

## **Regulatory practices as dialogical activities**

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### **Abstract**

Risk toleration in regulatory practice is a key issue in our research about organizational factors of ordinary risk at work.

This paper relates an empirical research conducted in a construction firm. Our methodology, a cooperative inquiry, is based on a reflexive analysis of activity. As co-researchers, we catalyze a collective analysis of activity with the process's actors themselves.

In our dialogical approach of collective activity, activities are interdependent; they are always “addressed” to others. These interactions are mediated by instruments. For example, a language, a schedule or a rule is enacted and interpreted during action to make sense

collectively. Therefore, we analyze regulatory practices as dialogical activities which design the instruments to be engaged in other activities. For instance, in a construction project design, safety rules could mediate interactions between method planners and foremen. Or, during actual construction, the same safety rules can mediate interactions between foremen and work inspectors. In both cases, the respective interpretations of one same rule are rather different: depending on the context, it might be used to design risk out before irreversible decisions are made, or it might be used to try and control risk out during production. In other fields, speed limits could be used in car design instead of speed controls on freeways; anti-pollution laws can be used in networks' public transportation design, etc.

In the first part of the paper, we demonstrate that regulations should not be seen as substitutes for individual initiative; they should be seen as instruments engaged in activity. Even an activity very strongly governed by regulations leaves room for initiatives.

Then we use theoretical and empirical material to illustrate that the social and temporal frame of activity in which a regulatory practice takes place is at least as important as the substance of the regulation itself. Two cases taken from the construction industry show how to enact regulations aimed at designing risk out by changing the social and temporal frame of design activities instead of controlling risk out during activity.

Finally we discuss regulatory practices which could contribute to these changes, such as a regulation which requires construction project designers to visit sites and get direct feedback from the actual implementation of specific construction methods.

## **Introduction**

Risk regulation is an instrument of collective activity. It might be approached from two perspectives amongst others:

First, many questions are raised about the limits of regulation, the boundaries between autonomy and compliance, etc. From this perspective, instruments and individual initiative are supposed to be, in certain circumstances, interchangeable.

Second, from our perspective, only activity might reach a goal, not instruments. Instruments, like regulations, mediate collective activity; they are signs interpreted by actors. For instance, the behavior of a car driver “dialogues” not only with other simultaneous behaviors (eg

crossing a road or driving a bus), but also with the activities of designing a road, regulating the traffic, and even producing the car itself. This dialogue is mediated by road signs, and it takes place in an organizational frame, delimited in time, space and a group of actors. Our field study illustrates that the sense of this dialogue, collective sense making in the words of Karl Weick, is rooted in this frame.

Therefore, when talking about risk regulation, questions should not be raised only about the very content of the rule itself, but also about the process of its design: Which teams are involved? When? How do we get feed-back from its implementation? etc.

## **1. Theoretical frame: Activity is “addressed”**

### **1.1. Collective activity is dialogical**

Collective activity is not confined to coordinated individual activities. In an organization, actors appreciate the relevance of rules and use them in their personal way. Thus they address their activity to their hierarchy, to the designers of rules, to their colleagues, etc. Yves Clot comments the train driver’s work (1999): “His activity is always addressed to several interlocutors simultaneously and his work is also the recipient of others’ activities, even if the driver is alone in his cabin”. At least the actor dialogs with “genres” of activity: What other actors did before or usually do in similar situations, using the same type of instruments. Conjoint collective activity is dialogical (Bakhtin, 1984; Todorov, 1984); it is a cross-functional “conversation in acts”, which involves multiple classes of practice.

### **1.2. This dialogue is mediated by instruments, among which rules play a major part**

As any human activity, conjoint collective activity is mediated by systems of signs (Vygotsky, 1934-1986): Languages, tools and rules. For the theoreticians of activity, dialogism and pragmatism, there is no experience outside its incarnation in signs. By “sign” is meant anything which is interpreted (Eco, 1973-1980): Tools, noises, gestures, diagrams, words, tone of voice.... Semiotic mediations fulfill several functions:

- They distance actors from their own activity, and thus allow reflexivity: by representing their activity in signs, actors can make it an object for reflection and discussion.
- They enable actors to abstract activity from the singular here and now situation: they keep traces of past activities; they anticipate future activities; they make present in the

situation objects, actors and activities which are located far away (e.g., in subsidiaries in other countries). Signs free actors from immediate physical constraints to configure the frame of collective activity through space and time.

