1 A social psychological framework for analysing risk

Chapter preview

This chapter discusses the origin of the word 'risk' and introduces definitions of hazard and risk, detailing how they are often confused. It goes on to describe the great debate of the last thirty years between science and social science that has called into question the existence of objective risk and focused us upon the social processes that determine risk. The value of the social psychological approach to the analysis of risk is examined and a framework for developing a coherent and comprehensive social psychological model of risk is outlined. This framework proposes that it is necessary to map the relationships between phenomena at the level of the individual (cognitions, emotions, intentions and action), at the interpersonal level (between people and within groups), at the level of institutions (for instance, legal or religious authorities), within belief and normative systems (like ideologies or social representations), and in the material (physical and environmental) and socio-historical context. Mapping the relationships between phenomena at these different levels allows a very rich description of the ways in which risk is understood and the responses that surround it. The chapter concludes by suggesting that existing models of risk each have something to offer to this mapping exercise. An outline of the most significant clusters of research on the psychology of risk is presented. These are examined in greater detail in later chapters. The chapter includes a listing of a series of key questions that an integrative social psychological analysis of risk must address.

1 Risk and hazard

The word 'risk' seems to have first entered the English language in the mid-1600s. This may seem strange since the concept that the word connotes – the possibility of some harm occurring – would seem to be a fundamental characteristic of all human existence. Perhaps the concept was there but expressed in different words. The phrase 'good (or bad) fortune' was used previously. Yet this is not quite the same notion that the word 'risk' captures. The common usage of the word 'risk' in Europe coincides with an erosion of belief in divine determination of the individual's fate and a decline in the power of organised religion in the face of sectarianism and the growth of nation states. Sixteenth- and

seventeenth-century Europe was a hotbed of religious, as well as political, dissent. People were claiming their rights to self-determination, the seeds of the revolutionary movements of the nineteenth century were already sown. In this context, it becomes apparent that harm is not something that is predetermined by divine plan. It is something that may occur but not inevitably. The individual, alone or with others, can seek to avoid or limit harm. To do this, it is necessary to anticipate when and where and why it may occur. This is when the word 'risk' becomes useful because it allows people to talk about the uncertainty of harm. If harm is not inevitable because it is not predetermined, it is uncertain. There is the possibility that individual action, through the expression of free will, may influence whether harm materialises. The introduction of the word 'risk' captures something of the changing mindset of an era.

Not that it would be sensible to assume that agitation against predetermined 'fortune' had never occurred before. There is evidence in Roman and Greek classical societies that, while the gods were acknowledged as supreme in determining the fate of an individual, people did try to influence the gods. Eidinow (2007) describes the use of curse tablets in ancient Greece. These were small, thin lead tablets inscribed with a curse that the supplicant would offer to a god in the hope that the god would intervene. The curse would call down vengeance on someone who had or might transgress against the supplicant. Such curse messages were not the preserve only of the Greeks; at the sites of Roman temples lead tablets with their pleas for retribution and protection have been found. In the city of Bath in the UK where the Roman temple to the goddess Sulis Minerva was built curses written on sheets of lead or pewter that were rolled up and thrown into the hot Sacred Spring where the spirit of the goddess dwelt have been retrieved. One of these curses calls down punishment on a thief. Another asks for the return of a lost possession. This seems like evidence that people have wanted to negotiate their fate, and that of others, even when the dominant belief system was one of divine dictatorship (Beard, 2011). Wresting control, no matter how limited, over harm seems to be a basic ingredient of human activity. Negotiating the possibility of harm, that is risk, even – on occasion – with the gods, appears to have been an abiding preoccupation of people across the globe and throughout time.

Once it had formally entered into our vocabulary, the word 'risk' became a focus for debate. What is 'risk' – over and above simply the possibility of harm? How should it be described? Who should describe it?

