ROLE CONFLICT IN PROJECT TEAM DYNAMICS

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Project team dynamics may be affected by mismatches between formal and informal sources of expectations. Conflicting or unclear expectations have not yet been studied closely in construction projects. Using role theory, the effect of such phenomena on project team dynamics was studied in construction projects. Most research into role theory relies on survey data; however, this study takes a qualitative approach. For a public project, contracts were studied, project meetings were observed, and semi-structured interviews with the major members of the design team were carried out to identify formal and informal sources of role expectations. Analysis focused on the misalignment of these sources. A model was developed to help explain project team dynamics and the interaction of formal and informal sources of role expectations. Findings reveal that underspecified roles and responsibilities within contracts and plans of works effected role interactions and ultimately team dynamics.

Keywords: contracts, informal sources of expectations, role expectations, team dynamics.

INTRODUCTION

Construction projects bring together different specialized organizations and professionals. Hughes (1989) showed that even on relatively small projects, before the construction phase starts, the number of people involved in decisions can reach as many as two hundred. Over the course of the project, these people interact with each other to realize project aims. One of the fundamental elements in every interaction between two individuals is the expectations that one person holds for the other. In construction projects, for any given participant, numerous other participants will have multiple expectations regarding the tasks of that participant. Should there be any misalignment or ambiguity within those expectations, the individual as well as his/her relationship with other participants will be affected. This can cause strain and frustration (Kahn *et al.* 1964; Katz and Kahn 1978) to the extent that the person leaves the team which, in turn, may jeopardize a whole project (Chapman 2002). As Crichton (1966) explained, many of the problems in construction projects arose from human relationships.

Another major concern of this research is the source of participants' expectations. The idea is to explore whether they are rooted in formal mechanisms like contracts, codes and plans of works or informal mechanisms such as interpersonal factors and cultural resources such as stereotypes and traditions in construction projects. There have been several studies in construction management research that take into account different formal and informal aspects of construction projects eg. Gluch (2009), Georg and

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Tryggestad (2009) and Dey *et al*. (2008) just to name a few. However, as Wells (2007) pointed out, more sophisticated analytical tools need to be developed and implemented to examine informal aspects. There is a need to view informal as it relates to formal (Chan and Räisänen 2009).

Following this, the aim of this research is to explore situations that are characterized by misaligned or ambiguous expectations among project participants while taking into account their formal and informal sources of the expectations. To address this problem, a model of role process was developed to examine the interaction of formality and informality in the context of role dynamics. The model was used to study three construction projects. This paper illustrates the research with data from one of the projects which was to build a new energy centre and an underground district heating mains system for a public sector client.

LITERATURE REVIEW

The problem of formal and informal sources of expectations and their effect on role dynamics builds on two literatures or topics: roles in construction projects, and informal aspects. As for the former, there are several studies on the matter of roles and *"who does what"*. This literature either concentrates on one specific role (Anstruther 1997, Khosrowshahi 1988) or provides a generic description of roles and responsibilities in construction projects (Murdoch and Hughes 2008, Ndekugri and Rycroft 2000). In contrast, Hughes and Murdoch (2001) focused on how roles specified in different plans of work relate to each other. In their study, the authors compared the formal descriptions of roles and responsibilities in nine familiar patterns of plans of work or procedural documents such as Joint Contracts Tribunal (JCT), British Standards, and Royal Institute of British Architects (RIBA) plans of work. They also examined the terms used to describe responsibilities in those documents. Their research highlighted mismatches in the definitions of roles and responsibilities in different sources, but the effects of such mismatches on the individual and the team dynamics were not addressed.

