

INTEGRATED PROJECT EMERGING WITHIN THE DAILY PROJECT LIFE THROUGH ACTIVE PARTICIPATION

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Construction projects have confronted challenges like fragmentation with integrated project methods that enhance collaboration. These integrated projects follow a collection of features such as alignment of interests, open communication, team working, early involvement of key participants and multi-party agreement. These features are often discussed at the project level while the practices of collaboration remain less clear. Further, collaboration as a phenomenon is multidimensional, and therefore research has vaguely applied the concept. To understand more precisely how collaboration is performed in integrated projects, we conducted a qualitative case study of a hospital project. We analysed collaboration with the framework of participation. We found project and meeting features that facilitate participation. We also found three practices of participation where individuals actively performed collaboration. These participation practices included actively questioning common understanding, actively overcoming the organizational boundaries and actively offering knowledge. Our findings contribute to construction management research by exploring the project practices of collaboration in integrated construction projects.

Keywords: Integrated Project Delivery, collaboration, activeness, knowledge creation

INTRODUCTION

Construction projects have confronted challenges like fragmentation with integrated project methods that enhance collaboration. These integrated projects follow a collection of features such as alignment of interests, open communication, team working, early involvement of key participants and multi-party agreement. These features are often discussed at the project level while the practices of collaboration remain less clear. Further, collaboration as a phenomenon is multidimensional, and therefore research has vaguely applied the concept. To understand more precisely how collaboration is performed in integrated projects, we conducted a qualitative case study of a hospital project. We analysed collaboration with the framework of participation. We found project and meeting features that facilitate participation. We also found three practices of participation where individuals actively performed collaboration. These participation practices included actively questioning common understanding, actively overcoming the organizational boundaries and actively offering knowledge. Our findings contribute to construction management research by exploring the project practices of collaboration in integrated construction projects.

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INTRODUCTION

Some of the challenges that have hindered construction projects are confronted with project delivery methods that aim to enhance collaboration between companies (Lahdenperä, 2012). These project delivery methods have been called, for example, Integrated Project Delivery (IPD), alliance project, project partnering (Lahdenperä, 2012) and relational contracting (Suprpto *et al.*, 2015). These methods include a set of features such as alignment of interests, open communication, team working, early involvement of key participants and multi-party agreement (Lahdenperä 2012). These are not mandatory features but chosen and adjusted for each project. Still, collaboration is one of the main principles of integrated project method especially to manage complex projects (Rutten *et al.*, 2009). Unfortunately, the literature on integrated projects is scattered because studies do not refer to same concepts but discuss, for example, team integration, partnering, relational governing or multiparty collaboration. To clarify collaboration that is produced with integrated project and its daily project practices, we investigate within this study the daily practices of collaboration in the context of integrated construction project. The daily practices refer the way individuals perform practices instead of project principles such as open communication (Lahdenperä, 2012) or joint working (Suprpto *et al.*, 2015).

In management research, collaboration has been discussed vastly with various definitions (Bedwell *et al.*, 2012) and already for several decades (e.g. Gustafson and Cooper 1978; Zuckerman 1967). Diverse research areas have approached collaboration differently and it is often understood as a quite complex phenomenon (Bedwell *et al.*, 2012). Sometimes collaboration is seen equal to the idea of working together or interacting. However, we consider collaboration as a separated from the phenomena of working in the same space, around the same problem or interacting. Because these actions can be performed less or more collaboratively, they cannot be the definition for collaboration. Previous studies have suggested participation as a mechanism of collaboration (McCaffrey *et al.*, 1995). Participation means that collaboration occurs when individuals take part in decisions (McCaffrey *et al.*, 1995). This line of literature explores participation at the organization level and lists following characters as relevant for a participative organization: formal strategy, direct involvement of a wide range of participants, enabling participants to have an influence on decisions and discussing issues that are relevant (McCaffrey *et al.*, 1995). Enforcing individuals' participation in decisions can embrace complicated situations because through participation individuals can bring their knowledge to the decision-making process. This participation enables a wider knowledge base for decisions (Ashmos *et al.*, 2002; McCaffrey *et al.*, 1995). Participation can be observed as the opposite of bureaucracy and control (Ashmos *et al.*, 2002; Chompalov *et al.*, 2002). While controlling aims to predictability and accountability, it can form isolation and resentment (McCaffrey *et al.*, 1995). Yet, these two aspects exist in a spectrum and can have many forms even in one organization. In the context of collaboration between organizations, participation is also related to contracts, financial risks and rewards that can ease or prevent participation. By following Ashmos (2002), we suggest that participation can be useful for managing complex projects as participative systems enable absorbing complexity.

