

Perception of Risk and the Decision to Use Force

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Abstract The quality of policing depends on making sound decisions. Many cognitive factors are involved in decision making and these must be understood and harnessed so as to enhance the quality of decisions taken by police officers. In this paper, I discuss two different decision-making systems (deliberative and experiential), and how decision factors (such as complexity), internal factors (such as expectations), and external factors (such as time pressure) all come together in deciding whether or not to use force. Providing proper training and correctly utilising technology can enhance an officer's ability to make sound decisions.

Good policing is ultimately determined by the quality of decisions made during police activity. As officers interact and try to control the public, criminals, and environment, the constables in the field and commanders at headquarters undertake a variety of actions. At its highest intensity they need to decide on whether or not to use force. The decision to use force is the pinnacle of a complex cognitive process. It is critical that policing decisions in general, and the use of force in particular, are as optimal as they can be. The public's safety and quality of policing are dependent on these. In this article, I unpack the complex and different facets involved in police decision

making; specifically focussing on risk perception and the decision to use force. Cognitive understanding of police decision making can lead to better procedures, training and use of technology, all of which can enhance decision quality.

Many police procedures and guidelines determine if and how officers need to respond to a given situation. However, the crucial element in determining an action is not regulation, but how one perceives, interprets, and evaluates the situation. It is relatively easy to ascertain and instruct that under situation X, action Y should be taken. This, however, hinges on properly assessing the situation

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and considering the choice of alternatives, which involves complex cognitive processes that depend on a whole range of factors. Thus, it is important to understand how perception and decision making play key roles in human performance and policing.

Perception and cognition is not only relevant to decision making, but to a large degree determines it. Deciding to use force involves considering a complex equation of the consequences and probabilities of different alternative actions. These decision factors are mediated by internal and external factors, which will be discussed in this paper.

The reason it is important to consider perception and cognition in police decision making is because humans are not passive encoders of information. *The mind is not a camera*; we make subjective assumptions and impose order and interpretation on the 'objective' reality. We must remember that *perception is far from perfection*, it is never totally 'objective' (Dror, 2005a; Humphreys *et al.*, 1997; Snyder *et al.*, 1977).

The decision to use force is strongly based on the perception of risk, and this perception is dependent on a variety of perceptual and cognitive mechanisms. For example, we tend to perceive the environment in a way that fits our pre-existing beliefs (e.g. Dror, 2005a; Snyder and Swann, 1978; Zuckerman *et al.*, 1995). Even our views and political attitudes influence risk perception (Peters and Slovic, 1996). It is naive to think and assume that we perceive the environment as it 'really is'. Thus, we must take into account that our initial perception of risk only partially reflects the actual situation. Let us not forget that much of our perception is related to our own cognitive mechanisms and psychological state.

The overall decision to use force is dependent on *decision factors* (such as decision complexity and choice of alternatives), *internal factors* (such as emotions and state of mind of the decision maker), and *external factors* (such as time pressure and context). I will elaborate on each of these elements, and apply them to the world of policing, considering how the police environment can facilitate and hinder good decision making. Then I will use this understanding and insight to consider ways of improving decision making in the use of force by the police. Enhanced decision quality is necessary for good policing, but to achieve it we must have a better understanding and appreciation of the complexity involved in the cognitive processes underlying police decision making.

Decision factors

The decision factors themselves relate to the structure of the decision, regardless of who makes the decision and under what circumstances. For example, the different *choice of alternatives* in a decision contribute to the decision complexity. The number of different choices and the relationship between them (e.g. their relative similarity) defines the decision space. This is of utmost importance as decision makers have limited cognitive resources, and the decision maker will need to balance the resource demands imposed by the decision complexity and the available resources and circumstances. This will influence how the decision maker will deal with the decision problem. For example, will they examine every alternative choice, or only a subset of them? Will they examine all aspects of an alternative choice and only then examine the next alternative choice, or will they

examine one aspect across different alternative choices and then move on to examine another aspect across alternative choices? These different *decision strategies* are adopted to maximise decision quality, and depend on decision complexity, available resources, and so on (e.g. Biggs *et al.*, 1985; Onken *et al.*, 1985; Payne *et al.*, 1988, 1993; Shields, 1983).

