

Using Binding Communication for Risk Management Training in the industrial Chinese context

Abstract

Training is now considered the most commonly used way to learn and achieve proper risk management techniques, by making people aware of their various safety measures. We have thought deeply about safety behaviours related to industrial risk management and we have focused on the actions that are likely to make them emerge, mainly by risk representation (Tversky & Kahneman, 1974 ; Slovic & al., 2004). We have built a behaviour production model, focusing on operational goals and based on a cognitive and affective approach coupled with a situational approach. We therefore called upon binding communication (link between persuasive communication and commitment theory) (Witte & Allen, 2000 ; Joule, Girandola & Bernard, 2007). Risk management training should be a specifically designed process instead of a generalist informative tool. When people switch into a behavioural mode, they become actual ‘actors’ of risk management. As a result, we have designed a dedicated risk management training programme for a French industrial group based in China with the aim of changing its “safety culture”. In this paper we present some points of this action research (Lewin, 1947) seen in China today.

Contact:

Dr. Cédric Denis-Rémis

Tongji University, Sino-French Institute of Engineering and Management, Shanghai, China

Email: cedric.denisremis@paristech.fr

Keywords:

Training, Risks, Risk management, Safety behaviours, Persuasive communication, Theory of commitment, Binding communication.

1 Introduction

All public and private organizations should now consider and deal with risks within their structure. To focus only on occupational damage risks, these structures include management systems, more or less elaborated, for risk assessment. These systems aim to make people behave in a safe manner, by applying rules, instructions or methodologies to them. Their efficiency is based on the way people acquire these behaviors and consequently become risk management actors. Transferred information and the way it is transferred are key factors we need to stress, in order to reach the expected behavioural changes. By reviewing scientific papers, questioning information and processing risk factors, we build a decisional model helping these ‘actors’ who are in charge of managing risks in organizations to create the information and training for risk campaigns.

We think that risk management training should be a specifically designed process, instead of a generalist informative tool, meaning more time needs to be spent on the development of specific training programmes. We argue that we cannot design risk management training programmes to be like mathematics lessons. We need to focus on the way risks manifest themselves and on the expected reactions which follow. When people switch into a behavioural mode, they become actual actors of risk management. This new function is a strong way for us to mitigate the risk.

In this way, we have designed a risk management training dedicated programme for a French industrial group based in China, aimed to change its “safety culture”. The goal of this action is to train the people in order to identify fire risks and to react appropriately in the event of a fire. Our mission is to design a training programme in the most efficient way possible in order to make the stakeholders more accurate about risk management.

2 From risk representation to behaviour

Our model (Denis-Rémis, 2008) is adapted from models of Rogers (1983) and Witte (1992). It dictates that when a person has identified a hazard and has represented a risk that can have significant consequences for themselves, an emotional response (fear) will be set in motion. Unconsciously, the person will try to reduce their fear by adopting coping strategies, such as

comparative optimism or denial, or by trying to do something against the hazard or risk. It is obviously the latter towards which and in which we want to guide people.

In our model several conditions are necessary to obtain a positive intention towards a specific behaviour. It is important that the recommendations are perceived as effective (*i.e.*, perceived efficacy) and that the person feels able to implement these when necessary (*i.e.*, self-efficacy). If the person is not able to effectively avoid the threat, (because the action recommended appears to be too difficult, too expensive or inappropriate), then the model will seek to control their fear.

Related to the research of Witte (1998) - if the perceived threat dominates the perceived effectiveness, the control of fear is the most important factor. Conversely, if the perceived effectiveness dominates the perceived threat, a 'hazard control' is implemented (Priolo, 2005). Ultimately, whichever of these conditions are fulfilled, the 'actors' will use a safety behaviour method. Figure 1 illustrates these steps.

Arguably, a link between intention and behaviour is not always a strong one; a positive intention towards behaviour does not always leads to the appropriate behaviour. Although Ajzen (1991) underlines the intention as the best predictor of behaviour, some researchers highlight other factors that may be useful for predicting the action.