Initially, the risk concept was most used in commercial contexts. For instance, it was used by merchants who needed to represent the likelihood of a cargo arriving in port safely. It evolved into a central concept in scientific and engineering discourse – the assessment of the probability of failure in a physical system, and then, subsequently, of the probability that a physical system might generate harm are essential ingredients of applied science. It is hardly surprising that the physical and biological sciences sought to develop methods that would measure risk. Throughout a large part of the twentieth century, as science and engineering made giant strides towards describing and modelling the material world, it was

taken as a given that risk could be measured objectively. It was assumed that specific risks could be defined and then quantified. We will return to the problems of quantifying risk – even a specific risk – in Chapter 2; for now it is sufficient to say that the underlying assumption that risk can be objectively assessed has been the subject of enormous controversy.

Risk has been the arena for some of the most interesting debates in the social sciences over recent years. In effect, risk has been released from the sole ownership of the physical sciences, where it was treated as something that should be assessed and estimated quantitatively – if only the right tools could be developed. Instead, it has been captured by philosophers, political scientists, sociologists, geographers, social anthropologists and psychologists, who have all brought their own critical lenses to the conceptualisation of risk. However, the prisoner is not reconciled to its fate, ever and again manifesting some new guise to evade captivity.

Thus it is worth thinking again about the definition of risk. It is the fact that risk is simultaneously capable of very narrow, if contested, definition and yet is substantiated in myriad forms which makes it so fascinating. It may be boring to focus on definitions but we need to know what we are talking about, we need to share an understanding of what we are talking about and, without definitions, words, especially in this domain of risk, can mean very different things to different people.

The concept of risk has evolved to be defined in terms of two dimensions – usually simultaneously, though not necessarily. The first concerns *probability*. The second concerns *effect*. Risk is the probability of a particular adverse event occurring during a stated period of time. In terms of probability, risk refers to the likelihood of some specific negative event (delineated as closely as possible in terms of amount, intensity and duration) as a result of an exposure to a hazard. A hazard is defined as anything (animate or inanimate; natural or human product) that could lead to harm (to people or their environment). In terms of effects, risk refers to the extent of the detriment (usually a numerical estimate of the harm) associated with the adverse event. Risk used to refer to detriment focuses upon the severity or scale of consequences. So, for instance, it can be measured in number of fatalities expected to be associated with the event, in the loss of property that would occur or in the length of time it would persist.

It is clear that these two dimensions of risk (probability and effect) are conceptually quite distinct. There is no reason to muddy the distinction. It would be sensible to use two different words to refer to these two dimensions. However, in fact, custom over many years has resulted in risk being used to refer to both. This can result in confusion and it is often only through looking at the context in which the word ‘risk’ is used that it is possible to divine which dimension is actually involved. A very simple sentence may serve to illustrate the ambiguity of the word ‘risk’ and the significance of its context in determining its interpretation. Take the phrase ‘There is a risk of rain today’. It could be associated with an interpretation of how likely the occurrence of rain was, or it could be associated with the

negative consequences of rain today (for example, flooding or, perhaps worse still, the abandonment of a cricket match).

In practice, the two dimensions (probability and effect) tend to be examined in tandem. People do not wish simply to know how likely an adverse outcome is; they also want to know how bad that outcome will be. To be influential in directing decisions, a statement of risk optimally tells about both probability and effect.

This set of definitions clearly articulates the difference between risks and hazards. However, common parlance does not. A hazard is often referred to as a risk. So, for instance, we sometimes talk about smoking as a risk. We say 'smoking is a risk'. In fact, smoking is a hazard. The risk of smoking is the probability that smoking will have a harmful effect and/or some measure of the extent of the harm it produces. This example is useful, of course, because it points immediately to the difficulties of actually assessing risk in the context of a specific hazard. The quantification of the risk of smoking is still subject to significant controversy both in respect to the levels of probability of harm and in respect to the extent of harm – despite the fact that it is not disputed that there *is* harm done to health by smoking.

