

2016 call for proposals

“Professional training and industrial safety”

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The Foundation for an industrial safety culture is a French public-interest research foundation which was created in 2005. It funds research on industrial safety and the management of technological risks. This call for proposals aims better to understand and to improve training and related skill-development mechanisms (including mentoring, the use of simulators, discussion within a community of practice) and their impact on industrial safety. The call concerns two topics:

- ▷ *Effectiveness of training and related mechanisms for skill development*, which aims better to understand the benefits and the limits of mechanisms used to improve knowledge and professional skills, and which raises questions related to the measure of effectiveness and efficiency;
- ▷ *New mechanisms for the development of safety-related skills*, which aims to allow experimentation with new types of training activities that better articulate the top-down and rule-compliance dimensions of safety management with the “bottom-up” dimensions of experience, skills and adaptation.

Keywords: training, transfer, professional skills and competencies, safety, effectiveness, tradecraft, community of practice, experimentation, empowerment vs. compliance.

The scientific disciplines which seem most relevant to the call are organization studies, the cognitive sciences (in particular developmental psychology), education sciences (in particular vocational training), ergonomics, law, economics and engineering. Inter- and multi-disciplinary projects are encouraged.

The **call budget** is **700 k€**. The call aims to fund **applied research**, with project sizes between 50 and 200 k€. The call is open to applicants from all countries, though participation in programme seminars will be more convenient for applicants coming from Europe.

Important dates for the call, which includes two stages:

- ▷ letters of intent (max. 5 pages) before March 31st 2016
- ▷ detailed proposals before June 1st 2016
- ▷ funding decisions notified on June 23rd 2016
- ▷ projects start from September 2016

For more information, see the **call web page**:

- ▷ <https://foncsi.org/en/CfP-2016/> (in English)
- ▷ <https://foncsi.org/fr/A02016/> (in French)

1 Introduction

The Foundation for an industrial safety culture (FonCSI) is a French public-interest research foundation created in 2005. It funds interdisciplinary research projects on technological risks and the human and organizational factors of safety. Through the transfer of research results to industry, the FonCSI improves industrial safety for all stakeholders: public authorities, associations and NGOs, local government, researchers, firms, trade unions, etc.

In 2015, the FonCSI launched a work programme on “professional training and industrial safety”:

- ▷ a working group launched in 2015 prepared a state of industrial practice on this topic and the problems encountered, in order to identify relevant research questions;
- ▷ a call for research proposals, published at the beginning of 2016, based on these research questions and aiming to develop knowledge that can allow industrial practice to improve.

This document describes the scientific topics, the nature of the projects that will be funded and the administrative details of the call. An associated document titled *Guidelines for evaluators* describes the evaluation process and criteria, and can be read by all interested parties.

2 State of the problem

This call results from a certain number of observations:

- ▷ Analyses of the causes of industrial accidents sometimes identify a “lack of professionalism” or “inadequate professional skills” (most often concerning a front-line worker) as a factor that contributed to the accident sequence.
- ▷ Companies operating high-hazard activities make large investments in training, but the return on this investment is often felt to be lower than hoped for.
- ▷ Academic researchers hold a predominantly critical view of training and skill-development activities within firms, suggesting that classical training consisting of presenting theoretical content in a classroom context has relatively little effect on the situated activity of workers¹. Some researchers go so far as to describe professional training as an activity which is driven as much by external pressure (from regulations, control authorities, the media, NGOs and the public) and the imperative to show that “we are working to improve safety” [Boltanski] as by the specific needs of sharp-end workers. Clearly, while classroom-based training is necessary (in order to present abstract fundamentals), it must be supplemented by situation-based training.
- ▷ The tension between compliance-based safety management and “bottom-up” resilience-based safety², between “safety as developed in routine work situations” and “ability to respond to exceptional situations”, and finally between “safety resulting from trade skills and professional competencies” and