Ouellette and Wood (1998) have conducted a meta-analysis incorporating studies on models of Ajzen (1991) and Triandis (1980). The results indicate the presence of a relatively strong link between past behaviour occurring in a stable (*i.e.*, habitual) fashion, and future behaviour ($r = .59$). This link is weaker in an unstable context ($r = .27$). As regards behavioural intention, the link that unites past and future in a stable context ($r = .52$) or unstable context ($r = .55$) remains invariant. Thus, according to the authors, in the case of unusual behaviour, behavioural intention is still a better predictor of future behaviour.

Webb and Sheeran (2006) are much more cautious on the link that binds intention and behaviour. In their view, the intentions of people are only modestly associated with behaviour. The link between intention and behaviour, according to their study, is very low ($r = .18$). It appears, therefore, that the intent, depending on the context, is a weak to medium predictor of behaviour.

3 From behaviour to behaviour: theory of commitment

Joule's (2001) theory of commitment (Kiesler, 1971; Joule & Beauvois, 1998; Girandola, 2005) is regarded as one of the most useful theories of social psychology for action, and is widely used in the prevention field. Examples include, tobacco addiction prevention (Joule, 1991; Priolo, 2005), H.I.V. prevention (Masson-Maret, Joule et Juan de Mendoza, 1992; Joule et Peyrolle, 1996), road accident prevention (Taylor et Booth-Butterfield, 1993), as well as work-related accidents (Joule et Beauvois, 1998). Joule's theory has the advantage of being particularly adapted to research action. In this way, we have an efficient option for changing behaviours.

Regarding Joule, Girandola & Bernard (2007), the theory of commitment provides the best theoretical interpretation of free-will compliance phenomena. According to Kiesler (1971), people who 'act' become committed, in spite of themselves, hence impacting further on people's attitudes and behaviour (Joule, Girandola & Bernard, 2007).

Kiesler (1971) defines commitment as "the link between people and their actions". But for Joule & Beauvois (1998) we need to consider commitment as an "external" aspect (related to the circumstances) and not "internal" (related to intrinsic and personal characteristics). According to Joule & Beauvois (1998, 60) we must use this definition: "*In a given situation, a commitment corresponds to the conditions in which an action can only be attributed to the person who carried it out*" or: "*a commitment corresponds to the conditions in which an action was carried out and enabling an attributor (either an eye witness, the person him or herself, or any person aware of what happened) to match this action to the person who carried it out*".

The theory of commitment is related to attitudes and behaviours of their 'subjects'. Regarding attitudes, on one hand the theory predicts that committing oneself to a counter-attitudinal action results in a change of attitude or in a better adjustment of attitude to action (rationalization). On the other hand, when committing oneself in terms of attitude, it leads to a consolidation of the attitude. Related to behaviours, the theory predicts that committing oneself to a decisional action makes the person who made this decision stick to it, which has been referred to as "freezing effect" by Lewin (1947). The committing theory states that "committing first to an innocuous action increases the likelihood of complying to subsequent more demanding requests as long as the course of action remains consistent." (Joule, Girandola & Bernard (2007)). In all cases, this

effect on attitudes and behaviour can be observed only as long as the preparatory act was carried out in conditions of specific commitment (the same action can be more or less binding, and can even be seen as non-binding). According to Joule, Girandola & Bernard (2007), important commitment can be obtained by playing on several factors, which include:

- the context of freedom in which the action was carried out (an action carried out in a context of freedom is more binding than when carried out in a context of constraint);
- the public nature of the action (an action carried out in public is more binding than when anonymity is guaranteed);
- the explicit nature of the action (an explicit action is more binding than an ambiguous one);
- the irrevocability of the action (an irrevocable action is more binding than one that is not);
- the repetition of the action (an action that is repeated is more binding than an action carried out once);
- the consequences of the action (an action will be more binding if it is filled with consequences);
- the cost of the action (an action will be more binding if it is costly in time, money, energy, etc.);
- the reasons for the action (external reasons unbind (e.g., reward or punishment) while internal reasons bind (e.g. personality traits or personal values)).