There is relatively little research on informal elements in the context of roles. A key exception is a study by Gluch (2009) examining both formal and informal aspects in the construction sector. She studied the role and identity of environmental professionals and the way they are formed informally at the workplace. Gluch's findings show that the authority of environmental professionals is not enough to enact their role fully. To overcome their problems they adopted a formal role in line with their job description and an informal role which was more suitable for that special project. The need to conform to the formal and informal expectations separately and in different ways puts extra pressure and stress on environmental professionals. Other studies looking at construction roles include Kagan *et al.*'s work (1986) work on the role of the design engineer and Georg and Tryggestad's (2009) examination of the role of project manager, but they all focused on a single role.

Other authors have begun to examine informal factors in team dynamics. To capture the interactions between people on a single project, Nicolini (2002) introduced the term *"project chemistry"*. In addition research on organizational culture, occupational stereotyping and role-based image discrepancies suggest informal sources which potentially influence participants' image and expectations of each other (Ankrah and Langford 2005, Loosemore and Tan 2000, Vough *et al.* 2012). As valuable as these reports are, each focuses on a single informal source of expectations. Little is known about how informal factors come into play together with the formal factors. In this

study, role theory is used to explore situations where misalignment within the expectations of different participants influences the role dynamics.

THEORETICAL FRAMEWORK

The key idea of role theory is that individuals occupy *"social positions"* and holds *"expectation"* for their own behaviour and the behaviour of other individuals (Biddle 1986). In other words, role theory is concerned with how people expect the person enacting a role to behave based on his/her social position.

There are different perspectives in role theory, but the one relevant to the scope of this research is organizational role theory. Organizational role theory considers roles within formal organizations. The social system in this perspective is assumed to be pre-planned, task oriented and hierarchical. In this approach, roles develop initially from a set of task requirements and explain particular forms of behaviour that are associated with a specific position. The relationships among people in an organization are functional relationships and roles are standardized patterns of behaviour that are required of every individual in the context of that relationship (Katz and Kahn 1978). A key concept in this approach is *"role conflict"* which refers to a situation when an individual is subject to opposing norms and expectations from multiple senders. In other words, it characterizes the situation in which one individual faces incompatible expectations from other individuals with whom he or she interacts. Conflict can also be generated between two or more roles held by one person. However, this type of role conflict is not in the scope of this research because it is not a relevant type of role conflict in the study of participants' interactions.

In the study of role conflict, there are some fundamental concepts which were mostly introduced and discussed by Kahn *et al.* (1964), who first carried out comprehensive research on this matter. Key concepts include: organization, office, focal person, role set, role senders, role expectations and role behaviour. They defined 'organization' as an open and dynamic system that delineates a continuing process of input, transformation and output. An 'office' is a relational concept which defines one position within the system in terms of its relationship with others and with the whole organization. The person who occupies a particular office is required to deliver a set of activities as potential behaviours. These activities become a part of the 'role' that the person needs to perform. The individual who occupies the office and who the researcher is focusing on is called a 'focal person'. 'Role set' is a collection of individuals who are related with a particular office. The members of a person's role set are called 'role senders' (Rommetveit 1955). 'Role expectations' are *"prescriptions and proscriptions held by members of a role set"*(Kahn *et al.* 1964 p.14). The contents of these expectations constitute two elements: one is related to the person's office and the other one is about his/her abilities. In other words, role expectations involve the role set's preferences regarding a task and personal characteristics or style. 'Role behaviour' is the kind of behaviour which is relevant to the system, performed by the focal person as a member of the system, and is not necessarily in line with the expectations of his/her role senders (Katz and Kahn 1978, p.189).

Kahn *et al.'s* (1964) research focused on the impacts of organization on individual. More specifically, they were concerned with the effects of the environment on physical and mental health of individuals, with the driving force of an individual's well-being and with organizational effectiveness. Within this framework, they studied the *"nature, causes, and the consequences"* of role conflict. A national survey from

725 persons as representatives of the labour force in the USA as well as structured interviews with 53 individuals from six industrial locations were carried out. Based on the national survey, Kahn *et al.* (1964) discovered that almost half of the participants were facing noticeable role conflict and, among these, 15% reported this issue as a serious and frequent problem. Furthermore, 39% of the population in the study reported being bothered by the fact that they have not been able to satisfy conflicting demands of their role senders. Their findings showed that role conflict may have negative emotional experiences on the part of the focal person, including increased tension, high internal conflicts, decreased job satisfaction and reduced confidence in superiors and in the organization as a whole. To cope with these issues, individuals may take different strategies like social and psychological withdrawal.