¹ The traditional (cognitive) view of learning, which largely underlies classical classroom-based training, focuses on the way in which individuals acquire information and memorize knowledge. This knowledge can be of a factual, conceptual, discursive, procedural (which routine to apply in which situation) or conditional (which other forms of knowledge should be applied in this situation) nature. Classical training mechanisms (transferring information from a knowledgeable person to a less knowledgeable one) may develop individuals’ factual knowledge, but their concrete impact on professional practice in the workplace and on the way in which problems are resolved is poorly documented [Billett 1996, 2001], [Palincsar 1998, p. 347]. Other researchers have focused on the socio-cultural dimensions of learning, analyzing the role of social practices and the nature of situations in which knowledge is used [Gherardi 2006]. In this view of learning, individuals learn through their everyday work and during discussions with other people (establishing a common terminology, shared meanings for actions and situations), by observing the collective norms and discussions on “quality work”, and through interaction with the artifacts and tools present in the workplace. Knowledge is seen as the ability competently to participate in the activity and to interact with others. Research into vocational training aims to bridge these two viewpoints on learning by bringing together the cognitive (personal) dimension and the social influences [Billett 2011].

² Resilience-based safety is a safety that is built through everyday work, which cannot be separated from ordinary practices in the workplace, which arises from front-line workers’ ability to deploy their expertise and professionalism to detect deviations and implement effective corrective actions. Compliance-based safety is driven by the design of standards, equipment and operating procedures, exhaustive hazard identification during system design and the implementation of preventive and protective barriers. It is also enabled by workers’ ability to follow procedures “correctly”, each deviation being seen as a source of risk. These two “reservoirs” of safety are partially complementary.

“safety resulting from system design and the safety management system”³ have a strong impact on the nature of the knowledge and skills that workers (both front-line and management) are expected to acquire. However, these tensions are not always resolved clearly in the design of training curricula and other professional skill development activities. Safety is less a state than a process that allows an individual to make sense of the situation they are confronted with (routine or abnormal), thanks to their knowledge and experience, and allows them to develop an appropriate response [Rasmussen]. The very rare nature of certain extreme and abnormal situations makes it difficult for workers to develop the skills necessary to control them.

This call aims to fund research activities that allow the improvement of training, skill development and professionalization activities⁴ and their contribution to industrial safety. The term “training and professional skill development” is used in this document in an inclusive manner to designate all the procedures and practices, both formal and informal, that allow workers to acquire information, knowledge and skills that enhance vigilance and prevention, that improve their understanding of the risks associated with their work, of the technical and organizational barriers put in place to control these risks (including safety procedures), and of organizational issues related to safety and performance. A wide variety of training and skill-development activities exist, including classroom-based training, online or distance learning, simulator-based training, apprenticeship and mentoring programs, discussion groups within a community of practice, learning by doing, and discussions within a workgroup such as pre-job briefings, post-operation debriefings and storytelling practices.

Scope. FonCSI is concerned by industrial safety and the prevention of major accident hazards, but the current call is not limited to “safety training”, not to the activity of safety professionals. It concerns **all activities that aim to develop workers’ job-related skills and competencies and which may have an impact on industrial safety** [Hale 2016]. It also concerns a variety of occupational positions within the firm, from top managers to experts to sharp-end workers.

3 Topics

The call comprises two related topics:

- ▷ The first topic aims better to understand the **value and the limits of existing training methods** in terms of **improving knowledge, skills and professionalism and their link with safety performance**. Respondants are invited to analyze the way in which training methods allow workers to internalize safety rules; projects will analyze the types of learning that are the most relevant in allowing individuals to transform the external obligation constituted by the safety rule into an internal obligation to implement the rule and adapt it to concrete situations.
- ▷ The second topic allows researchers to propose and test **new training or professional skill-development methods**, or to highlight the importance of **existing practices that have not been officially identified** and integrated within the formal training system. This topic aims to understand how training integrates the professional knowledge and the skills of experienced workers: projects will emphasize the way in which individuals contribute to the training content and the way in which curriculum designers integrate workers’ experience-based knowledge and skills.

³ Communities of practice, professions and trades develop over time a set of approved ways of working that are recognized by “good professionals” as the correct (and the safe) way of doing things. Safety management systems, under the responsibility of the HSE hierarchy, provide a set of work rules and bureaucratic procedures that aim to ensure that risks are controlled. These two sets of rules are “owned” by different groups of people, and their complementarity is not inevitable.