2 The great debate

Since a hazard is defined as anything with the capacity to do harm and risk is defined as an amalgam of the likelihood and extent of harm, the great debate has focused upon who determines what is deemed harmful and who determines how harmful it is. There has been a challenge to the so-called commonsense approach that harm is self-evident or a manifest quality of an outcome. It is argued that harm is not objective; it essentially entails an evaluation of an outcome and a conclusion that the outcome is unacceptable. At one extreme, there might be total consensus that an outcome was harmful. For instance, a landslide that deluges a village and kills almost all inhabitants would be likely to be consensually accepted as harmful. At the other extreme, there might be significant disagreement about whether an outcome was harmful. For instance, nuclear power generation arouses quite diverse estimates of harm. Even where there is relative consensus in the perception of harm, there will be dissenters. For instance, the result of terrorist bombing may be regarded as harmful by the majority, but not by all. The assessment of harm depends upon the extent to which the outcome is acceptable (or even desirable) and this will vary between individuals and across societal institutions, according minimally to who is its victim and who is its beneficiary.

The very existence of harm, and subsequently any estimate of harm, is thus deemed a product of social analysis and negotiation. Consequently, since they are both defined in relation to harm, the existence of a hazard and the estimate of risk are also liable to be considered essentially products of social analysis and negotiation. None of this requires us to dismiss the physical reality of the outcome itself (i.e. the dead bodies beneath the mud, the nuclear waste or energy production, or

the bomb-riven, mangled underground/subway stations). It simply requires us to recognise that the meaning attributed to these physical manifestations (the nature of the harm that they represent) is achieved through a complex process of interpretation that is both social and psychological, occurring within and between institutions and within and between individuals.

The social science concern with this social construction of harm, hazard and risk has sensitised us to the way some institutions, some organisations and, indeed, some individuals have greater sway over the process than others.

In retrospect, the impact of the social science debate about risk over the last three decades is difficult to gauge. It is hard to step back in time and describe the initial effects of critiques that were published over twenty years ago when, through their very existence, they have so transformed the current platform for risk analysis. Propositions concerning the social construction of risk, that now seem obvious, were originally outrageously radical challenges to the power of the scientific establishment to define and remedy hazards. Douglas (1986) argued that public perceptions of risk were not simply the sum of individual reactions to specific events but were shaped by social and cultural influences. She identified that all institutions are not equal in shaping risk perception or acceptance and challenged whether risk should be assessed without consideration of issues of morality and social justice. Highlighting the inadequacies of cognitive psychological models of risk estimation and choice, she called for the broader analysis of the impact of culture.

From the vantage point of the twenty-first century, it seems almost incredible that it was necessary to demand this – why was it not already being done? The question is rhetorical, of course. In some senses it was being done – perhaps not as Douglas would have wished it done, but done nonetheless. Certainly, the psychologists involved in the early empirical work on risk did not ignore or reject the role of social factors in determining individual perception or judgement. However, their tools of analysis were not those used by philosophers, sociologists or social anthropologists. Their findings were centred on processes residing within individuals, not institutions. Their work was definitely not a form of social or political commentary and did not signal that the position of risk in societal discourse should be transformed.

Subsequent chapters in this book summarise in some detail what psychologists were concerned to achieve in analysing risk. Suffice it to say for the moment that they were trying to establish how people described hazards and how they reacted to them. They were concerned with gathering information about risk perceptions and decision-making under conditions of uncertainty from as broad a range of people as they could. They looked for patterns in this information that would indicate commonalities across people in their reactions to hazards and their appreciation of risk. Their work, typified by the contributions of Kahneman, Slovic and Tversky (1982), was aimed at building a model of individual decision-making about risk. They tried to describe what they found to happen when individuals were faced with choices in relation to risk. They tried to describe

how people characterised the different aspects of different sorts of hazards. Their approach was not explicitly motivated by an attempt to alter risk perceptions or change the way risk was treated societally. These early psychological investigations of risk did not come into conflict with the approach that scientists or engineers were taking to risk. Their work was seen by the scientific community as a useful adjunct to the business of objective risk assessment. The same work was seen by many sociologists, philosophers and social anthropologists as 'too cognitive', individualist and positivist, offering support to the scientific establishment in their desire to ignore the socially imposed – or negotiated – nature of risk. The fact that these psychologists were laying the foundations for a very complex interpretation of the psychological and social underpinnings of risk representations and reactions that would overlay any attempt at objective risk assessment in years to come was not suspected.