Building on the research carried out by Kahn *et al.* (1964), some researchers investigated role conflict within organizations. For example, Quinn and Shepard (1974) showed that 31% of employees within an organization experience conflicting demands from other people. Other negative impacts of role conflict included: increased job tension, job dissatisfaction, employee burnout and decreased organizational commitment and performance (Jackson and Schuler 1985; Van Sell 1981; Netemeyer *et al.* 1990). Other authors studied role conflict for managers within the organization. For example, Floyd and Lane (2000) studied top-, middle- and operating- level managers involved in a programme of strategic renewal in organizations. They argued that while it was not apparent which managers were at greatest risk of role conflict, most of them experienced it to some degree. They also argued that role conflict increased the uncertainty and risk of opportunistic behaviour, damaged to the quality of information exchange between managers and hindered the adaptive process. In a more recent study, Tang and Chang (2010) studied the effects of role conflict on employee creativity and concluded that role conflict has a negative effect on creativity.

The above studies show that the effects of role conflict on the focal person are pervasive. This phenomenon and its effects on the individual, the team and the project objectives were not addressed in construction project teams. In this research, the analysis rests on a modified version of role conflict taken from Katz and Kahn (1978).

THE MODEL OF ROLE PROCESS

The aim of this study was to investigate role conflict as a result of mismatches between role expectations communicated to the focal person considering their formal and informal sources. To accommodate these concerns the classic model of role conflict (Kahn *et al.* 1964) was modified (Figure 1). In this new version, four elements - *"formal sources of role expectations"*, *"informal sources of role expectations"*, *"formal sources of role behaviour"* and *"informal sources of role behaviour"* - were introduced. In construction projects, formal sources of role expectations and role behaviour were considered as contracts, codes and standards, plans of works, fee and budget constraints, time limits, organizational factors, procurement method and government policies. Informal sources include: fears, sensitivities, motives, values, work experience, educational background, stereotypes and interpersonal factors.

The model has been developed to draw attention to the interaction between two or more project participants with their formal and informal sources of role expectations and role behaviours. More specifically, it has been used to establish whether the sources that triggered a role expectation and that informed the focal person's

behaviour response were formal or informal. This analysis provides a basis to examine misalignments in role expectations and thus helping to explain individual's behaviour.
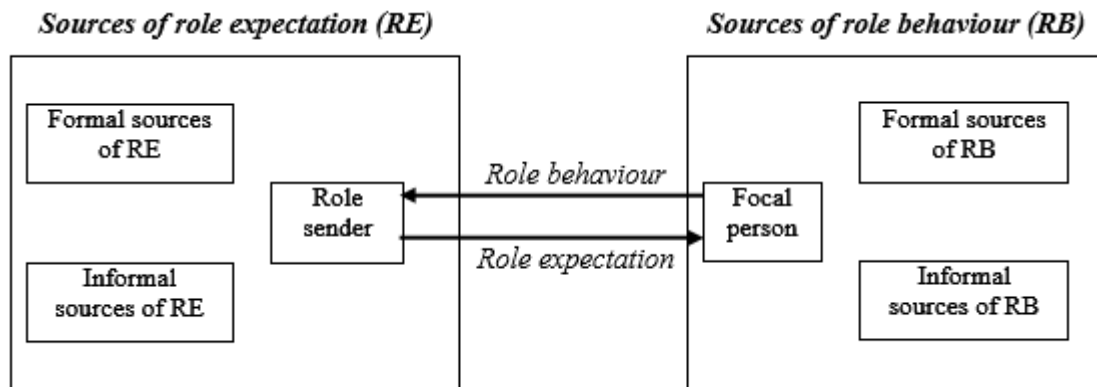