- They link the unique activity which takes place here and now to generic classes of activity, activity “genres” (Dewey, 1938; Bakhtin, 1986; Clot, 1999; Clot & Faïta, 2000). For example, the word “drilling” defines the “drilling” activity genre; the average cost of the activity defines the class of activities which have a certain level of cost.
- They allow retaining and capitalizing experience by leaving written stories
- They allow socializing experience: in semiotic mediations, actors meet others, the actors who wrote a procedure, those who designed a tool, those who use the same tool, etc.

Semiotic mediations are not representations in the cognitivist sense. Their practical power is not unilaterally linked to their mimetic reproduction of the world, but to the way they are both designed and interpreted by actors, involving their cultural and emotional context (Peirce, 1958).

In other words, rules should not be approached as substitutes for individual initiative; they are engaged in activity. Therefore, we overcome such questions as “what can be forecasted and fixed about some situations in order to regulate them? vs what must be left to the actors’ freewill or autonomy?” We prefer to focus on questions such as “what kind of rules do actors need to make sense of situations collectively?”

## **2. Methodology: A cooperative inquiry into dialogical activity**

We adopt a cooperative inquiry methodology, involving the process actors as co-researchers. Based on this approach of the field, the research is made *with* rather than *on* “participants acting as co-researchers and co-subjects” (Raelin, 1999). The research pursues the objective of “facilitating the emergence of cooperative groups”: The interaction of researchers with actors is not one-to-one, but involves the co-participation of researchers and practitioners in a community of inquiry (Dewey, 1938).

An inquiry is triggered and kept in motion by evaluative judgments about the collective activity investigated: Is it cost effective? Safe? Reliable? Amongst the multiple possibilities to carve processes in a given organization, actors’ inquiry, when it takes

place, enacts a specific social, spatial and time configuration, the chronotope of the process (Bakhtin, 1982).

We implement a similar inquiry in our field study. Like any other activity, this inquiry is instrumented. It illustrates that the social and temporal frame of collective activity plays a major role in the sense-making process of actors when trying to improve safety.

### **3. Field study**

The main stages of the approach are detailed in the appendix below.

#### **3.1. Observation of activity**

As soon as you are on a construction site, danger is everywhere.

We first decided to conduct an inquiry into the reasons for the existence of several dangerous situations. We interviewed separately both the workers and the managers of the project observed. Amongst the cases investigated, the case below illustrates the first steps of our inquiry.

On the construction site of an office tower, the foreman complained about the choices made without his agreement, in particular the choice of a high-tech concrete pouring tool, inadequate for the safe construction of tight spaces in the underground car park. When asked if he had involved the foreman during design and preparation tasks, the site manager answered that he had tried to, but the foreman at that time was not available. Moreover, he added that previous tower constructions had never been as safe as this one. Even though there was a discrepancy between both judgments about safety, the foreman's answer to the same question was rather convergent: His previous project was a fulltime job; he had not been able to go to the meetings where construction techniques had been decided. Then, after a pause, he added: "if I had gone, they would have asked me to commit myself on this choice". For him, this type of commitment was not part of his job and did not belong to the foreman's "genre". His actual mission starts when construction begins. It ends when everyone is sure that the building will be delivered on time; this is what foremen are rewarded and promoted for.

Added to our other investigations and observations, this particular situation rang a bell: Is not risk mainly rooted in the social frame of the design stages of projects? And, conversely, how could risk be designed out while designing and preparing activity?