By our model, we can therefore consider that we have two levers for changing behaviours. The first concerns "the content" through the emotional and cognitive treatment of the risk (this gives knowledge about how to design the information and messages in our training). The second relates to "form", in particular by upstream realization from individuals' of behavioural acts.

Figure 1 incorporates our previous model, illustrating the contribution of the theory of commitment. In this case, achieving a behaviour in the presence of an attributer, under binding conditions, could lead directly to producing a new behaviour. Figure 1 presents how past behaviour can have a direct effect on future behaviour as indicated by Speckart & Bentler (1979) and Triandis (1980).

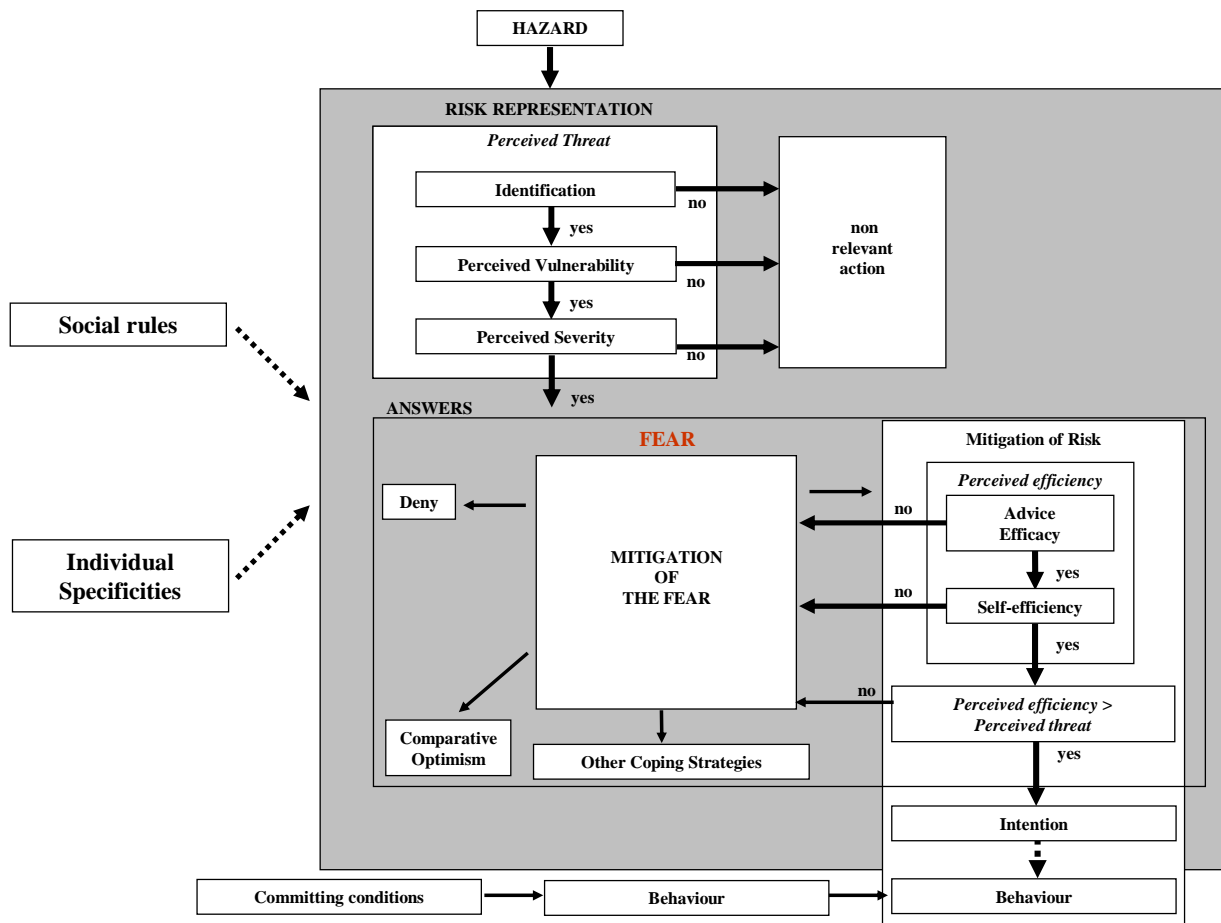


Figure 1: From Risk Representation to Behaviour

4 Binding communication

The different works presented above support the view that a path between mind and action may exist, but it is not systematic. Thus, goodwill in the field of security is not sufficient to achieve results on behaviours. Sometimes little things (*i.e.*, committing action) in a given context, can deeply modify behaviours. It seems appropriate to combine persuasion and commitment to achieve a greater likelihood of success in changing behaviour. Thus, Joule (2000) and Girandola (2003) argue in favour of a "binding communication". Girandola (2003) defines binding communication as the "product of the link between persuasion and commitment" (p. 9).

There is thus more communication within the meaning of Lasswell (1948) "who said what to whom, through what channel, and with what effects?" but "who said what to whom, through

what channel, and making him do what?" or "by inviting him to achieve what preparatory act?" (Joule, 2005, p. 6).

In this way, communication campaigns and training programs could be more effective if the preparatory actions to be obtained by the target audience are highlighted. *"From a practical point of view, the target's player status will lead him or her to carry out binding preparatory actions "inconsistent" with the subsequent influences that we want him or her to resist (incitement to drug use or racial hatred, for example). To the contrary, the preparatory actions will actually lead the target to carry out actions consistent with the subsequent desirable influences (educational or awareness messages, for example)."* Joule, Girandola & Bernard (2007, 499).