⁴ By “professionalization”, we intend to describe the process through which members of a same work activity, or of a community of practice, organize themselves to resolve problems encountered in their work (control risks and ensure performance and quality are maintained), qualify the work context, define the set of tasks that must be implemented and ensure that the associated skills are recognized. These skills must be formalized so that they can be communicated and shared. The formalization process involves the making-explicit process which transforms knowledge *in action* into knowledge *about action*.

3.1 Effectiveness and efficiency of training and related mechanisms for skill development

Context: firms operating in high-hazard industries make large investments in professional training, in order to respect legal obligations (in some countries), but also to improve the control of industrial risks. However, there is a shared feeling – that could be worth revisiting [Gilbert 2015] – that the return on this investment is lower than that hoped for. Indeed, accident investigations often point to a lack of professional skills or competencies as a factor that contributed to the accident, and tests show that the level of knowledge retention after classical classroom-based training is lower than objectives.

Working safely is more than just learning to apply pre-existing rules [Hale and Borys 2013a,b]; studies show that direct application of safety procedures is not always effective⁵ and that it can in fact be dangerous⁶. Working safely is also working *on* the safety rules to adapt them to the local context, to internalize their meaning, to redefine them or create them when they do not exist. Which training and professional skill-development mechanisms can encourage and foster this transformation from a description of the actions to be undertaken into an informed appreciation of the meaning of those actions?

Questions:

- ▷ How to **measure the effectiveness** of different training and skill-development mechanisms (classroom-based training, e-learning, use of simulators [Colombo and Golzio 2016], learning-by-doing, mentorship programmes [Govaerts and Dochy 2014], *etc.*)? Which metrics are relevant (immediate satisfaction surveys, measures of the level of impact on safety expertise, *etc.*)? How to assess the impact of these mechanisms on workers' ability to react appropriately in abnormal or extreme situations, given the very low frequency of such situations?
- ▷ What is the relative effectiveness of existing training mechanisms?
- ▷ How can the effectiveness of these mechanisms be improved? Are higher-performance mechanisms needed? Under which conditions can these new mechanisms be effective?
- ▷ Which types of training mechanisms are suited to different types of learning (development of theoretical knowledge, of ability to react in an appropriate manner to abnormal situations, of vigilance capabilities...)? To what extent are distance learning mechanisms appropriate for the development of knowledge and skills related to safety?
- ▷ How can knowledge and skills be brought up to date, and how to ensure that they do not disappear over time, without requiring workers to repeat the same training courses (which often generates a certain amount of lassitude)?
- ▷ How does the content of professional training courses translate into operable knowledge, and how is this knowledge combined with knowledge and skills developed on the job [Baldwin and Ford 1988; Blume et al. 2010]?
- ▷ To what extent should training methods and the training content be adapted to the situated work activity? Are different training mechanisms required for exceptional and for routine situations?

Types of research: projects should aim to make concrete contributions to the way in which safety training and professional skill-development is designed and implemented. Most funded projects will include some fieldwork (*cf.* §4). The scientific disciplines that seem most relevant include educational studies, ergonomics, organization studies, the cognitive sciences and engineering. Interdisciplinary or multidisciplinary projects are encouraged.

⁵ Most workers do not follow procedures or work to rule (unless as part of a protest action designed to reduce overall system performance). As an empirical illustration, 2/3 of 238 responses collected by [Saglio 2001] stated that their work on a naval vessel is "often" different from that intended by the procedure; this ratio was similar for sharp-end workers and for officers.

⁶ In her analysis of the Challenger space shuttle disaster, [Vaughan 1997] notes that procedures were followed scrupulously: "In the history of decision making on the Solid Rocket Boosters, 1977–1985, and on the eve of the launch, NASA managers abided by every NASA launch decision rule. With all procedural systems in place, they had a failure."

3.2 New mechanisms for the development of safety-related skills

Context: in some work contents, managers underestimate the importance of “invisible work” [Almklov and Antonsen 2014], activities that allow workers to develop their knowledge and professional competencies, which is necessary for the development of a community of practice⁷, a profession or a trade. The invisible work may also allow workers to develop professional relationships with a network of other experts/professionals that helps them to diagnose and resolve abnormal situations. The invisibility of this component of work is related to the adaptations implemented by front-line workers to respond to situated constraints. Managers and the people responsible for top-down safety rules are not always aware of the existence of these adaptations, because some of the associated skills are tacit⁸. Managers may seek to eliminate the time periods that are devoted to this invisible work (because, for instance, they see it as non-productive “chatting”) or may eliminate the locations that allow these interactions to take place. Furthermore, professionals and skilled workers sometimes encounter difficulties in convincing managers and the people responsible for implementing the safety management system of the need to adapt top-down norms and procedures to certain work situations. This “bottom-up” dimension of skills and expertise is not always well integrated into training activities.