In contrast, Beck (1992) published *Risk Society* (in German in 1986). He set out to shift the position of risk in societal discourse. The book has two interrelated theses: one concerns reflexive modernisation, the other the issue of risk. For Beck, modernisation is constituted of scientific and technological developments that create risks and hazards never before encountered; unlimited in time (affecting future generations) and space (spanning across national borders) and socially (impacting on many types of people). This is the 'risk society' where no one can be held accountable for its hazards, which are incalculable and beyond remediation or compensation. The way forward, according to Beck, was to promote reflexive modernisation – the stage beyond modernity. Reflexive modernisation would be embodied in radicalisation and the rejection of the culture of scientism, together with its 'overblown and false claims'.

The passage from tradition to modernity had been supposed to instigate individualism and liberal democracy, based on enlightened self-interest. However, the postmodern critique already has suggested that modernity itself imposes constraints on individualism through culture, particularly around the icon of science (and its cultural form – scientism). Scientism was said to impose an identity upon social actors by demanding their identification with particular social institutions and with their ideologies – notably their construction of risk but also their many other rationalisations for social control (for example, in the definition of insanity or appropriate sexual behaviour). So, Beck was arguing that reflexive modernity is the next phase in this development, where, through freedoms originating in the decline of the class structure and the renovation of hierarchies in the workplace, individuals can reflect upon and flexibly restructure the rules that they accept. The risk society is essentially an individualised society, structured around the distribution of ills (the harm that hazards create); the fractures within it precipitate criticism of scientific orthodoxies and generate risk discourses that allow the status quo to be challenged. In parallel with Beck, but independently, Giddens (1990, 1991) examined the distinctive form reflexivity takes in modernity, particularly with respect to risk, trust and the creation of identity through managing one's biographical narrative. This work on the

dynamics of risk discourses has served to highlight the conflicts that pervade this arena.

Capturing the definition of the hazard and its risk may be easier for technical or scientific experts, but their ownership of the concepts is no longer complete. The social science analysis has exposed that questions exist and has demanded that they be given attention. It may be useful here to summarise some of the questions that become salient when a postmodern sociological critique is introduced:

What constitutes harm?
Who determines whether harm has occurred and how much harm has occurred?
How is the likelihood of harm ascertained and indexed?
How it is determined who or what is harmed?
How can it be determined whether and to what extent harm can be controlled or averted or limited?
Who determines whether harm is necessarily undesirable (could pain for gain be desirable)?
And the question underlying and overriding all the rest is: Who has the right or the power to determine how all of these questions are answered?

More recently, Beck (2006) has extended his analysis. He speaks of the 'world risk society', recognising that with globalisation come risks that are global. He argues that this state of global risk was unanticipated and the only possible reactions to risk that is experienced as omnipresent are denial, apathy or transformation. His interest is in transformation. Since 'risks exist in a permanent state of virtuality' – the moment they become real they cease being a risk and become a catastrophe – risks are events that are always threatening. The threat is open to transformation through social action and influence. Beck states that, since this transformation is a socially constructed phenomenon, some people will have greater capacity to influence it than others. He acknowledges that not all actors benefit from the reflexivity of risk, only those with real scope to define their own risks. The inequalities in the control of definitions allow powerful actors to maximise risks for others and minimise risks for themselves. Definitional control may not inevitably determine physical exposure to harm but it can do so. For instance, a company that diminishes the risk defined to be associated with some industrial process, and consequently is allowed to put workers in danger, is not just engaged in semiotics – it is engaged in social and economic control.

Although Beck does not say this, it could be argued that the uncertainty that surrounds many global hazards heightens the certainty of definitional turf wars. This is not uncertainty that can be expressed in terms of probability estimates because it is founded upon a deeper problem: we do not know what we do not know. This is more than acknowledged ignorance or limits to information. It is an awareness that there may be something more to understand but we just do not know what. The anticipation of the inevitability of the unknown, and thus unexpected, is now recognised in risk discourses. It opens avenues for contesting risk definitions, for undermining definitions originating with authorities of one

sort or another. For, if there are such uncertainties, how can any risk estimate be believed? Risk can become a component in the rhetoric of dissent, a tool of minorities for resisting the status quo or initiating change, in ways that mirror its use by power elites in directing economic and political decision-making.

