Chapter 7

Managing Workplace Safety in the Temporary Organisation—Theoretical and Practical Challenges Associated with Large Construction Projects

Heidi Helledal Griegel and Kenneth Pettersen Gould

Abstract Compared to permanent organisations, temporary organising causes different challenges for safety and learning at the workplace. We discuss how these challenges faced by project organisations are not sufficiently acknowledged or managed, either within theories of workplace safety or current safety management approaches in the construction industry. In addition, the chapter's insights contribute to an action-based approach to workplace safety.

Keywords Inter-organisational projects · Temporary organising · Workplace safety · Construction industry · Action-based approach

7.1 Introduction

In the construction industry, much work is organised following commercial tendering and contracting, creating temporary organisations for the delivery of single projects, with contract-based and temporary employment, dynamic plans, a competitive environment and constrained finances [7]. Temporary organising (through intra-organisational, inter-organisational or project-based organisations or firms [3]) has become common practice in many industries [1]. For example, construction within the energy sector is characterised by time-limited and inter-organisational projects. As such, workplace safety needs to be organised in ways that are flexible and meet time schedules. It also involves workers having to coordinate within and across newly established teams, make swift adaptations to particularities of the site and continuously adjust the way tasks are completed. Although organisational theory has been concerned with temporary organising for quite some time [10], few aspects of it have

H. H. Griegel (✉)
Statnett SF, Sandnes, Norway
e-mail: heidi.helledal@statnett.no

K. P. Gould
University of Stavanger, Stavanger, Norway

been applied in the research on workplace safety. In this chapter, we address how developments and challenges associated with organising work in inter-organisational projects have consequences for workplace safety. We build on organisational theory of temporary organising, as well as empirical research from construction sites in the Norwegian energy sector, to reflect on the challenges for workplace safety and safety management strategies.

7.2 Action-Based Theory of Temporary Organising

Lundin and Söderholm [10] emphasised the need for a theory of temporary organising some time ago. They elaborated on how organisational theory has gone through a development, from focusing on “decision-making” to focusing on “action”, meaning that, while past organisational theories have considered control or decision-making to be at the core of the organisation [10], they stated that theory of temporary organising should focus on actions. We argue that an action-based approach is also helpful when analysing safety in inter-organisational projects organisations. Among other reasons, this is because the temporariness of these organisations leads to complexity, uncertainty, ambiguity [3] and less stable structures. This makes it difficult to plan; thus, it is important to understand the impact that practice and project processes have on safety, rather than the impact of pre-established decision-making structures [1] that may exist in permanent organisations. Four basic concepts that may influence and define actions have been presented, in order to understand temporary organisations [10]: time (in temporary organisations, time is limited); task (the reason for the creation of the temporary organisation); team (in the temporary organisation, the team is formed around the time available and the task to be performed); transition (temporary organisations are formed with the intention of achieving change: before and after the temporary organisation). Going forward, we will use this theoretical action-based approach to gain insight into workplace safety in construction projects.

The chapter is structured as follows: after first describing briefly how safety is conceptualised in current construction projects (based on empirical results from an ongoing study of safety management in construction), we focus on how safety can be understood in practice, using the four concepts of time, task, team and transition to describe workplace safety in temporary organisations.

7.3 Current Safety Management Approaches in Large Construction Projects and Some Limitations

Inter-organisational projects in the Norwegian energy sector normally consist of a construction client, one or two main contractors, as well as several sub-contractors and sub-sub-contractors. The contractors and sub-contractors may be large, medium

or small companies, with sole proprietorships frequent for sub- and sub-sub-contractors. The time spent by the different contractors on a project may vary greatly. In an ongoing action research project, we are studying safety management in construction projects within the Norwegian energy sector, by conducting interviews (46 informants, both on-site managers and on-site workers), workshops and field studies. We have used this empirical study as the basis for discussing how project organising may influence workplace safety.