The decision factors involved in deciding to use force can vary to a great deal, and these are important in determining the underlying *decision complexity*. A binary decision with two alternative choices of whether to use deadly force or not against a specific individual (e.g. to shoot or not to shoot) is considerably simpler than having to decide what type and level of force to use and against whom (e.g. during a riot). The number of choices of alternatives is only one decision factor that contributes to the decision complexity. Other decision factors relate to the degree of certainty of the outcome of the alternative choice, payoff matrix, and others.

The *payoff matrix* is of particular importance. It defines the consequences of the decision choice. Especially critical is the cost associated in making a wrong decision, both false positive (i.e. deciding to take action when none is needed) and false negative (i.e. deciding not to take action when it was needed). Thus, what is the consequence of using force when it was not needed, and the consequence of not using force when it was needed? For example, what is the cost of shooting and killing an innocent person, and in contrast, what is the cost of not shooting a suicide bomber who ends up killing dozens of innocent people? Of course, the consequences of such false positives and false negatives are also dependent on the likely probability of

their occurrences. Such payoff matrices have a profound effect on the decision itself.

The two examples of decision factors used above are interrelated. The number of choice alternatives and their payoff matrices determine decision factors that greatly contribute to the decision of whether to use force or not. For instance, the use of force may include an option to use lethal or non-lethal weapons. These different choices of alternatives carry very different payoff matrices. Wrongly shooting a suspect has more severe consequences than stunning the suspect with a taser gun or using tear gas.

I have only provided a few examples to illustrate decision factors and how they play an important role in the decision to use force. Although such factors are important, internal factors that relate to the decision maker are as critical, if not more, in the decision-making process.

Internal factors

Internal factors of decision making relate to the decision maker rather than to the decision itself. These factors may include the experience of the decision maker, their confidence, cognitive abilities, state of mind, personality, and many other factors that define us as individuals. For example, deciding whether fingerprints match or not can be influenced by the *emotional state* of the examiner. In recent research, we have found that people are more likely to determine that fingerprints are a match if they are presented within a highly emotional context (Dror *et al.*, 2005). Even one's cultural background may influence the propensity to take risks (Weber and Hsee, 2000).

The state of mind, such as *expectation*, of the decision maker also plays a critical role in

decision making. Once we have an expectation, then we use it to guide what information we attend to (and what to ignore) and how we interpret it (e.g. Zuckerman *et al.*, 1995). Such *confirmation bias*, along with a long list of other cognitive phenomena (such as self-fulfilling prophecies, wishful thinking, cognitive dissonance, etc.), all cause decision makers to differ in their decisions. Thus, different people faced with the same decision factors will arrive at different decisions because of differences in their internal factors.

The internal factors do not only differ among individuals, but the same person will vary in their internal factors at different times (emotional state, expectation, and other internal factors vary within the same individual at different times; others, such as personality and cognitive abilities remain relatively stable). Given this variability it is no surprise that the same individuals will make different decisions on the same identical decision factors. This finding also applies to expert decision making (Dror and Charlton, 2006; Dror *et al.*, 2006).

Although the internal factors are individually dependent, and the decision factors are decision dependent, they interrelate in a variety of ways. For example, the decision factor of the payoff matrix defines the cost associated with making wrong decisions. The internal factor of feeling possible regret about making a wrong decision makes some alternative choices psychologically less preferable, especially, if taking an action can have disastrous consequences (Dror *et al.*, 1999; Hoelzl and Loewenstein, 2005; Wright and Ayton, 2005).