Several studies have confirmed the efficiency of binding communication on the behaviours of stakeholders (Cobern, Leeming, Porter & Dwyer, 1995 ; Girandola, 2005).

Like Girandola and Joule (2007), we consider individuals in training as future players in safety procedures. The inclusion of preparatory acts to be carried out gives the target the status, no longer as a receiver but that of an actor. In our training we seek to develop skills, but also to produce "commitment acts" to individuals. In this specific case, this is not more training, but binding training for risk management.

5 Binding Risk Management Training

For us, a risk management training programme has to research the change in status of people. As we explain throughout this paper, from spectators of risk management, these have to become stakeholders.

To do this, people have to produce safety behaviours. Producing safety behaviours can be related to the binding communication paradigm. The status of these 'actors' has to be conferred upstream from the behaviour, by the realization of a preparatory action. In this case, we will not discuss training but 'binding training'.

The aim of an item of training is to make use of one or further specified skills (Avanzini, 1996), limited and predetermined. This notion of skill can be characterized by a system of knowledge which allows the activity to meet the requirements of a task or a category of tasks

(Leplat, 1991). The skill is geared towards achieving a goal and we observe its manifestations - namely behaviour.

We propose to define binding training as “*the acquisition of one or more skills, through the appropriation of knowledge and the establishment of preparatory acts upstream from the training, oriented to the tasks to be achieved.*”.

We propose several conditions for the design of risk management training. In this way, a risk management training programme has to:

- be specific (*i.e.*, related to the specific hazards and risks);
- focus on the purpose (*i.e.*, appropriated safety behaviours);
- define the assessment during the design;
- focus on the risk « object »;
- use all the levers for behavioural change;
- look for changing the status of persons (*i.e.*, from individual to stakeholder).