From an empirical point of view, we see that many of the safety management measures in the projects we are researching focus on complying with rules, set by regulators, the client or main contractor, with fewer measures contributing to actual risk awareness and safe practices in the workplace. Measures aimed at creating a clear separation between the client's and the contractor's responsibilities for risk and safety management (regulations, illustrations, etc.) end up creating "distance" between responsible actors that more often should be interacting and sharing safety information. The adding of coordinators and controllers creates new interfaces that increase complexity. In addition, too many procedures may impact the workers' flexibility and awareness. While it is not surprising that many coordination meetings are held in projects characterised by change and time limitations, the meetings are dominated by an instrumental rationality that safety can be controlled, given that responsibilities are clearly assigned and that workers are compliant with the decisions and plans made. We see that current safety management measures do not seem to be based on, or take sufficiently into account, the properties of temporary organising and the associated challenges for workplace safety. We question whether, by implementing many formalised procedures, coordinator roles, meetings and lines of safety responsibilities in the projects, safety management has trapped safety into rules and compliance [2] and as such forgotten about the relationship between actual practice and safety outcomes. Going forward, we will use the four concepts of temporary organising to describe how safety can be understood in practice, and, where appropriate, we use some examples to relate this approach to workplace safety in the inter-organisational construction projects that we are studying.

7.4 Safety and the Temporary Organising of Construction Projects

Issues such as time limitations or an overly task-oriented focus may of course also challenge workplace safety in more permanent and stable organisations. What we address here, however, is that these four concepts (time, task, team and transition) refer to issues that are not only present occasionally. In temporary organisations, like large inter-organisational construction projects, the four concepts are interrelated and refer to basic features of the project organisations. To illustrate, the energy sector construction projects we are studying consist of building new, or restoring existing, transformation stations and grid lines. Here, the grid line operators (i.e. the

construction clients) and regulators set the predefined timeframe for the construction work. The work is divided into separate tasks, each with different and fixed deadlines; if a task is delayed, this has consequences for time. Tasks are executed by different specialised contractors or sub-contractors who operate in teams, sometimes created across company borders.

7.4.1 Time in Large Construction Projects

In permanent organisations, the objective is to succeed indefinitely; time is seen almost as eternal [10], and success—also in the domain of safety—is considered in light of contributions to long-term results [3]. Here, safety management systems are often developed to take care of occupational safety and company reputation, control unwanted events, manage compliance and support the continuous development of routines, procedures and checklists. Consequently, the improvement and management of safety is central for organisational survival [9]. In temporary project organisations, however, the end-time is decided before starting the project. In the construction projects we have studied, time is always a limitation, and all work operations and tasks may have their own deadlines. As in other temporary organisations [3], completing work on time is considered a key part of defining the project work as successful. It is known from research that limited time and deadlines for completion can make workers feel pressured to take unnecessary risks [7] and thus negatively influence workplace safety. One project manager (from a construction client) described to us how time limitations in this competitive industry influence safety, noting that doing work quickly poses a specific risk.

Despite the similarities to issues of time pressure and safety in permanent organisations, such findings do not sufficiently cover the intentional temporariness of project organisations. Drawing on a definition of a temporary organisation as “a temporally bounded group of interdependent organisational actors, formed to complete a complex task” [3], we consider time a fundamental issue of work, where the predefined ending of the organisation influences the organisational structure further, by leading to overlapping activities, many different professions on site at the same time, etc. The time constraints of each job are normally pre-planned and interlinked, so, if the tasks of one organisation become delayed, other tasks and organisations will also be influenced. One site manager (from a contractor) described the nature of multiple trades and multiple activities that occur on site simultaneously in order to meet deadlines. In his view, this creates a tension which can lead to accidents.

This description also indicates how different actors performing separate jobs at the same time leads to an increasing need for—but also challenges—coordination processes in the workplace. Others have previously emphasised how time-limitations, requirements for on-time completion [3] and many diverse individuals present at the same time lead to a focus on tasks rather than the “big picture”. This will be further elaborated on below.

7.4.2 Tasks in Large Construction Projects

Construction projects can be said to be formed due to the need to perform specific tasks. As in other temporary organisations [10], construction projects within the energy sector are affected by increased specialisation, and many tasks are performed with varying degrees of uniqueness and connection to other tasks in the project. In current approaches to safety management, shared system safety knowledge and practices are usually viewed as important, and commitment to mutual and common organisational goals in general is recommended [11]. However, one on-site manager (from a contractor) described how they do not really value knowing too much about the overall project and safety goals when projects become large and temporary. For him, valuable knowledge is worker- and task-specific, and too much general project information can become too theoretical and irrelevant for the task at hand.