An example of such minority influence in the context of uncertainty arose in relation to the MMR (measles, mumps and rubella) vaccination programme in the UK. The MMR vaccination was introduced in 1971, offering a single injection vaccination against the three diseases. From then until the mid-1990s 500 million doses were delivered in over 60 countries. The benefit of the vaccination programme in terms of reduced deaths, disability and illness was well-documented. In 2012, Demicheli et al. produced a systematic review of all the available evidence on the effects of the MMR vaccination and concluded that it was safe and effective. However, Wakefield et al. (1998) had published findings based on a study of twelve children who had autism, along with other illnesses, including bowel disorders, whose parents had reported the onset of symptoms soon after the child had received the vaccination. This led to suggestions that there was a link between the MMR vaccine and autism. In fact, in 2010 the General Medical Council found the Wakefield et al. research to have been dishonest. Several subsequent studies showed no association between the vaccine and autism. Yet, the uncertainty about the medical safety of the vaccine that was created by the Wakefield et al. study resulted in parental concern that they would be putting their children at risk if they allowed them to be vaccinated. This concern was initially voiced by the parents of children that had been in the Wakefield et al. study but it was very soon communicated widely through the media to other parents. The medical authorities and government sources all explained that the concern was ill-founded. But the controversy continued. The minority – the parents with children with autism – with the help of the media influenced the majority. The perceived risk of the MMR vaccine was so affected that many parents no longer allowed their children to be vaccinated (uptake of the vaccination in the eligible population in the UK declined from 92 per cent in 1996 to 61 per cent in 2003; Murch, 2003). Incidence of the diseases increased as a result. By 2008, for the first time in fourteen years, measles was declared endemic in England. There were also major outbreaks of measles in other European countries by 2008. There was a resurgence of measles in the USA. The effects of the anti-vaccination movement did not cease with the discrediting of the original research. Even in 2013, there were significant outbreaks of measles in unvaccinated populations within the UK.

The MMR controversy shows that an established risk estimate can be challenged and that the ensuing uncertainty offers latitude for new risk perceptions to develop and be communicated, and for them to influence behaviour and change the likelihood of harm actually occurring. The controversy also shows that the perceived risk can be influenced significantly through the social action of what was initially a small minority.

The MMR controversy illustrates that there is the capacity in the public to reject ‘authoritative’ pronouncements about risk. The great debate initiated by the social

sciences about the primacy of scientific analyses of risk has had the effect of nourishing across broad swaths of society globally – not least through its involvement of and impact upon the mass media – an abiding scepticism about hazard and risk pronouncements made by authorities (whether scientific or otherwise). Equally importantly, together with many other political and economic developments, it has stimulated new orientations to risk management by those responsible. The acknowledgement of uncertainty and the recognition of other contested risk definitions have led to the introduction of the 'precautionary principle' in hazard regulation and management. The precautionary principle essentially proposes that if it is suspected that it is plausible that an action or policy may cause harm, even in the absence of scientific consensus that it is harmful, then it should not be undertaken.

Precaution requires that protection is introduced against a hazard as yet undefined but suspected. Doubt and fear are allowed a part in dictating regulatory action in such contexts. There is a perfectly good rationale for doing this because, when the possibility exists of disaster if action is not taken, precaution seems defensible. There are, of course, new debates about the appropriateness, extent and justification of precaution. Precaution has given ammunition to some conspiracy theorists because it is a rationale for intervention and regulation that knows no bounds. Even those charged with executing the 'precautionary principle' claim sometimes that they do not understand how it should be applied (Wilson et al., 2006).