Furthermore, the structural characteristics of the collective activity defined in the early stages of the building project – time schedule, resource allocation, technological options, team composition, suppliers' choice and contracting – seem to play a key role in the safety conditions of the subsequent building work on site. This opinion was built through the exploitation of previous research, multiple preliminary interviews, and professional studies. We can draw a parallel with the situation of manufacturing industries, such as the automotive or the electronic sectors, in the 80s and 90s. In that time, executives, in particular engineering managers, experts such as consultants and researchers discovered that the cost, quality and other performances of new products or new projects to a large extent are pre-determined by design and planning activities, before any production takes place (Clark and Fujimoto 1991). Moreover, according to Perrow (1999), “redundancy and all other safety measures should be designed in from the start and not added afterwards, since add-ons are disproportionately the source of accidents.”

After several observations and interviews, we had, with some actors of the field, an intuition that designing risk out while designing activity and its instruments, like a schedule, a procedure or a rule, might be easier and more efficient than trying to control risk out during production.

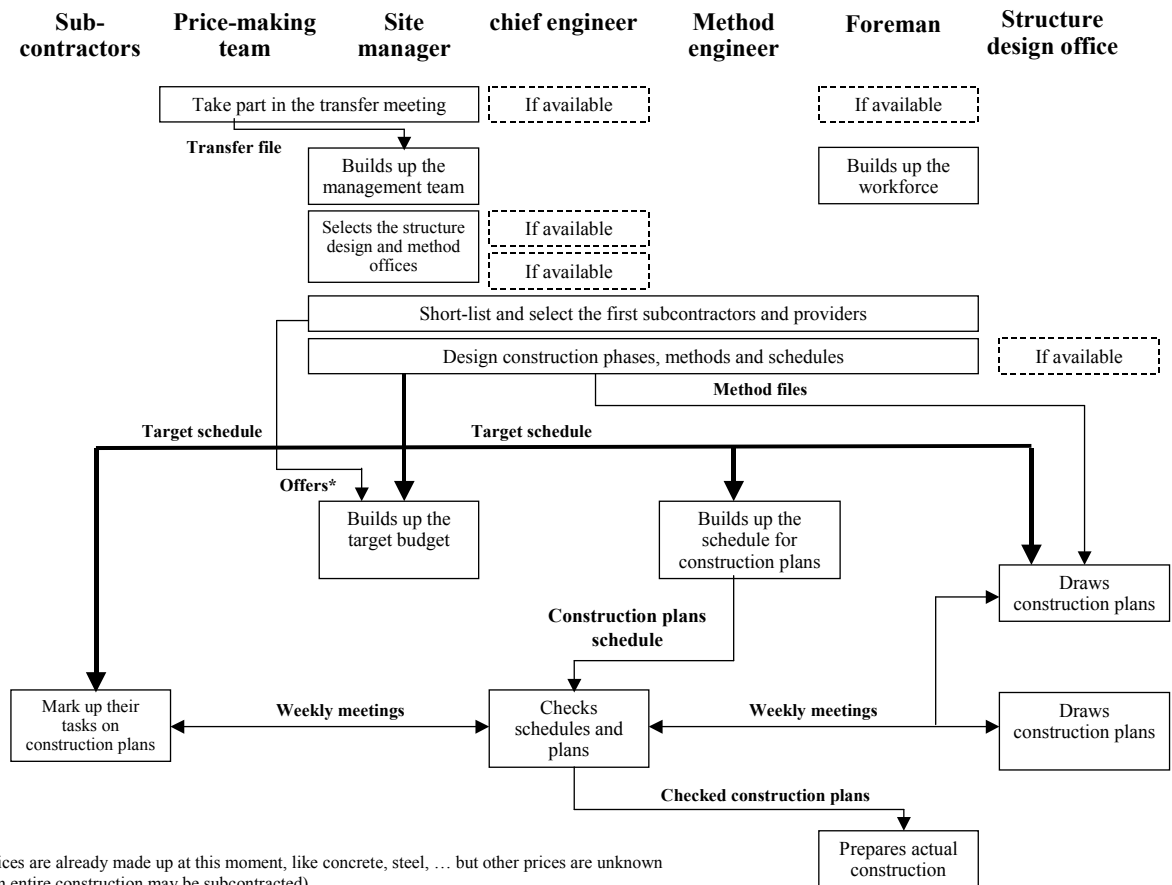
Therefore, we focused our collective inquiry on the design and preparation activities of projects.