This understanding also depicts how these introductory safety courses are perceived as being too theoretical and general, as if they are not grounded in practice; it seems to highlight that the interdependencies between the tasks of the different professions are not really addressed. The task-oriented focus can make it difficult to create a shared concern for workplace safety. This is understandable, since safety goals are externally imposed [3] by the construction client or main contractor while the success of each actor is heavily influenced by individual performance and the completion of specific tasks. Sub-contractors are often paid per task [7], with each task having a deadline. We can therefore speculate as to whether this provides incentives for workers to skip or devalue safety-related activities that are not limited to the completion of their specific tasks. Also, some of the actors involved work on the project sites for less than one hour in total to complete their tasks and then leave for another project. So, even if each worker wants to perform their own task safely, it is understandable that it is challenging to familiarise themselves with the site and the project organisation and to grasp the totality of how their actions may have consequences for others and, as such, also influence workplace safety. It seems that organising work through tasks leads to a fragmented project organisation, and therefore, also a changing network of individual or team-based “pictures” of risk that others may not be familiar with.

7.4.3 Teams in Large Construction Projects

According to Gherardi [5], safety in organisations is embedded in common values and shared norms. It is a collective competence, emerging through collaborative practice, by being socially constructed, developed and transmitted to new members of the community [5]. In permanent organisations, work relations and cooperation can be long-lasting, and a random group of workers can form teams [10], surrounded by a stable environment and a feeling of a joint community and social relationships. Temporary organisations, on the contrary, exist as many separate teams that are

created based on the completion of predefined tasks. Since the workers often belong to other (permanent) home-organisations besides the temporary project organisation [10], tensions [3] of belonging can occur, such as tensions between belonging to the current role in the home-organisation, with its current safety rules and social relationships, versus belonging to the teams in the coordinated, managed and controlled task-environment of the project organisation. In addition, the way safety management theory, based on permanent organisations, has emphasised the importance of collaborative community, commitment building [10] and mutual trust [3] is challenged by how work is organised in separate teams in temporary construction projects—particularly as the teams may contain members from the same or different companies and change by the hour. Each worker brings their own experiences and task-relevant competence [3] into the team, with participation in the teams being time-limited and focused on task completion. As such, across (and sometimes within) the teams in inter-organisational construction projects, there seems to be minimal shared safety knowledge and little pre-established trust. Combined with the focus on tasks, this creates project sites where project management focuses on project structure, roles and the need for temporal coordination rather than enduring social relations, trust and commitment building for workplace safety. In the projects we have studied, we have seen that many tasks are organised at the team level, and that the team level is important for safety. To exemplify, one of the operative workers in the projects we studied emphasised that, on first arrival at an ongoing construction site, they almost always team up with someone who has experience of the site until you “get the hang of it”. The same worker also reflected on how such team relations are important for learning, emphasising the importance of social bonds between team members.

It becomes apparent that these teams are important for safety and learning; however, the fact that members belong to different organisations, the lack of team stability and the limited time that individual workers are part of the project organisation are all challenges for the long-term competence development of workers, as well as the general human resource management of the project team members [3]. Together with tensions between organisational cultures, social relationships and role emphasis, these are challenges to exchanging safety knowledge in the workplace and the sharing of information across company borders, project sites and hierarchical levels.

7.4.4 Transition in Large Construction Projects

We emphasise three aspects of transition that are important for understanding workplace safety in inter-organisational construction projects. The first concerns how transition in one sense mirrors the actual definition of a temporary organisation. The main goal for creating a temporary organisation is that, as a result of tasks, something should be changed or transformed. In our case, this aspect of transition concerns the establishment of temporary project organisations for the building of grid lines and transformation stations—where each individual task leads to transitions of

varied significance and meaning. This aspect of transition is also the one that project management seems most attentive towards, and countless measures are implemented, such as meetings, coordinator roles and plans, to ensure timely progress to reach the desired transition.