Questions:

- ▷ How do training and professional skill development mechanisms interact with this invisible work, and what are the implications for safety?
- ▷ How can managers be convinced of the importance of this invisible work and integrate it in decision-making and in the development of training programmes?
- ▷ How to develop spaces for debate in the workplace that allow knowledge about risks and controls to be discussed? How to integrate this knowledge in training courses and other professional skill development activities⁹?
- ▷ What is the influence of the fact that some actors anticipate legal constraints that are related to responsibility and accountability?
- ▷ Under which conditions can an “authentic” dialogue between managers and front-line workers concerning real workplace situations be established?
 - Which types of practice allow fruitful relationships to be built between sharp-end workers and front-line managers (in particular, practices related to job mobility of supervisors and the way in which their bonuses are established)?
 - What conditions allow the development of trust between managers and front-line workers? What are the consequences in terms of training content and methods?
- ▷ To what extent is the operational experience feedback (or “lessons learned”) process a useful mechanism for informing managers of the constraints of real (and “invisible”) work?
- ▷ What is the nature of the safety-related training delivered to managers? What are the underlying safety models (for instance concerning rule-based vs bottom-up safety)?
- ▷ Which **organizational characteristics and practices**¹⁰ allow the emergence and the development

⁷ A *community of practice* is a group of people who work together (either in the same location, or virtually thanks to communication technologies), who discuss their work practices, who collaboratively develop solutions to the problems encountered on the job, who collectively learn to improve performance, who share a common engagement.

⁸ Tacit skills are innate or acquired through experience. They are difficult to formalize, unlike explicit knowledge.

⁹ There should not be a frontier between the people who design and implement the top-down safety mechanisms and sharp-end workers, but rather a collective group that is formed around the normative production of safety rules. This co-production transforms safety procedures into shared obligations; the decentralized and coordinated production of safety rules transforms the relationships between people in the workplace and obliges all those who are impacted by safety concerns to cooperate. Safety leads to active contribution of a number of different actors who differ in hierarchical position, knowledge, skills and experience but who are obliged to cooperate — sometimes in a conflictual manner — on rule-making.

¹⁰ Related in particular to communication, training, task allocation, work organization, human resource management. For instance, places that allow discussion between trades, professions and workgroups; certification programmes that make certain skills a prerequisite to a job title; hiring only control-room operators who have previous hands-on experience on the unit; storytelling

of “**good professionals**”¹¹ (in each trade or community of practice)? Which coordination activities between members of a trade/profession allow the development and recognition of these skills?

- ▷ Which balance between *empowerment* and *compliance* with respect to work-to-rule? Which mechanisms allow professionals and skilled workers to speak as a legitimate group which is able to impose a dialogue with the people responsible for the safety management system and safety procedures? How does the training content and delivery integrate the two sources of knowledge that are top-down formal knowledge and bottom-up knowledge-from-doing?
- ▷ Is training the appropriate location to learn how to build the balance and the compromises between conformity (work-to-rule) and engagement/initiatives (bottom-up expertise in safety management)? What is the role of managers in handling this equilibrium?
- ▷ Which training methods allow a discussion on **situated work** and the associated risks (as a complement to the decontextualized knowledge on procedures and general safety concepts)?
- ▷ What do we know about the way in which training staff interact with trainees (the “invisible” reality of social adaptations during training)?
- ▷ What input from **simulators** for training with accident scenarios to develop or assess knowledge or skills, in particular concerning rare events? Which pedagogical strategies should be associated with such use (role of debriefings, variety in the scenarios, etc.)?
- ▷ Are there existing atypical training methods that are not widely known but may hold useful potential for developing professional competencies related to safety?

Types of research: Projects should allow the improvement of the effectiveness of training or skills-development practices and their safety impact or identify the conditions necessary for their success. The scientific disciplines that seem most relevant to this topic include anthropology, organization studies, ergonomics, the cognitive sciences, economics, law and engineering. Multi- or pluri-disciplinary projects are encouraged.