Based on the above-mentioned theories, we suggest that at the individual level participation would mean an individual to be able to influence common issues. Thus, bringing individuals together does not necessarily form collaboration if they do not aim to influence common issues. The volume of participation can occur at higher or lower levels (Chompalov *et al.*, 2002). Individuals can participate through communicative processes that are dialogical (Hardy *et al.*, 2005; Tsoukas, 2009). Participation can

enable, besides influencing also knowledge transfer over boundaries that can form situated understandings (Bechky 2003; Gherardi 2006). Relying on these observations, we can conclude that participation is easily reduced if collaboration is performed in sequences where individuals bring solutions to the next person in the process and where they cannot influence others' work. This sequential working occurs sometimes in construction projects when the design is done first and then the construction follows.

Various descriptions of collaboration have often passed the core activity of collaboration in the daily performance. To understand how an integrated construction project embraces collaboration through participation, we ask how participation is realised in integrated project for achieving collaboration. To overcome ideas of collaboration as something abstract, we aim to gain knowledge of the daily project practices.

METHODS

We conducted an interpretative case study of a hospital construction project. The case project is one of the first projects that applied integrated project methods for a complex construction project in Finland. As integrated projects are quite new in Finland, the project members learned during the project new project practices of collaboration. The owner of the future building chose to use integrated methods to overcome the risks of surpassing the budget and schedule caused by defective collaboration. The owner did not have earlier experience of such a construction project, for this reason, the owner hired consultants to help to initiate a new type of collaboration and gathered knowledge by visiting similar projects abroad. The owner chose the partner organizations by considering their ability to collaborate. The owner and the chosen organizations (the architect and engineering design company, the general contractor and the contractor for building service engineering) formed a virtual organization connected with a contract. Yet, the owner was the most influential stakeholder. The project will complete a hospital building with 47 000 square meters. The design phase began in April 2015 with signing the contract, while the construction began in January 2017.

The research data comprises the observation of 11 meetings and 21 semi-structured interviews including building owners (4), architects (8), HVAC and electricity designers (from the same company as architects) (5), contractor (2), contractor for building service engineering (2). We collected the data between November 2016 and January 2017. The average length of an interview was 40 minutes and the thematic questions concerned collaboration practices that the project members had performed and experienced in the project. We wrote field notes from the observations and recorded two meetings to understand the interaction and work practices. In addition, we collected project documents to gain knowledge of the formal descriptions of the practices. Since integrated project method was new to the interviewees, they were aware of the practices related to this project method. Project members also discussed over the project collaboration practices as part of developing the project delivery.

For the analysis, we transcribed the interviews. While the interviews were conducted in Finnish, the quotations in this paper are translated into English by the author. The collected data were examined and iteratively processed to understand the network of practices. The analysis followed the thematic process (Braun and Clarke, 2008). The analytical thinking began while collecting the data (Gioia *et al.*, 2012). The initial coding was formed with interviews and collated to themes (Braun and Clarke, 2008). Then, the themes were defined and named (Braun and Clarke, 2008). The aim of the analysis was to understand practices performed in daily project life rather than high abstract

constructions (see Sandberg and Tsoukas, 2011). Finally, the found practices were compared with the literature of collaboration.

FINDINGS

Project Features Facilitating Participation

We found the following project features that aimed to enhance participation: multi-party contract; early involvement of contractors and engineering designers; including different organizations into decision-making, risk management and project planning; including end-users to design, establishing rules for communication; part-time co-location and establishing a chat connection. These project features have been identified in the previous literature as well. However, the details of these features vary between different types of projects as concerning for example the co-location and decision-making processes.

Facilitating Participation in a Meeting

We found that the meeting practices varied depending on the topic of the meeting and depending who was managing it. The project included one person who had knowledge on facilitation methods and who used those methods and sometimes consulted others on facilitation methods. We describe here a meeting held in the co-location that concerned a purchasing process for a construction phase. The aim of the meeting was to discuss how the purchasing should be done by using an integrated project style. At first, it was shortly discussed how the meeting should proceed, how the notes of the meeting would be done. The project manager of the contract led the meeting. After introducing the meeting, he stood up, walked to a flip chart, and began to write the issues that should be considered in purchasing. At the same time, he led the discussion and allowed others to participate by asking their opinions. Topics that were discussed included the role of designers, the process of approving designs, the type of workshops for purchasing, differences of purchasing between normal and integrated project, and the value limit for things that the purchasing group would process. In addition, it was also remarked that the virtual organization did not own anything. After the meeting officially ended, the participants continued to discuss in smaller groups. This meeting is an example of a process where the individuals define project practices according to the principles of integrated project. All the participants in the meeting had an opportunity to say something and they were encouraged to speak by asking questions.

Participation Practices for Common Project Knowledge

With the help of the interviews, we further analysed the practices that the individuals performed and experienced specifically in the integrated project. These practices included ways to cross organizational boundaries, beyond the predesigned formal practices. These practices required active involvement from the project members to actualise the participation. These practices are presented in Table 1.