Another example of how internal and decision factors interrelate is the affect of an internal state on estimating alternative choices (Johnson and Tversky, 1983). Thus, being in

an internal negative state may lead officers to overestimate the negativity of the alternative choice of using force, whereas being in a positive internal state may cause them to underestimate the negativity of using force. In addition to decision factors and internal factors, external factors also play a role in making decisions.

External factors

Even when the decision factors and the internal factors have been determined, the decision process and outcome greatly depend on a variety of external factors. These factors, for example, include whether the decision was taken under *time pressure* or not. The ability to make sound decisions cannot be examined without taking into account such external factors. Dror *et al.* (1999) studied how time pressure affects risk-taking decisions. Our main finding was two-fold. First, time pressure reduced decision thresholds. Rather than switching decision strategies, the decision makers modified their decision criteria for reaching a decision. This means that less evidence is needed to reach a decision. Second, time pressure did not have a uniform effect on risk taking. A polarisation was found in which more conservative decisions were made under time pressure when the risk was low, but more risk-taking decisions were made when the risk was high. Thus, time pressure caused riskier decisions when the decision factors were already high-risk (for more details, see Dror *et al.*, 1999).

Decision making is also externally dependent on how information is presented to the decision maker. The *framing* of the decision can cause decision makers to reach different conclusions. For example, decisions that

involve an action that will result in saving lives or result in deaths, are dependent on whether the decision is framed in terms of the lives saved or the deaths resulting from the action (Tversky and Kahneman, 1974). Such a case would be if a decision to use force is needed in a situation involving 100 hostages held by terrorists. A decision to use force is more likely to be taken if the use of force is framed as 'saving 70 hostages'. In contrast, a decision not to use force is more likely to be taken if the use of force is framed as '30 hostages will die'. Although the decision factors and internal factors are identical, the external framing of the decision can lead to totally opposite decisions.

The external factors also relate to other contextual elements. For example, *social accountability* relates to the level to which a decision may be scrutinised later (Tetlock, 1992). Thus, the decision maker is faced with the prospect of having to justify their decision. In police use of force, it is highly likely that such justifications are expected, both within the police authority and to the public and media at large. Hence, this external factor has influence on how decisions to use force are taken in the police environment. In contrast to regret that was discussed under internal factors, social accountability is an external factor that can cause officers a disposition to avoid taking a decision to use force (Tetlock and Boettger, 1994).

The external factors interrelate with the internal and decision factors. For example, decision factors that relate to complexity and best decision strategy given the cognitive demands of the decision are highly connected to external factors. Time pressure considerably increases the cognitive demands (Dror *et al.*, 1999) and social accountability requires

taking additional factors into consideration (Tetlock, 1985).

External factors do not only increase decision complexity, but can facilitate it. The use of technology in general, and *cognitive technology* (Dror, 2007) in particular, offers new external factors that can contribute to higher quality decision making in policing. If integrated properly, these technologies can take part in enhancing the decision-making processes (Dror, 2005b; Dror, 2007). With cognitive technology the decision to use force can be optimised by extending the cognitive capacity of the decision makers in the field and at headquarters.

Decision making cognitive systems

The cognitive systems and mechanisms involved in decision making are also very relevant to the decision making outcome. The same decision problem may result in different decision actions if processed by different cognitive mechanisms and decision systems. I have discussed decision making but have not considered the mechanisms involved in its operation. For example, *Sequential Sampling Models* suggest that the mechanisms underlying decision making entail that different choice considerations are examined one at a time, sequentially. The accumulated value of decision choice (e.g. to use force or not) is continuously weighted until a decision threshold is reached. Once this threshold is reached, no more information is considered and a decision has been taken. This type of consideration and competition between evidence for and against a decision continues until a 'winner takes all' ends the decision process. This sequential processing of alternatives seems to underlie a whole range of decision domains (Dror *et al.*, 1999).