4 Nature of the available funding

Applied research. The call aims to fund primarily applied research in universities and research laboratories. Projects coordinated by an industry partner may be funded if they include a significant research content. Projects should be primarily focused on innovation and practical results (rather than theory development), and should allow the improvement of training and professional skills-development schemes in high-hazard industries. Projects that address both of the topics described above are welcome.

Field observations. Projects should include a strong link with practice, either in the form of field observations or pilot programmes undertaken in collaboration with an industrial site or training center, or through the analysis of data or documentation produced by these activities. If researchers do not have existing relationships with a relevant industry partner for their project, FonCSI may be able to facilitate the establishment of links between researchers and industrial partners (in particular in high-hazard industries including energy, process and transport in Europe). In this case, please specify the characteristics of the high-hazard activity you would like to work with in the response form.

practices such as those described by [Sanne 2008] for railway maintenance teams. An empirical study by [Brown and Duguid 1991] of supervision and repair technicians describes the narration activities they use to interpret each new situation in the light of the collective knowledge of the workgroup. [Suchman 1996, 1997] analyzed the coordinated interactions in an airport operations room. [Hutchins and Palen 1997] analyzed the cockpit interactions of airline pilots. [Gherardi and Nicolini 2002] analyzed the way in which managers and newcomers learn from observation and by asking questions on the alternative ways of executing different tasks. Other empirical studies underline the importance of HSE personnel in facilitating a collective dialogue on safety, establishing fruitful links between fieldwork, regulatory requirements and professional practices [Broberg and Hermund 2007], [Hale and Hovden 1998, pp. 147-148], [Nytrö et al. 1998, p. 299].

¹¹ The term “good professional” is subjective and difficult to define precisely, but is a key concept. We refer to a person who belongs to one or more communities of practice or a structured trade or profession, who has acquired experience on the “right” way to do the job, to work safely, and the reasons for working in this manner. This subjective judgment can only be made by members of the same community of practice or trade.

Projects that undertake a comparison between industry sectors or between the practices in different countries are welcome.

Funding. The projects funded in the context of this call for proposals will be relatively small (duration typically between 12 and 36 months, budget between 40 and 150 k€). Projects may be put forward by a single partner or by a consortium. The total call budget is 700 k€.

5 Calendar and process

The call is organized in two phases, the first using letters of intent (short response) and the second phase full applications. The calendar of the call is described in the table below.

Action	Date
Publication of the call for proposals	February 12 th 2016
Deadline for letters of intent	March 31 2016
Responses on the first phase sent to project coordinators. Request for full proposals sent to selected applicants.	April 15 th 2016
Deadline for full proposals	June 1 st 2016
Funding decisions sent to project coordinators	June 23 2016
Projects start (from)	September 2016

Letters of intent (maximum 5 pages) will be examined by the FonCSI committee which is in charge of the call for proposals. Respondants who are approved after this first stage will be invited to prepare a full proposal for the second stage of the call. Full proposals will be analyzed by an evaluation panel which includes academic experts and industrial representatives. The evaluation process and criteria used are described in more detail in the document titled *Guidelines for evaluators*, which can be found on the call web page (see URL on the first page of this document).

Respondants should use the letter of intent form (content in English or in French) which is available on the call web page. Letters of intent should be sent by email to call-2016@foncsi.org before March 31 2016 at 20:00. A confirmation email will be sent within two working days.

Confidentiality. Letters of intent and full proposals will be handled in confidence, and will only be transmitted to FonCSI staff and to the experts involved in the evaluation process. Their content will be used only for the purposes of project evaluation, decision-making on funding and call management.

6 Call management

FonCSI has established two committees which are responsible for the call management and the evaluation process:

- ▷ The **call management committee** is composed of FonCSI staff and outside experts. All decisions concerning the running of the call for proposals will be made by this committee, which is responsible for writing the call text, evaluating projects and following the progress of funded projects. Final funding decisions will be made by FonCSI's board, on the basis of a ranking list and associated comments provided by the call management committee.
- ▷ The **evaluation panel** is composed of members of the call management committee, of outside academic experts from disciplines relevant to the call and of industrial experts representing FonCSI's industrial partners. Evaluation panel members may not participate in a project submitted in the call and will accept a confidentiality agreement. The work of the evaluation panel is organized so as to avoid conflicts of interest.