The second aspect of transition concerns the frequent changes [8] occurring during the execution of tasks. Inter-organisational project sites are dependent on permits, technologies, equipment, weather conditions, etc., and task completion is influenced by a great number of plans, laws and regulations. This is accompanied by different degrees of uncertainty, goal ambiguity and complexity [3] related to each task. This significantly influences and challenges how changes can and should be dealt with while assuring workplace safety. During the construction phase in the projects we are studying, changes need to be continuously dealt with by the workers on site, and, as such, safety management relies heavily on the skills and actions of each worker. An operational risk assessment tool frequently applied to deal with changed preconditions is job safety analysis (JSA) [8]. However, like many of the existing “safety tools” applied in current construction projects, JSA was not originally developed based on inter-organisational principles [8] and temporary project work. We have found varying degrees of team members’ participation in performing the JSA. Also, actors from different companies and teams, uninvolved in the particular job but who may have relevant information, are seldom included in the analysis [8].

A third important aspect of transition concerns the development and transfer of new experience, knowledge, skills and perceptions—technical, individual and social—among participants in the projects, as well as among participating organisations and between projects. For decades now, safety management theory, based on permanent organisations, has emphasised learning and knowledge transfer as crucial [6]. Although it is known that knowledge transfer and learning is a significant challenge [3] in construction projects [7], safety management theories [5, 6] developed based on permanent organisations are still frequently applied in research addressing the construction industry, without theoretically addressing temporality issues. Not surprisingly, this has given limited input to rethinking learning for workplace safety when the project organisation is large, complex and only temporary. Project management also seems to value sharing and developing knowledge concerning technical improvements; however, there seem to be fewer methods to bring these technical “learnings” to the next project. Generally, many of the objects or tools that are introduced in order to talk about, consider or address safety (e.g. risk assessments, coordination, meetings, etc.) are related to technical changes or a specific task, and we find fewer structures for the sharing of safety experiences and information related to organisational factors that are important for workplace safety within the projects. In some of the projects we have studied, project management performed evaluations after completing the work. However, many of the participating teams had already moved on to their next projects and those that had not wanted to. In addition, the technical focus emphasises that there is a “doing versus learning paradox” [3], as knowledge related to specific tasks, deliverability and completion seems to be more in focus than knowledge related to organisational factors and safety practices. These are issues we find relatable to how temporary organisations are embedded in a

wider organisational context. Norwegian laws have tried to clarify the relationships, roles and responsibilities in construction projects [4], through e.g. defining separate responsibilities for the different project actors concerning risk management, and demanding coordinator roles, in both the planning and the execution of the projects. However, this has been with little or no improvement for practice-based learning and knowledge transfer, in our opinion, instead making safety management more about the separation of responsibility and coordination. Another Norwegian attempt to collaborate in an otherwise competitive commercial environment is the establishment of industry-wide networks [12] that have been established outside the project sites to exchange information, cooperate on improvement projects and create safety training courses.

7.5 Taking Account of Temporary Organising Towards an Action-Based Approach to Workplace Safety

The examples and suggestions we have provided in relation to managing workplace safety in temporary organisations together show that many of the traditionally stated preconditions for workplace safety, such as continuity of safety management for the continuous development of routines and supportive documentation (e.g. procedures), shared system safety skills and goals, enduring social relationships, developed trust, as well as continuous knowledge management and learning, are challenged by the way large construction projects can be conceptualised as temporary organisations [10]. A safety strategy focused on continuous development and long-term survival, often found and recommended for permanent organisations, is much more difficult—and perhaps even not possible in the same manner—in temporary projects. At a minimum, temporary organisations challenge basic assumptions regarding the role of time and the temporal limitations related to task, teams and transition that underlie dominant safety management theories. The intrinsic focus temporary organisations seem to have on tasks does not encourage understanding the “bigger picture” that working with safety often needs. We can also question whether part of the problem behind why the continuous development of social relationships and shared knowledge is so difficult is due to the team’s different affiliations.

Although project organising has important advantages, such as flexibility [1], cognitive diversity [3], overcoming inertia [10] and increased specialisation opportunities, we suggest that, when approaching construction projects and other contemporary industrial environments, the safety field must take a step further back, rather than revisiting and adapting safety theories from studies of permanent organisations. We believe the role of temporality to be a gap in safety science worthy of further research and investigation. We hope to have demonstrated that the way that the predefined ending and the transformative nature of organising in temporary organisations affects the social processes involved in workplace safety is an important question for further research, as well as indicating that changes concerning safety

thinking and approaches to workplace safety within temporary organisations, such as large construction projects, should be considered an important part of such research activities.

Ethical Statement This work was approved by NORCE, The Norwegian Research Centre (Project no. 100315). Informed consent was obtained from participants and all data has been anonymised.

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