### **3.2. The working group about design-preparation: A reflexive inquiry**

We convened an instrumented cooperative inquiry into design-preparation activities with their actors themselves.

We also convened a second working group dealing with the actual construction tasks like pouring concrete, setting the tools, or preparing day-to-day tasks, etc. Most of the analysis pointed at design and preparation activities.

Thirty-two representative contributors to the building process were interviewed to translate the activity system into texts and diagrams. This representation was not expected to give an accurate description of the process, but to provide a heuristic support for reflexive discussions in the subsequent working group. The top line of the diagram below lists the main actors of the design and preparation of projects. The activities described right under their actors are connected by arrows which represent an input-output flow (information, documents, etc.)



After having selected with the actors the activities which impact actual sites risks the most, we used, for each of them, the analysis frame below:

- How does this design-preparation activity impact later production activities?
- Which are the necessary resources and competencies for this activity?
- What is its main purpose and success indicator?
- What are the difficulties of this activity?
- What is the actual role of the actors in this design-preparation activity? Vs what should be their role in order to improve safety?

*Example of activity analyzed with the working group following this frame: “Design construction phases, methods and schedules”*

<b>Impact of this design-preparation activity on actual safety during construction?</b>	Provides a first idea about production rates and cranes utilization. When scheduling and pricing a project, a ratio of workers per crane over 25 forewarns difficulties.
<b>Necessary resources &amp; competencies?</b>	Reliable information about delivery delays and accurate estimations of raw material. Feed-back from similar construction projects. Production-experienced design engineers.
<b>Main purpose and success indicator?</b>	Not generating workforce overtime when designing a project schedule is a good indicator of expected safety when actually realized. A collective agreement of both design engineers and production staff on methods and schedules.
<b>Difficulties of this activity?</b>	“Events and situations which delay projects always happen”.

**The actors’ role in the activity “design construction phases, methods and schedules”**

	<b>Safety coordinators<sup>1</sup></b>	<b>Clients</b>	<b>Site managers</b>	<b>Foremen</b>	<b>Structure design offices</b>	<b>Subcontractors</b>
<b>Their actual role?</b>	Not involved	Not involved	Not involved	Not involved	Not involved	Not involved
<b>They should be?</b>	Consulted	Consulted	Consulted on special projects	Consulted	Consulted	Consulted

*Conclusion*

First, by convening a reflexive inquiry about organizational risk factors with the actors themselves, we collectively extended the chronotope in which collective activity was designed. Such a dialogue was both part of our research methodology and a research

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<sup>1</sup> According to the French legislation, safety coordinators (SPS) are service providers hired by clients in order to coordinate constructors’ and subcontractors’ co-activity to prevent accidents. Both clients and constructors consider this system as not efficient

object. In other words, our comprehension method and the activity to be known are consubstantial.

A tight social and temporal frame for design and preparation activities seems to contribute to both under-capitalizing experience and designing risk in. There was a collective sense in the working group that organizational changes aimed at extending this frame would help to take safety more into account when designing construction phases, methods and schedules.

After having listed intuitions about organizational factors of risk, the co-researchers decided to investigate several action paths and build instruments like rules, procedures and incentives aimed at designing risk out during the design and preparation of projects. For each organizational change, we collectively filled in the “action form” below:

- How does it improve safety?
- What are the necessary resources and competencies for this change (budget, expertise, management commitment, training, hiring, etc)?
- Which difficulties will be met when implementing the change? When can it be implemented?

Then, based on this analysis frame, we built forty rules which mainly focus on improving design-preparation activities. We chronologically classified them into a project process, from an invitation tender communicated by a client, to the actual construction. The two examples selected below are representative of the thirty height others. They are mainly aimed at developing experience capitalization amongst actors, activities and genres.