6.1 Evaluation process

The **evaluation criteria** are:

- ▷ Compatibility with the call topics
- ▷ Scientific and/or technological excellence
- ▷ Expected outcomes (scientific and practical)
- ▷ Quality of implementation

These criteria and the associated weights are described in more detail in the *Guidelines for evaluators* document, which respondents are free to read. Each full project will be evaluated by three members of the evaluation panel. An evaluation report, comprising a summary of the three evaluations, will be transmitted to the project coordinators.

6.2 Common activities

Reporting. The coordinator of a funded project will submit an annual report and a final report (within three months of the end of the project), describing the scientific and practical results obtained. Reports may be written in English or French and will use a common format that will be provided by FonCSI.

Common seminars. Projects funded in the context of this call will participate two times a year in a programme seminar organized by FonCSI. These seminars will be organized so as to facilitate interaction between members of the different funded projects and to allow dissemination of the research results to interested stakeholders. The funding of travel costs of one project representative to all seminars organized during the project's duration (which will be organized in France during a full work day) should be included in the budgets of full proposals.

Dissemination. Communications, publications, posters and press releases concerning the results of projects funded in this call must acknowledge FonCSI's support. At least one of the research outputs must be written so as to be accessible for the stakeholders of industrial safety mentioned on page 2 of the current document. The scientific and practical results of funded projects will be disseminated by FonCSI, as a complement to dissemination activities undertaken by the researchers.

7 Questions

Any questions concerning the call should be sent by email to contact@foncsi.org, allowing sufficient time for a response to be made before the relevant deadlines.

References

- Almklov, P. G. and Antonsen, S. (2014). Making work invisible: New public management and operational work in critical infrastructure sectors. *Public Administration*, 92(2):477–492. DOI: [10.1111/padm.12069](https://doi.org/10.1111/padm.12069).
- Baldwin, T. T. and Ford, J. K. (1988). Transfer of training: a review and directions for future research. *Personnel Psychology*, 41(1):63–105. DOI: [10.1111/j.1744-6570.1988.tb00632.x](https://doi.org/10.1111/j.1744-6570.1988.tb00632.x).
- Billett, S. (1996). Situated learning: bridging sociocultural and cognitive theorising. *Learning and Instruction*, 6(3):263–280. DOI: [10.1016/0959-4752\(96\)00006-0](https://doi.org/10.1016/0959-4752(96)00006-0).
- Billett, S. (2001). Knowing in practice: re-conceptualising vocational expertise. *Learning and Instruction*, 11(6):431–452. DOI: [10.1016/S0959-4752\(00\)00040-2](https://doi.org/10.1016/S0959-4752(00)00040-2).
- Billett, S. (2011). *Vocational Education: Purposes, Traditions and Prospects*. Springer. ISBN: 978-94-007-1953-8, 249 pages.
- Blume, B. D., Ford, J. K., Baldwin, T. T., and Huang, J. L. (2010). Transfer of training: A meta-analytic review. *Journal of Management*, 36(4):1065–1105. DOI: [10.1177/0149206309352880](https://doi.org/10.1177/0149206309352880).
- Broberg, O. and Hermund, I. (2007). The OHS consultant as a facilitator of learning in workplace design processes: Four explorative case studies of current practice. *International Journal of Industrial Ergonomics*, 37(9–10):810–816. DOI: [10.1016/j.ergon.2007.07.007](https://doi.org/10.1016/j.ergon.2007.07.007).