Actively Questioning Common Understanding

The first practice that related to the integrated project was actively questioning common understanding. This practice includes practices in which individuals pose questions to raise conversation. According to the interviewees, some of the questions were uncomfortable but sometimes they could raise trust. The project members' earlier experience was mostly from traditional projects where individuals mainly concentrate on the work tasks that are directed to their organization. Table 1 presents three examples of this practice; a need to have the courage to bring up defects, asking if everything has been

considered and asking opinions. Table 1 shows a quotation from the data that presents the need to have the courage to bring up defects. In this quotation, a project management consultant described how trust (as an important part of integrated project) is built with posing questions and answering to them, even when it might question one's or others' work. The interviewees described questioning and bringing up concerns to require courage. Thus, questioning the project work is not something that occurs automatically or is described in a manual. Individuals need to come up with a thought and express it when they feel it is a suitable time for the question. Following the quotation, bringing the concerns and questions to common knowledge enhances trust compared to passive presence. The quotation remarks that individuals expressing openly their concerns and doubts is not automatic, because it can feel uncomfortable to do even when it can improve project performance. Besides being influenced by the integrated project principles, this practice was described to be influenced by the common contract that enforced interest on others' success and formed an understanding of the value of everybody's opinion.

Actively Overcoming Organizational Boundaries

The second type of practice that related to the integrated project was individuals actively overcoming organizational boundaries. This practice included practices in which individuals could have an influence on tasks that were not mainly on their responsibility. This influencing was assisted with bringing all stakeholders early to project for planning, design and decisions. The multi-party contract enabled a task division which was also less strict than in traditional projects. This also meant that the work was visible to others earlier than in a traditional project. Table 1 shows three examples of this practice; bringing one's work under the eyes of others, making tasks to overlap and commenting issues not in one's expertise as examples of the practice of actively crossing organizational boundaries.

The first quotation from the data in this theme presents an example of bringing one's work under the eyes of others. In the quotation, an architect describes how during the very beginning of designing when there were only the characters of spaces and rooms, the other stakeholders were already watching these plans and commenting them. This meant that, for example, the contractors commented the assumed prices of the plans. In the spirit of the integrated project, the individuals were expected to participate in the work that is traditionally performed by only one stakeholder. The interviewee described this participation to be partly unpleasant because others were commenting his/her incomplete work. This quotation shows a situation that was new for the project participants and that offered a possibility for them to be a part of constructing a common understanding of plans and designs. The quotation shows how openness with one's work enabled individuals to participate in the work that was mainly performed by the other stakeholders. Thus, an integrated project required opening one's work to others and working on issues that did not follow the traditional division of work.

Actively Offering Knowledge

The third type of practice that related to integrated project was individuals actively offering their knowledge to a project. These activities included not just offering solutions that had been applied in previous projects, but investigating, comparing and explaining one's reasons for one's solution. These practices supported forming new solutions for the project. According to interviewees, in traditional projects where organizations have separate contracts with fixed costs, the organizations are less willing to suggest creating new solutions because it would mean more work for them.

Table 1: Participation practices to overcome organization boundaries for integrated project

Quotations from the interviews	1st cycle theme	2nd cycle of theme
Trust, you need to work for it all the time and have the courage to say, for example, if you feel that you don't trust what I am doing, you need to bring that up and handle it openly. It is hard for Finnish people to take critic, the central piece of alliance is collective trust, and for that, you need to have the courage to bring those things and have the courage to take them, it does not mean that you are bad at your work. (Project management consultancy)	Need to have the courage to bring up defects	Actively questioning common understanding
Contractors did the main part; so I was mostly observing, as a cost inspector, questioning and watching the process if everything had been considered, and on the other hand watching it for our company. (Project management consultancy)	Asking if everything has been considered	
Make others to have commitment, also demanding the decisions and statements... when we go further then the blaming begins and sort of only doing what has been discussed to be done... for the alliance, it suits challenging each other all the time. (Architect)	Asking opinions	
Basically, we started to design immediately and begin with the characters of spaces before any layout... Our plans were visible to everyone even when we were in a really early phase. Everyone have been able to comment our design, it has been this big brother-type ... and we were like in an aquarium; we design and everybody says immediately this works and this does not, this costs a lot. (Architect)	Bringing one's work under the eyes of others	Actively overcoming organizational boundaries
It [communication], over company boundaries, happens more, the roles get a bit mixed, in the traditional [type of project] is quite specific that you do this and that is your playground, but in an alliance they mix a bit, people may, overlapping the task fields. Encountering happens there. (Project management consultancy)	Making tasks overlap	
When you are in APG (alliance project group) you should be able to deal with multidisciplinary issues and comment them, surely, I have to admit that I am quite on my discomfort area, I do not understand anything about the strength of concrete studs, I am from another field. In normal projects, we are not making proposals to similar issues. (Building services engineering)	Commenting issues not in one's expertise	
Table 1 continues	1st cycle coding	
After going through things in the technical section, a solution comes out, all kind of investigations; investigation after investigation on the technical side, investment and life cycle costs and compare them to the alliance targets... at the design phase all system solutions were needed to justify. (Structural engineering)	Conducting investigations	Actively offering knowledge
When we think costs of investments, contractor has a central role in acknowledging the prices, but it is not only if we shall purchase for example a door with a glass window, contractor can tell that a door without a window is x euros, and a door with a window costs y euros, when the group is composed architects offers a prospect how it aesthetically influences with natural light and users tell how they observe through the door do not need to go in, everybody has their role and opinion and then it is decided together...large panel thinking these solutions. (Contractor for building service engineering)	Comparing options together	
Many times, situation comes where you say this cannot be done, after this you need to explain. (Project management consultancy)	Explaining reasons for one's solutions	

