expectation* : influence factors relate to the probability of a riot. For example, the probability of a riot is increased by the presence of leaders due to: › increasing cohesion (social goal dominance) › by approving of /steering towards violent behaviour.	*Validation* : by comparing the behaviour of the simulation with video material as well as the value judgement of experts.

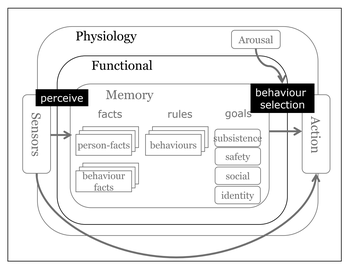
Model

Context
A gathering of individuals at the same physical location at the same time (crowd) in a two-block setting (i.e. 2 groups).



Influences		
External	Physical	human density
	Social	leadership in/out group
Internal	Physiological	arousal energy
	Functional	goals activation





Individual
Perception updates the internal settings by increasing the activation and adjusting content of memory elements.
Behaviour selection uses the internal settings. Given time, action-based order, and relevance to a dominant goal the probability of a behaviour is affected.

Supervisors: René Jorna , Wander Jager, Tony van Vliet

Phd. Student : Nanda Wijermans

University of Groningen

TNO Defence & Safety