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Exploring communication in project-based interventions

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Abstract

Purpose – The authors explore several aspects of communications theory to identify their relevance to managing a project-based productivity improvement intervention. The literature on communication accommodation theory, groupthink and trust appear to have important implications for improvements. The purpose of this paper is to develop a research methodology used in conducting empirical data collection in the field to test the developed conceptual framework. The authors emphasize the importance of management theory to project-based interventions. The focus of this work is summarized by the research question: “what facets of communication impact on the success of a project-based improvement intervention?”

Design/methodology/approach – Following a focused literature review, learnings from specific research were used to identify a series of propositions. The scope of the work was established to limit the range of issues under review. Next, a conceptual framework was designed that allowed a case study to be tested with regard to validity of the propositions. Further testing will be undertaken in a single company.

Findings – There is clear evidence showing the relevance of effective communication when executing an intervention to seek performance improvement. In particular, understanding the need of stakeholders’ is paramount that allows the design of a communications strategy. Each phase in a project-based intervention requires different styles of communication. There is also a need to have varying degrees of trust. Total unchallenged trust invariably leads to groupthink that hinders critical decision making.

Research limitations/implications – The work contributes to the understanding of the application of communication theory to project-based interventions – that invariably aim at performance improvement initiatives. While currently the work is in the early stages of research, it does nevertheless show some useful early findings. Clearly further work is needed in international projects in the context of multi-cultural teams and external stakeholders.

Practical implications – With many interventions failing to meet their planned objectives there is a need to isolate possible reasons and to rectify or mitigate the causes. Project management and change management training should include a comprehensive understanding of management theories. This research will contribute to this knowledge base.

Social implications – Project-based activities are used in most walks of life; the need for excellent management is therefore important. Invariably interventions involve considerable capital investment and their success advances productivity of nations. Understanding and integrating communication theories to their management, therefore, has significant social benefits.

Originality/value – The importance of communications is identified in the project management literature and adjunct disciplines. Professional associations and leading bodies in performance and project management, while emphasizing the need for excellent communication, have not adequately addressed underpinning theories. There is little research focusing on communication accommodation theory, groupthink and risk in the context of project management. The authors’ have not been able to identify any research on an integrated framework that combines these theories with managing a project-based performance improvement intervention.

Keywords Project management, Trust, Communication, Accommodation theory, Group thinking

Paper type Conceptual paper

1. Introduction

Effective communication is a critical component of contemporary project-based change management, and is identified as requiring detailed attention in publications that include the Project Management Body of Knowledge, PROJECTSINCONTROLLEDENVIRONMENTS, and Agile Project Management (Institute of Project Management (IPM), 2008; OGC, 2009; Augustine *et al.*, 2005).



Understanding and applying communication theories by productivity improvement managers allows them to improve and develop skills as effective communicators by being able to recognize the debilitating effects of groupthink (Neck and Moorhead, 1995), and appreciating communication variations between individuals and those in a group setting (Ayoko *et al.*, 2002; Williams, 1999).

The development of effective communication, within teams and across stakeholders, is greatly enhanced through the understanding of relevant underpinning theories. Turner (1999) describes that each project-based activity has a unique range of success criteria, and each needs special communication techniques. It is also apparent that due consideration to communications is rarely given by leaders (Dvir and Shenhar, 2011), most notably allocating sufficient resourcing and time to understanding the complexities of stakeholders' information needs'.

Additionally, consideration of the notion of trust in relationships reinforces applicable communication between project stakeholders. Trust within the context of a project-based intervention can be defined as the decision to become dependent on another so as to achieve an outcome (Munns, 1995). Whilst there are different types of trust, and various conditions must be present to facilitate trust, interestingly a certain amount of distrust is also needed within key players so as to obtain an optimal level of trust that negates the consequences of too much trust resulting in groupthink (Solomon and Theiss, 2013; Turner and Pratkanis, 2009).