In Table 1, the practice of offering knowledge included conducting investigations, comparing options together and explaining reasons for one's solutions. Presented in Table 1, the quotation of conducting investigations is described by a structural engineer. The quotation includes a description of the project including many investigations (compared to previous experiences) to evaluate the most suitable solution related to project the targets of an integrated project. There were different types of investigations related to

technical, life-cycle and costs solutions that were compared. This meant that creating project solutions included different organizations and that the knowledge of one organization was presented to others to enable comparison between solutions. One interviewee described that the discussions in the project concerned the core ideas and not just decisions while the development would occur somewhere else.

DISCUSSION AND CONCLUSIONS

The present qualitative case study has aimed to increase knowledge on collaboration in integrated projects with the help of the concept of participation. We identified project features facilitating participation, facilitating participation in meetings and three participation practices. These elements form network of participation practices where practices influence each other in the context of a construction project. The three participation practices included actively questioning common understanding, actively overcoming organizational boundaries and actively offering knowledge. These participation activities enable forming collective knowledge for the organizations involved in the project. The interviewees experienced these participation practices as different from the previous more traditional projects.

The project features influence active participation practices. For example, involving stakeholders early in the project enabled different organizations to participate in the design phase and the multi-party contract increased the interest in the work of other organizations. The features of an integrated project influence the daily practices of participation but do not determine these practices. Further, facilitating meetings also supported participation practices. The difference between this project and the previous more traditional projects was that the individuals performed practices when they were more involved in the common knowledge. This participation was sometimes uncomfortable, but it enabled creating new solutions among different organizations and being involved in the common issues to a greater extent than before. The project features that can reduce active participation are processes where the work is done in sequences of different stakeholders working alone and handing over their solutions to the next in the process.

Management initiatives enforcing participation are often combined with controlling mechanisms. In the case project, the management formed possibilities for participation, but at the same time, the project was managed with controlling mechanisms such as planning, defined decision processes and contractual restrictions. Thus, participation was not always as extensive as it could have been. For example, the board committee worked as partly separated from the other project members. Control might create predictability, but it can reduce participation and thus collaboration. Yet, collaboration can also occur independently without management (Beck and Plowman, 2013).

This case project illustrated active forms of participation. Offering one's knowledge, overcoming organizational boundaries and asking questions is not new in research (e.g. Hardy *et al.*, 2005), but these actions can be done in many ways, which is rarely indicated by scholars. Existing literature does not describe the effort that is required for intensive collaboration. The findings suggest that organizations and individuals need to perform active participation in forming integrated collaboration. When applying the concept of participation, collaboration means individuals are able to influence common issues instead of only working together or being present. This collaboration can be done face-to-face or digitally, but the individuals are required to be able to take part in decision-making.

Integrated projects have been described as a collection of features such as teamwork quality, joint management, commercial community and involvement of relevant stakeholders that integrate organizations into a project (Lahdenperä, 2012; Suprpto, 2015). These features are more principles than detailed instructions. Based on our findings, the integrated project can be understood through active participation of organizations and organizations influence on a common project. Yet, the usefulness of participation has its limits and can cause complex and slow processes. Integrated projects should be discussed not only as enabling collaboration. It is also relevant to discuss how the collaboration is enabled and how it is controlled as these are not necessarily separate options. Participation in the project can be the concept that assists forming a measurement framework to investigate the level of collaboration.

Our results suggest that managers should support not only joint working but also the active participation of individuals to common issues over organizational boundaries. The practices of collaboration are not something that always automatically occur but might require support from management. Our study enables to develop theory and analyse deeply collaboration within one case situation. Future research should investigate the relation of control and participative collaboration to understand the suitable combination of these two in construction projects.

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