It seems almost inevitable that the philosophy of precaution will come under increasing scrutiny. Our society is formed of hazards and we know them through the fact that we label them. Implicit in the process of labelling is the desire to avoid them or the determination to control them. Precaution can be accused of denying us the opportunity to take advantage of what might be a worthwhile risk. Cries that precaution stifles innovation and blunts the competitive edge are easily imagined. The next rhetorical battlefield is likely to concern the limits of precaution and the resurrection of the positive value of accepting risk. Already, there are attempts to defend precaution (Hanekamp, 2006).

During the great debate over the last two decades that has at times challenged the very epistemological bases of scientific fact, as suggested earlier, the psychological study of risk has often been a target of attack. It has been accused of being solely concerned with the individual's perceptions and of ignoring their origins in social processes. Yet it is notable that during this period psychologists, particularly social psychologists, have been working to produce a substantial body of empirical evidence not just about how individuals think, feel and behave about risks but also about the social factors that shape cognitions, affect and action. They have been at the forefront of research on the way hazards come into being through the errors and decisions of individuals, institutions and governments, and how they are managed successfully and unsuccessfully. The analysis of the role of groups and intergroup dynamics in the evolution of risks has been ongoing. The examination of communications processes, including those associated with the

mass media, has been extensive. Processes of social amplification and social representation of risk have been studied. It seems that the research from the psychological perspective has been piecing together a rather complex model of risk. Far from being situated at the level of intra-psychic processes in the decontextualised individual, this is a truly social model. The old attacks on psychological analyses that speak as if psychology is only concerned with cognitions of individuals seem now completely redundant and anachronistic.

3 A social psychological framework for risk analysis

Breakwell (1994) proposed a generic framework for the development of social psychological theory. Originally, it was meant to offer guidance on what elements a comprehensive model would need to encompass if it was trying to explain how an action of an individual came to occur. Figure 1.1 presents a

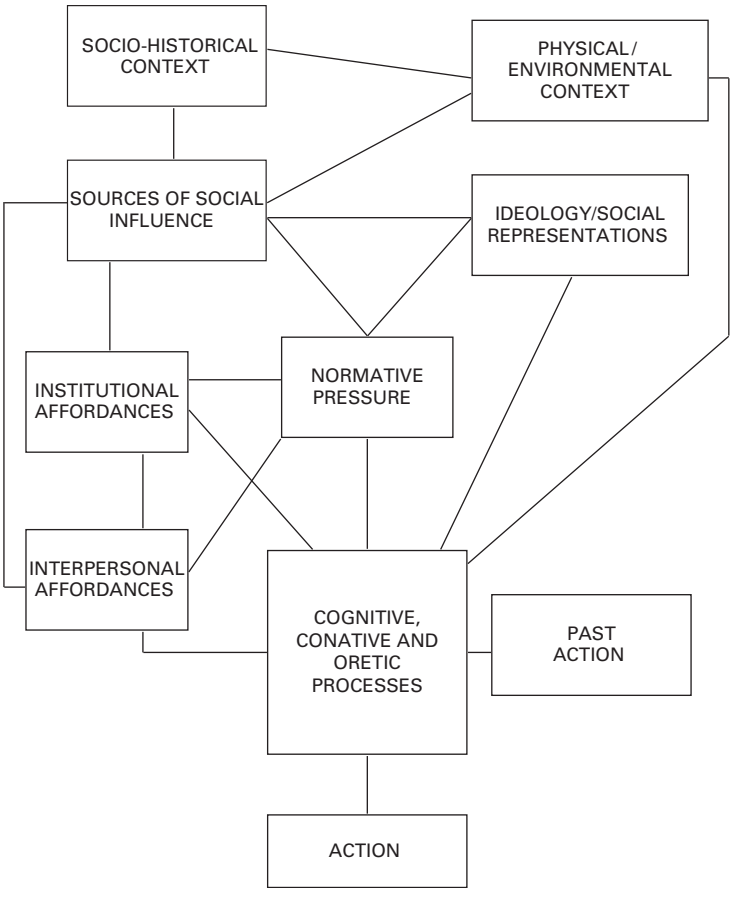

Figure 1.1 *A generic framework for social psychological analysis*