Our understanding of communication theory, trust, and associated perils of groupthink are important knowledge areas for managing such projects. There is clear evidence that many projects fail on any of the three measures of quality, time, and cost. Moreover, poor communication has been cited as a significant reason for failure of many projects (Skyttner, 1998; Turner and Muller, 2005). We argue that communication is a fundamental feature of all measures of project-based intervention success; and therefore warrants far greater consideration and understanding within the performance leadership.

The aims of this paper are to explore several aspects of communications theory, to identify their relevance to managing a project-based productivity improvement intervention. An objective of this work was to develop a research methodology for use in conducting empirical data collection in the field to test the developed conceptual framework. In addition to advancing our understanding of leadership of projects, we endeavor to emphasize the importance of management theory to project-based interventions. The focus of this work is summarized by the research question:

RQ1. What facets of communication impact on the success of a project-based improvement intervention?

This paper continues as follows: first, we review and discuss literatures of communication accommodation theory, trust, and groupthink. Next, we explore the interplay between these theories and identify how their application, or lack of, can affect the outcome of a project by using the Heathrow Terminal 5 case study. Drawing on this case examination we next develop a conceptual framework that describes a trust-communication cycle. We conclude with a discussion and final remarks with recommendations for further research and development of the conceptual framework.

2. Communication theories

There are a number of communication theories that managers are able to draw upon to sustain effective stakeholder relationships. These theories include diffusion theory, groupthink, communication accommodation theory and social information processing theory. This paper focuses particularly on groupthink and communication accommodation theory as they are especially applicable to projects. However, it must be recognized that

there is often extensive complexity within projects (in particular megaprojects), and much uncertainty exists when the three main project levers of scope, budget and schedule are ambiguous, multifaceted or volatile and when information is unavailable and inconsistent (Brashers, 2001). Information uncertainty can cause anxiety which may affect effective communication and decision making. Berger (2009) identifies various levels of uncertainty that lead to anxiety and poor communication and which impact on stakeholders. High uncertainty levels and poor communication undermine individuals' ability to attain goals, thus increasing the likelihood of project failure. It is therefore an important step to get an insight of this theory.

Berger (2009) offers three assumptions:

- (1) the primary goal of communication is to minimize uncertainties;
- (2) when individuals experience uncertainty on regular basis it creates high anxiety and poor motivation; and
- (3) communication is the primary vehicle to reduce uncertainty.

A simple dictate is, therefore, that project leaders need to reduce uncertainty in order to convey their messages and so achieve their objectives. This might be achieved by implementing a number of things: effective communication planning to determine the information required and clarify the communication needs and distribution channels to project stakeholders in a timely manner. However, there is clear evidence to support the view that a number of impediments hinder communication (Folland, 1983); for example, groupthink (Turner and Pratkanis, 2009).

2.1 Groupthink

The term groupthink has been described as a "[...] mode of thinking that people engage in when they are deeply involved in cohesive in-group, when the members' striving for unanimity override their motivation to realistically appraise alternative course of action" (Janis, 1972 in Neck and Moorhead, 1995, p. 44). The concept of groupthink is a way of explaining that groups or teams may exhibit patterns of thinking that may inhibit effective decision making and tend to arrive at a decision without considering all available options or pathways (Neck and Manz, 1994; Neck and Moorhead, 1995; Turner and Pratkanis, 2009).

The original framework developed by Janis (see Appendix 1) argued that the presence of pre-existing conditions (primary, secondary and tertiary) increased the likelihood of the symptoms of groupthink being present within group decision-making processes making them defective (McCauley, 1998; Neck and Manz, 1994). The primary condition was a moderately to highly cohesive group; however, there were a number of secondary and tertiary conditions. The secondary conditions were insulation of the group, leader preference for certain decisions, lack of norms requiring methodical procedures and homogeneity of members' social background and ideology. The tertiary conditions were: high stress from external threats, with little hope of a better solution, low self-esteem induced by the group's perception of recent failures, difficulties in current decision-making tasks, and moral/ethical dilemmas (Mohamed and Wiebe, 1996; Moorhead *et al.*, 1991; Neck and Manz, 1994).