6. Risk Management training in China

We have been contacted by a French industrial group based in China, requesting us to train the instructor for fire prevention training. In this assignment, the company provides us with the training materials and our mission has been to optimise the training in terms of efficiency. We have proposed to the company the construction of a risk management binding training focus on the relevant behaviours in an event of a fire. Unfortunately the company is limiting us to presenting in this paper the protocol used during the training and not the results.

First we have defined different relevant behaviours in an event of a fire. To answer the questions they need specifically to identify the items and so to produce behaviours. On paper we have asked them to identify, close to their working environment, the different items. They need to localize precisely the objects (room or corridor or staircase - which position exactly?) by answering the questions (where is the nearest fire alarm box? - where is the nearest phone? - where is the nearest extinguisher? - where is the nearest emergency exit?).

The second step has been to construct a preparatory action. This is represented by the action of signing a simple chart on “safety culture” which engages the people to be a model for the other people involved in safety. This chart has been given at the beginning of the training and the instructor has had to say “read this document, and feel free to fill it in”. Trainees have to write their name, date and sign the paper.

The third step has been to add at the beginning of the training a vivid video about fire. This is a video of “Station Night Club” Fire, which happened on February 20th, 2003 in the USA. This accident killed more than 100 people and injured more than 200. The video was filmed by a customer who survived to the accident.

At the end of the training session the instructor has had to ask: “When returning to your working environment, feel free to identify the location of the extinguisher and fire exits. Who is ready to do so?”. For the ones who have said yes, the instructor has asked them to write their name on a paper. After that he has given them the form which they have to fill in when they back in their working environment. They have to respond to each of the questions, sign the paper and give it to their risk prevention manager on site.

In order to have a great number of subjects for this experiment, we train the instructor who can train different stakeholders of the company. Afterwards, we randomly define for the next training sessions if the training was a binding one or a normal one (without prior notice).

A very interesting part of this mission has been to work with a Chinese translator because the training has to be both in Chinese and in English. This research action highlights the important place that the meaning of Chinese characters has in ensuring that we assess the good things and present the relevant actions.

7. Conclusion

In this paper we have presented our model from hazard to behaviour. We know that persuasion is a relevant way to change behaviour, but it could be insufficient. For this reason, we decide to use other ways for behaviour changing: the theory of commitment. This theory provides us with other levers to change behaviours.

There is a way to combine persuasion and commitment, which is named binding communication. The concept focuses on the status of subjects in order to make them actors. For this reason, this theory is fully in accordance with our safety goals.

In order to link binding communication and training, we have developed our concept for binding training specially adapted for risk management.

We argue that using binding communication for training and especially for risk management training is a way to improve the efficiency of training at low cost. This new field of research will allow us to improve safety and in the same way to provide knowledge for researchers.

Bibliography

Ajzen, I. (1991). Theory of Planned Behavior. *Organisational Behaviour and Human Decision Processes*, 50, 179-211.

Avanzini, G. (1996). *L'éducation des adultes*. Paris, Anthropos.

Bentler, P.M. & Speckart, G. (1979). Models of attitude-behavior relations. *Psychological Review*, 86, 452-464.

Cobern, M. K., Leeming, F. C., Porter, B. E., & Dwyer, W. O. (1995). The effect of commitment on adoption and diffusion of grasscycling. *Environment and Behavior*, 27, 213-232.

Girandola, F. (2003). *Psychologie de la persuasion et de l'engagement*. Presses Universitaires de Franche-Comté.

Girandola, F. (2005). Action and Commitment theory. In V. Alexandre., & W. Gasparski (Eds.), *French and other perspectives in praxeology* (Vol. 12, pp. 117-130). New Jersey : Transaction Publishers.

Joule, R.-V. (1991). Dissonance cognitive, privation de tabac et motivation. *Psychologie Française*, 36, 1, 5-11.

Joule, R.-V. (2000). Pour une communication organisationnelle engageante : vers un nouveau paradigme. *Sciences de la Société*, 50/51, 279-295.