Figure 1: The theoretical model of role interaction considering formal and informal sources of role expectation and role behaviour

RESEARCH METHOD

Most research into role conflict relies on survey data. The current study, however, adopted an interpretivist approach based on qualitative data gathered from three projects in the UK. In these projects, designers' contracts were studied as the most important formal source. In addition, project meetings were observed, and semi-structured interviews with participants at meetings and other members of the project were carried out to investigate the subjective meanings of their actions. The method of selection of the interviewees was informed by the theoretical framework of the research. More specifically, interviewees were considered as the focal person and their major role senders were identified in the course of the interview and, at the same time, they were considered as the role sender of some other participants. The information gathered in the project meetings was used for a further identification of focal persons, their major role senders, participants' relationships and behaviours. It was also used as a subject for a further discussion in the course of the interview.

Before carrying out the interviews, an interview guide was developed. More specifically, a list of questions in three levels was set: the individual, the company and the project level. Interviewees were asked to provide a brief account of their background in terms of educational background, work experience, their position in the firm and in the project. They were then asked to describe the project and more importantly to explain anything that they observed or thought of as particularly different in this project. This question opened up the discussion of problems and challenges in the course of the project. After that, interviewees were asked about their familiarity with the formal documents, especially with their contract/agreement in that project. This particular set of questions was designed to establish their awareness and knowledge of formal sources of role expectations.

For the purposes of this paper, only one of the projects is discussed. This project was still in the design phase and five major consultancies were involved in providing several services, including the project management services, mechanical, electrical and structural services, architectural services, cost services and coordination, design and management services. In total, 13 people from these consultancies and from the client organization were interviewed. Each interview was designed to take about 30 to 45 minutes, but the majority of participants were happy to talk for more than one hour. Interviews were recorded and transcribed verbatim.

Nvivo software was used to organize the information gathered from transcripts, minutes, notes of meetings, and the contracts. Data analysis was carried out using the principles of template analysis. Template analysis is a technique (King 1998; 2012) of thematically analysing qualitative data. It shares principles suggested by Yin (2014) suggests, relying on theoretical positions. Theoretical concepts, like role expectations, role behaviour, and role conflict were taken as the initial coding. Once this was completed, coding was developed further to identify key themes. Data was then re-analysed using the model of role processes.

DATA ANALYSIS

Based on the data analysis three major processes and mechanisms that were involved with situations of role conflict were identified: allocation of responsibilities, the introduction of new technologies and the procurement method of the project. Here one of the cases that illustrated the effects of underspecified responsibilities is presented. The case is the interaction between the project manager and the structural engineer.

Generally in construction projects, designers' agreements, contracts and plans of work specify roles and responsibilities of each party. However, the project manager took the view that there are ambiguities and mismatches within those documents. In his experience, different architects, for example, would interpret RIBA plans of work differently:

 "If you went to see six architects and you said, give me your RIBA Stage C deliverables, you'd get six different things." (Project manager)

The project manager suggested that ambiguities within roles and responsibilities in contracts lead to constant negotiations:

"The awkward part for me is that you sit at a kick-off meeting and the first thing you have to say is: What are you going to deliver? And what people will tell you is: I'm going to deliver a feasibility report or I'm going to deliver a stage c report. Well, what goes in a Stage C report? And then I start: Am I getting 1 to 100s? Am I getting elevations? So from my perspective the no deliverables part can create tension from the outset." (Project manager)

The project manager further explained that such tension was a result of differences between parties' perceptions about the right level of information for several stages of the project. This led the project manager to play the role of *"referee"* between different parties. To illustrate this point, he described a difficult moment in a previous project, where roles and responsibilities were not clearly specified. The case involved his interaction with the structural engineer regarding some information that the quantity surveyor required. In that case, the project was in the feasibility phase, and the quantity surveyor needed a piece of information from the structural engineer to calculate the costs. The project manager expected the structural engineer to provide a drawing of the suggested design. What the structural engineer provided, however, was a one-page structural engineering report. It did not clarify which wall would be demolished or where and how big the steels were. Consequently, it did not include enough information for the quantity surveyor to calculate the cost of the project.