- Brown, J. S. and Duguid, P. (1991). Organizational learning and communities of practice: toward a unified view of working, learning, and innovation. *Organization Science*, 2(1). DOI: [10.1287/orsc.2.1.40](https://doi.org/10.1287/orsc.2.1.40).
- Colombo, S. and Golzio, L. (2016). The Plant Simulator as viable means to prevent and manage risk through competencies management: Experiment results. *Safety Science*, 84:46–56. DOI: [10.1016/j.ssci.2015.11.021](https://doi.org/10.1016/j.ssci.2015.11.021).
- Gherardi, S. (2006). *Organizational Knowledge: The Texture of Workplace Learning*. Blackwell, Oxford, UK. ISBN: 978-1-4051-2559-8, 292 pages.
- Gherardi, S. and Nicolini, D. (2002). Learning in a constellation of interconnected practices: Canon or dissonance? *Journal of Management Studies*, 39(4):419–436. DOI: [10.1111/1467-6486.t01-1-00298](https://doi.org/10.1111/1467-6486.t01-1-00298).
- Gilbert, C. (2015). Safety: a matter for “professionals”? Opinion piece on industrial safety number 2015-07, Foundation for an industrial safety culture. Available at <https://www.foncsi.org/en/publications/collections/opinion-pieces/safety-matter-professionals/>.
- Govaerts, N. and Dochy, F. (2014). Disentangling the role of the supervisor in transfer of training. *Educational Research Review*, 12:77–93. DOI: [10.1016/j.edurev.2014.05.002](https://doi.org/10.1016/j.edurev.2014.05.002).
- Hale, A. R. (2016). Editorial: Learning and training in safety and health. *Safety Science*, 81:1–4. Learning and Training in Safety and Health. DOI: [10.1016/j.ssci.2015.08.009](https://doi.org/10.1016/j.ssci.2015.08.009).
- Hale, A. R. and Borys, D. (2013a). Working to rule, or working safely? Part 1: A state of the art review. *Safety Science*, 55:207–221. DOI: [10.1016/j.ssci.2012.05.011](https://doi.org/10.1016/j.ssci.2012.05.011).
- Hale, A. R. and Borys, D. (2013b). Working to rule or working safely? Part 2: The management of safety rules and procedures. *Safety Science*, 55:222–231. DOI: [10.1016/j.ssci.2012.05.013](https://doi.org/10.1016/j.ssci.2012.05.013).
- Hale, A. R. and Hovden, J. (1998). Chapter *Management and culture: the third age of safety. A review of approaches to organizational aspects of safety, health and environment* in *Occupational Injury. Risk Prevention and Intervention* (Feyer, A. M. and Williamson, A., Ed.). Taylor & Francis, London.
- Hutchins, E. and Palen, L. (1997). Chapter *Constructing meaning from spaces, gesture, and speech* in *Discourse, Tools and Reasoning: Essays on Situated Cognition* (Resnick, L. B., Pontecorvo, C., and Saljo, R., Ed.), pages 23–40. Springer, Berlin.
- Nytrö, K., Saksvik, P., and Torvatn, H. (1998). Organizational prerequisites for the implementation of systematic health, environment and safety work in enterprises. *Safety Science*, 30(3):297–307. DOI: [10.1016/S0925-7535\(98\)00050-2](https://doi.org/10.1016/S0925-7535(98)00050-2).
- Palincsar, A. S. (1998). Social constructivist perspectives on teaching and learning. *Annual Review of Psychology*, 49:345–375. DOI: [10.1146/annurev.psych.49.1.345](https://doi.org/10.1146/annurev.psych.49.1.345).
- Saglio, J. (2001). Chapter *Souplesse du quotidien et rigidité dans la crise: l'organisation du travail sur un bateau de guerre* in *Organiser la fiabilité* (Bourrier, M., Ed.), pages 161–181. L'Harmattan, Paris. ISBN: 978-2747515023.
- Sanne, J. M. (2008). Incident reporting or storytelling? Competing schemes in a safety-critical and hazardous work setting. *Safety Science*, 46(8):1205–1222. DOI: [10.1016/j.ssci.2007.06.024](https://doi.org/10.1016/j.ssci.2007.06.024).
- Suchman, L. (1996). Chapter *Constituting shared workspaces* in *Cognition and Communication at Work* (Engestrom, Y. and Middleton, D., Ed.), pages 35–60. Cambridge University Press, Cambridge, UK.
- Suchman, L. (1997). Chapter *Centers of coordination: a case and some themes* in *Discourse, Tools, and Reasoning: Essays on Situated Cognition* (Resnick, L. B., Säljö, R., Pontecorvo, C., and Burge, B., Ed.), pages 41–62. Springer-Verlag, Berlin. ISBN: 978-3-540-63511-6.
- Vaughan, D. (1997). The trickle-down effect: Policy decisions, risky work and the Challenger tragedy. *California Management Review*, 39(2).