Joule, R.-V. (2001). La théorie de l'engagement. In J.-M. Monteil & J.-L. Beauvois (Eds.), *La psychologie sociale*, t. 5 : *des compétences pour l'application* (pp. 25-35). Grenoble : Presses Universitaires de Grenoble.

Joule, R.-V. (2005). *De la communication à d'autres outils pour faciliter le passage de l'idée à l'action : la notion de soumission librement consentie*, *L'apport de la psychologie sociale pour des comportements écocitoyens*. Besançon, 2 décembre 2005.

Joule, R.-V., & Beauvois, J.-L. (1998). *La soumission librement consentie*. Presses Universitaires de France : Paris.

Joule, R.-V., Girandola, F., & Bernard, F. (2007). How can people be induced to willingly change their behavior? The path from persuasive communication to binding communication. *Social and Personality Psychology Compass*, 1, 493-505

Joule, R.V., & Peyrolle, (1996). Compromiso y prevencion contra el SIDA : el cambio de las actitudes hacia el preservativo. Dans N. Basade, D. Paez, R. Usieto, H. Paicheler et J-C. Deschamps (Eds), *El desafio social del SIDA*. Madrid : *Fundamentos*, 93-112.

Kiesler, C. A. (1971). *The psychology of commitment: Experiments linking behavior to belief*. New York: Academic Press.

Lasswell, H. D. (1948). The Structure and function of communication in society. In L. Bryson (Ed.) *The communication of idea: Religion and Civilization Series* (pp. 37- 51). New York: Harper and Row.

- Leplat, J. (1991). Compétence et ergonomie. In R. Amalberti, M. de Montmollin et J. Theureau (dir.), *Modèles en analyse du travail* (p. 263-278). Liège : Mardaga.
- Lewin, K. (1947). Group decision and social change. In T. Newcomb, E. Hartley (Eds.), *Readings in social psychology*, New York, Holt.
- Masson-Maret, H., Joule, R-V., Juan de Mendoza, J-L. (1992). Une recherche expérimentale appliquée à la prévention du Sida en milieu scolaire, *Cahiers internationaux de psychologie sociale*, 13, 11-22.
- Priolo, D. (2005). *Pour qu'un message préventif soit efficace, est-il possible d'agir sur les pensées en faisant appel à la peur ou bien de faire agir tout simplement ?* Thèse de doctorat de Psychologie, 2005.
- Rogers, R.W. (1983). Cognitive and physiological processes in fear appeals and attitude change: A revisited theory of protection motivation, in Cacioppo J. T. & Petty R. E. (dir.), *Social Psychophysiology*, NY: Guildford, 153-176.
- Slovic, P. Finucane, M.L., Peters, E., MacGregor, D.G. (2004). Risk as Analysis and Risk as Feelings: Some Thoughts about Affect, Reason, Risk and Rationality. *Risk Analysis*, 24, 2, 2004.
- Taylor, T., & Booth-Butterfield, S. (1993). Getting a foot-in-the-door with drinking and driving: a field study of healthy influence. *Communication Research Reports*, 10, 95-101.
- Triandis, H. C. (1977). *Interpersonal behavior*. Monterey, CA: Brooks/Cole.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases, *Science*, 185, 1124-1131.
- Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin*, 132, 249-268.
- Witte, K. (1992). Putting the fear back into fear appeals: The Extended Parallel Process Model, *Communication Monographs*, 59.
- Witte, K. (1998). Fear as a motivator, fear as inhibitor: Using the extended process parallel process model to explain fear appeal successes and failures. In P. E Andersen & L. K. Guerrero (Eds.), *Handbook of communication and emotion: Research, theory, applications, and contexts* (pp. 423-450). San Diego, CA: Academic Press
- Witte, K., & Allen, M. (2000). A meta-analysis of fear appeals: Implication for effective public health campaigns. *Health and Education Behavior*, 27, 591-616.