The structural engineer believed that producing a proper drawing was not a part of his responsibilities for the feasibility stage. Even though the project manager and the structural engineer were referring to the same document, the structural engineer's agreement with the client, they had different interpretations of the responsibilities of the structural engineer. According to the project manager, the structural engineer

would only provide the required information on the condition that the client was ready to pay more. The client refused to do so and this led to a difficult situation for the project manager.

In this instance, all three parties expected the project manager to solve the problem. The quantity surveyor expected the project manager to deal with the structural engineer and to provide him with the necessary information for the calculation of the cost of the project. The client expected the project manager to obtain the required information without paying extra fees. And the structural engineer, by referring to his contract, refused to produce drawings with sufficient detailed information on them, without extra fees! Yet, the project manager wanted to manage the team harmoniously and to maintain his working relationships. As he explained, if the structural engineer thought that the project manager *"has pinched a grand off him"* in the first two months of a 24-month project, he would lose an interest and stop being responsive. To examine this interaction, the model of role process will be used.

THE MODEL OF ROLE PROCESS BETWEEN THE STRUCTURAL ENGINEER AND THE PROJECT MANAGER

The structural engineer's role expectation from the project manager was to convince the client to pay an extra fee for the structural engineering drawing. The formal source for this role expectation was his contract with the client; he believed that his contract did not include such a service for that stage of the project. At the same time, the project manager faced two other role expectations. QS's role expectation from him was to provide that information, and client's role expectation was to solve the issue without paying extra fees. For his role behaviour, the project manager could not refer to the structural engineering's contract as a formal source of role expectation due to the ambiguities in it. His informal source was his willingness to manage the team harmony and to keep the good relationship with the structural engineer. Clearly, he was in a situation of role conflict. He explained:

"It's very difficult to play the strong hand all the time … because you know that's going to come back and bite you at some point in the next two years. If you're too strong, all you end up doing is breaking all those relationships and at some point everyone will go back to the contract. And if you're too soft everything is always a compromise." (Project manager)

For the project to go ahead, the project manager put the quantity surveyor's role expectation ahead of his relationship with the structural engineer. As the project manager expressed it, he had to *"leverage his relationship"* with the structural engineer. He went back to the structural engineer and asked for a hand sketch demonstrating which walls would be demolished, where the steels would be, if an H or a W would be used, and the like. After some role negotiations, the structural engineer then scanned and sent the project manager *"literally red pen over an existing drawing"*. In this instance, ambiguous roles and responsibilities within the designer's agreement were a source of role conflict for the project manager and forced him into constant role negotiations with other team members. This dynamic is illustrated in Figure .

According to the project manager, this type of problem was quite common in construction projects. To deal with this type of issue the company had developed a document to specify all the *"duties and deliverables"* at each stage of the work for different roles. Should the client add this document to the consultancies'' agreement, participants would become aware of the detailed services they are expected to provide.