*A first one takes place very early during design-preparation tasks, when scheduling a construction project before the agreement of the client:*

<b>Rule?</b>	<b>Who must be involved?</b>	<b>With which resources?</b>
Identify dangerous tasks and plan time slots and resources devoted to their short time on-site preparation (tools design, workforce training, ...).	Design engineers. Some site managers and foremen as “implementation experts”. A safety manager with a real political weight.	A global risk management procedure. A list of site managers and foremen available for expertise. A written trace of choices

This rule is an instrument aimed at organizing preliminary interactions, as soon as possible, supporting activity focused on major risks identification and time/expertise investments planning. It mediates a innovating dialogue, which almost never happens between design engineers and foremen during the design of projects. It reshapes the social and temporal frame of design activities. This rule contributes to transforming projects designers’ genre from dimensioning workforce, raw material, tools, and immobilization time to designing actual on-site activities, like setting a concrete pouring tool for example (if this task is actually identified as risky). Their temporal horizon overcomes the transfer meeting<sup>2</sup> and their social horizon overcomes the designers staff.

*A second rule which takes place during actual production when dangerous tasks are actually realized:*

<b>Rule?</b>	<b>Who must be involved?</b>	<b>Which specific resources?</b>
The design engineers of the projects should visit construction sites once a month and observe safety.	The design engineers with the safety manager of the site and the workforce.	An assignment and incentives for every design engineers to visit sites. A risk analysis training plan for every design engineers.

<sup>2</sup> During this “transfer meeting”, design engineers who sold the project officially transmit the “transfer file” to the manager of the future construction site

This rule contributes to organize experience capitalization during the actual realization of a project. Like the previous one, it also transforms the designers' genre of activity from projects dimensioning to safety analysis: In this particular case, safety managers, project designers and construction sites appear in the same social and spatial frame; the process chronotope determines "the practical unity of a given collective activity in its relationship with the world" (Bakhtin, 1978).

## **General conclusions and perspectives**

The reflexive analysis led by the working group (the actors of the process) simultaneously enacted rules and an extended social, spatial and temporal frame for collective activity: The two examples of rules cited above mediate a dialogue between the activities of the designers and the producers' aimed at making sense, focalizing on safety.

More generally, regulatory practices overcome the design of regulations. They should be seen as a reflexive inquiry which takes place in a chronotope, aimed at improving safety. Like any consequence of activity, this improvement can not be entirely forecasted but it must be evaluated dialogically. This is illustrated by the tower case: The judgment of the site manager about safety would not have been the same if he had been interviewed with the foreman in another frame. In the second phase of our approach, we extended the chronotope of the reflexive analysis of collective activity where judgments about risk were expressed. According to the working group, only dialogical assessments can be relevant about safety, involving site managers, foremen and other actors of the process. In other words, both the improvement of safety, (the object to be known) and the dialogical inquiry about safety depend on the chronotope where they take place.

Nevertheless, reflexive interrogations about collective activity need space. In the particular configuration of the tower case described above, a dialogue between the manager and the foreman would not have led to any change because irreversible decisions had already been made. Conversely, this dialogue could have been more effective when designing the construction project of the tower, several months before. Designing activity would have been part of site managers' job and designing projects would have been part of foremen's missions.

We believe that safety regulations should be instruments of this dialogue.

## Perspectives

Safety rules are often perceived as instruments designed by regulators in order to control risk out of regulatees' activity. We have an intuition that using safety rules as instruments aimed at designing activity could improve the effectiveness of risk regulation. We look forward to investigating this potential in future field researches.

## Appendix: The main stages of the approach

### Field observation:

- 12 days in price making staffs
- 100 days on construction sites

### Interviews: transcript the whole process and identify the first research paths of organisational factors of risk

- 26 interviews with design/preparation and realisation actors
- 6 interviews to analyse cases

### 2 working groups to analyse processes and to build action paths

- one group about the design/preparation on projects: 8 meetings
- one group about the actual realisation process: 5 meetings

### The reunion of the 2 working groups to analyse the relevance of the action paths:

- 7 meetings

Presentation of the results to a steering comity by the co-convenor of the workshop

2005

2006

2007

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