Beyond the specific mechanisms of how decision alternatives are considered, there is a growing literature that suggests that there are, in fact, two decision-making systems (e.g., Sloman, 1996). One system is more 'cold' and analytical, logical and *deliberative*, whereas the other cognitive decision-making system is *experiential*, intuitive, and affect based (system 1 and system 2, see Kahneman, 2003). Both types of systems seem to be involved in risk-taking decisions (Reyna, 2004). The deliberative system is conscious and flexible, but slow. The experiential system is spontaneous and very quick.

It is clear that different decisions of whether to use force or not may arise if one uses the deliberative or the experiential decision system. Best decisions are reached when both systems concur. When the systems differ, either system may be correct, or each system may support different decisions because they use different considerations. What is clear is that when time is pressing, then the experiential system offers a quick, almost 'ready made', decision. This decision is based on gut feeling, on affect. Affect that is integral to the situation, based on experience, familiarity, and expertise is highly desirable. Decisions based on such affect guide the experiential system to quick and good decisions. In contrast, incidental affect, based on a mood state may be detrimental to decision quality (Finucane *et al.*, 2000). The advantageous use of the fast experiential decision system is dependent on expertise.

Expertise

Highly specialised domains such as policing, medicine, and military require specific cognitive skills (Dror *et al.*, 1993). Some of these

abilities are brought into the job, whereas others are acquired through training and hands-on experience at the job (Dror, 2004). As we become experts, we develop knowledge that is efficient and easy to use. Many times this involves heuristics, procedural knowledge, and increased cognitive capacity. Expert decisions are not only advantageous in terms of speed and efficiency, but also in their ability to deal with missing information and uncertainty (e.g. Johnson, 1988).

The experiential decision system discussed earlier is highly dependent on familiarity and experience in the field. This type of experience is vital in time-pressured decisions, as is often the case in the use of force. Some situations allow experiential knowledge to increase over time (such as domestic disturbances). However, other less frequently encountered situations (such as suicide bombers) limit the expertise resulting from experiential knowledge. The lack of personal experience can be mediated by the use of technology, however, technology must be made and deployed in ways which work with and facilitate the experts in the field (Dror, 2005b).

Improving perception and decision quality

Technology can be an aid to enhancing decision quality (Dror, 2005b). However, it is the police officer in the field or at headquarters that possesses the expertise and decision-making capacity. For officers to make optimal decisions, police forces should make sure to:

1. Initially select candidates that have the cognitive abilities and personalities that are needed to make good decisions in policing environments. These include the decision to use force under time

pressure and stress. To properly select the most suitable candidates, one must first understand and specify the cognitive and personal profiles of the ideal decision maker.

2. Training plays a vital role in preparing officers to make the right decisions in the field. E-learning offers new opportunities to enhance such learning. For example, simulations and gaming allow us to create a variety of scenarios. With proper debriefing such training can be very beneficial. Furthermore, providing training that makes officers aware of and understand the cognitive processes involved in the perception of risk and decision making, allows the officers to make better decisions.
3. There is no replacement for hands-on field experience. Officers, like medical doctors and many other professions, learn many of their skills on the job, sometimes through trial and error. The experiential knowledge of officers plays a valuable role in their ability to weigh situations and make good decisions. However, such 'learning by doing' field experience must be accompanied and supported by proper reflective and instructional activities (e.g., Ericsson *et al.*, 1993).

The above three suggestions are illustrations of ways that police decision making can be improved. This paper is aimed at introducing the complexity of police decision making and demonstrating the critical role of perception and cognitive processes. There are many ways that police decision making can be improved, however, it is beyond the scope of this paper to elaborate on them in detail.

Summary and conclusions

The perception of risk and the decision to use force greatly depend on the cognitive processes governing decision making. In this article, I could only choose a number of cognitive issues to illustrate the role of cognition in how decisions are made. For high-quality policing, correct choices must be made, especially when the use of force is involved. To ensure good decisions, one must be aware and take into account the cognitive underpinning of such decisions.

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