This was the case in the project in this research. In other words, the client of the project agreed to add this document to the designers' contracts. While the designers had the right to agree, disagree or negotiate for the services, the existence of such a document helped to clarify any conflicting or ambiguous issues at the very beginning. Ultimately, every party was clear about what they need to deliver, and they accordingly considered (included or excluded) those services in their fee proposals. In the project manager's experience, this decreased the potential situations of role conflict for different parties, and helped the client to maintain better control over the budget of the project.
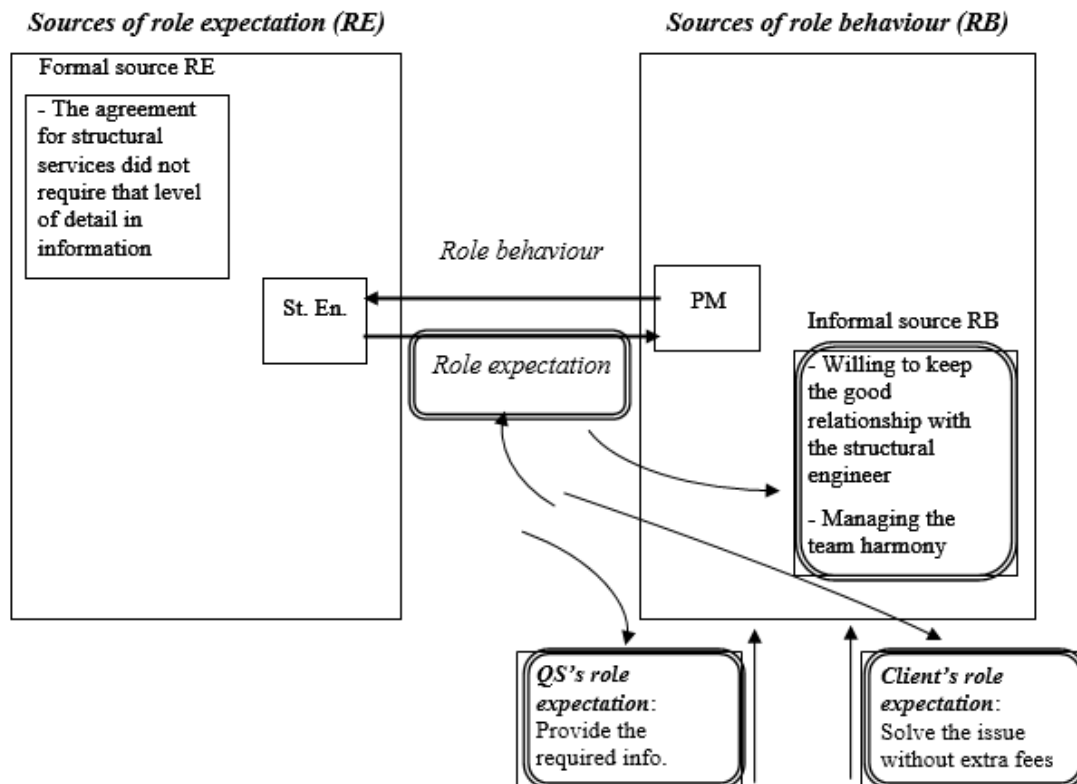

Figure 2: The model of role interaction between the structural engineer (St. En.) and the project manager (PM)

DISCUSSION AND CONCLUSIONS

Drawing on organizational role theory, the research presented here makes two major contributions both to the construction management literature and the literature on role theory. The analysis illustrated a successful implementation of the model of role process to identify the situations characterized by role conflict and to figure out whether they originate from formal or informal sources. This research revealed that formal documents like project contracts and plans of work are involved with ambiguities and lead to conflicting interpretations. This proved to influence the individual and the team. Although the existence of mismatches between and within some contracts and plans of work were identified by Hughes and Murdoch (2001), the effects of such mismatches have rarely been addressed in construction management literature. The analysis showed how the ambiguity within the structural engineer's contract affected participants' relationships. Moreover, a comprehensive document with detailed information regarding duties and deliverables of different project participants proved to be an extremely helpful tool in those interactions. Although the aim of this research is not to promote a greater formalization, a more accurate

allocation of responsibilities can contribute to a better relationship between participants.

As for the theoretical contribution of this research, it is to note that the focus of the proponents of organizational role theory (Kahn *et al.* 1964; Gross *et al.* 1958; Katz and Kahn 1978) was more on the individual and the psychology side of the focal person. The aim of this research, however, was to analyse role interactions between two professionals and, ultimately, its effects on the team level. Moreover, it incorporated the sources of participant's expectations and behaviour and considered the natuer of those sources to explore if they root in formal or informal processes and mechanisms.

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