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Multi-disciplinary discourse on design-related issues in construction site meetings

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Abstract

Modern, complex construction projects require multi-disciplinary competence to ensure the quality of design. Site meetings are typically the arena in which designers, engineers and managers co-create and develop new design solutions, give feedback to each other and jointly discuss design-related issues. In these meetings, project partners transcend their traditional, distributed job descriptions in order to share their knowledge to create better design details. This study explores what design-related issues are addressed in the site meetings, who participates in the discussions and creates new design solutions, and with whose expertise the decisions on the new design solutions are finally made. The unit of analysis is a discussion episode, which encompasses actions from identifying a design-related topic to answering a question, solving a problem or making a decision on the topic. The research data were collected by observing actual site meetings in two renovation projects. The findings reveal that the site managers were the most active party addressing design-related issues in the meeting discussions. Their main reason for initiating a discussion in the meeting was the need to modify or specify an existing design detail. As design work is iterative by nature, the same design topics were discussed repeatedly in several meetings. Each party's – the project manager's, the designers', site managers' and others' – contribution was crucial in design-related issues, problem solving and the creation of new design solutions. However, the question remains whether this multi-disciplinary collaboration could be organized differently in order to avoid disturbances, delays, and extra work and costs from later design changes in construction projects.

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1. Introduction

The importance of the design process and the collaboration between designers and site managers has been

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recognized as a key factor in improving the quality of design and the productivity of construction. Currently, construction project collaboration has several challenges to overcome, and these challenges have serious effects on the costs and quality of the project. To develop design and construction collaboration in practice, it is crucial to understand the aims of the design and construction activities. However, the collaboration between the construction managers and designers is mainly studied by tracing patterns of interaction, levels of task-based or socio-emotional interactions, or communication networks. Little attention has been paid, for example, to the issues discussed in collaborative meetings or to how project partners participate in creating new design solutions, as well as to whose expertise is relied on for producing the new design solutions. Engeström (1999: 170) argues that *organizations may emerge through conversation, but they do not emerge for the sake of conversation.* In other words, from an activity-theoretical viewpoint, what is missing in previous studies is the object of discussion. This study focuses on site meeting discussions in two renovation projects in Finland. The aim is to reveal the content of the discussion, the topics discussed and the expertise of the different partners in making decisions or in creating new design solutions.

The paper contributes to knowledge on construction site meeting discussions and collaborative design work between site managers, designers and maintenance managers in the construction phase.

The paper proceeds so that the first section presents the theoretical framework of the study and the existing research on construction project meetings. Then the research site of the study is described, and the empirical data and the methods of the study are presented. The findings are presented in the following sections. Finally, the main findings are discussed in the context of the research literature, and the conclusions of the study are summarized.

2. Previous studies on construction project meetings

Alarcón and Mardones (1998) have analysed the problems associated with designs to be mainly 1) poor design quality, 2) a lack of design standards and 3) poor constructability. The inability to utilize acquired experiences from previous projects in new ones has been found to be one potential source of low quality and higher construction costs (Gerth, Boqvist, Bjelkemyr & Lindberg 2013: 135). In contrast, the early involvement of contractors in a design process has proved to lessen constructability problems, lower project costs and result in faster completion rates during the construction phase (Trigunarsyah 2007: 215).

In recent years, several academic studies have focused on defining communication behaviour, interaction and coordination in construction project meetings (Foley & MacMillan 2005; Boudeau 2013; Gorse & Emmitt 2007, Gorse & Emmitt 2009), and on clarifying what issues affect the willingness of representatives of different parties to share knowledge (Ankrah & Langford 2005: 602; Ding, Ng & Cai 2007). According to these studies, meeting discussions appear to be highly task based and seem mostly to take place between a project manager, a contractor and an architect (Gorse & Emmitt 2007; Gorse & Emmitt 2009; Foley & MacMillan 2005). Knowledge sharing and partnering in the construction field are potential new collaborative working practices (Hartmann & Bresnen 2011), but are difficult to integrate into construction field practices because of the current hostile and litigious collaboration environment in the field (Bishop, Felstead, Fuller, Jewson, Unwin & Kakavelakis 2009).

Dossick and Neff (2011: 83) have found BIM to be an efficient tool for the information exchange of explicit knowledge. However, messy talk and informal, active and flexible conversations are still needed to exchange tacit knowledge in inter-organizational collaboration among architects, designers and construction professionals in building projects. The talk and informal conversations take place in project meetings. They bring up critical issues that require face-to-face discussion and co-design work. The aim of the meetings is to provide an arena for these discussions and through this arena to proceed with the project.

Cultural historical activity theoretical (CHAT) has much to add to the research on construction meetings and collaboration practices. CHAT as a methodology emphasizes an object of activity as the enduring, constantly reproduced purpose of a collective activity system (Engeström 1995). The object is simultaneously "an independently existing, recalcitrant, material reality and a goal or purpose or idea that we have in mind" (Adler 2005: 404). The object motivates and defines the goals and actions, while the goals are relatively short-lived and finite aims of individual actions. Meeting discussions are not "pure talk" situations or off-line conversations, and they cannot be separated from practical activity. Instead, each organizational partner who participates in the meeting discussion advances his or her own purposes or goals for his or her actions, and through that, the object of his or her activity.