Janis (1972) noted as part of his framework, eight symptoms that signaled evidence of the primary, secondary and tertiary conditions. Subsequent research has developed this framework but the argument substantially remains the same (Mohamed and Wiebe, 1996; Moorhead *et al.*, 1991; Neck and Manz, 1994):

- (1) invulnerability: illusion that the group cannot fail;
- (2) rationalization;
- (3) unquestioned team morality;

- (4) self-censorship: individual's censor their thoughts and concerns that deviate from group consensus;
- (5) illusion of unanimity;
- (6) mind guarding: screening out of adverse information from outside the group;
- (7) peer/social pressure within the group: placed on any individual that deviates from group consensus; and
- (8) stereotyped views of enemy leaders as weak/incompetent.

When some of these conditions are present, the problem solving and decision-making processes within the group can become defective. Seven possible consequences result: incomplete review of alternatives, incomplete objectives, failure to examine the risk of the preferred choice, failure to reappraise alternatives, poor information sourcing, selective bias to information processing and failure to develop contingency plans (Janis, 1972; Neck and Manz, 1994).

The literature has identified that groupthink in its primary form is detrimental and a destructive tendency to the success of a team or project as it can cause defective thinking and decision-making processes (Erdem, 2003; Neck and Manz, 1994). However, in the some 40 years since groupthink was first introduced into literature, there have been many reviews of Janis' original framework through enhancements to the original model, case study reviews and reviews of the theory's limitations (Giles, 2009) and its applicability in temporary organizations (Gillard and Johansen, 2004), self-managed teams and the evolution of groupthink to team-think (Hällgren, 2010; McCauley, 1998; Mohamed and Wiebe, 1996; Moorhead *et al.*, 1998; Neck and Manz, 1994).

Team-think was coined by Neck and Manz (1994) to describe effective synergistic thinking within teams that allows for positive outcome through increased effectiveness of decision making and enhanced team performance. Like groupthink, team-think has a number of antecedent conditions and symptoms. The antecedents described by Neck and Manz (1994) are team beliefs and assumptions, team self-talk, and team mental imagery. The symptoms are encouragement of divergent views, open expression of concerns/ideas, awareness of limitations/threats, recognition of member's uniqueness, and discussion of collective doubts (Neck and Manz, 1994).

However, not all see groupthink as negative, one study undertaken by Choi and Kim analyzed groupthink and team activities in 30 organizations faced with emergent crisis situations and saw some of the symptoms of groupthink (illusion of invulnerability, belief in inherent group morality, illusion of unanimity) having positive relationship on team performance (Choi and Kim, 1999). It was postulated that with these positive effects, the symptoms of groupthink could benefit a team through enhanced group identity and collective efficacy (Choi and Kim, 1999).

To mitigate any potential adverse effects of groupthink, project managers should consider if decision making and consensus has diluted productive conflict, desire for accuracy, and maintained efficiency over effectiveness (Sellnow, 2013). Studies have demonstrated that the tendency toward groupthink can be triggered by merely imposing time constraints on decision making (Johnson, 1992). This creates a significant challenge for a project manager to create an appropriate team environment and culture in which negative aspects of groupthink are recognized and reduced as much as possible. Tactics for project managers include (Kenny, 2012; Mann, 1986; Woodruff, 1991):

- create a team culture where the discussion can always be open and frank;
- avoid isolating decision making from negative feedback;
- project-based change managers as leaders should be careful in setting agendas at the beginning to avoid stating preferences and expectations;

- take all in-group and out-group opinions seriously;
- be alert for anyone who is not saying anything, don't mistake silence for consent;
- encourage and reward different opinions;
- choose a specific decision-making or problem-solving procedure if possible; and
- do not rush for a decision.

2.2 Communication accommodation theory

Managers need to appreciate the attitudes, motives and strategies that shape the way communicative interaction occurs when people interact (Ayoko *et al.*, 2002; Williams, 1999). This theory separates communication interaction into two parts convergence, where similarities in communication are emphasized during interactions to identify with each other and divergence where differences in the communication patterns are emphasized (Coupland and Giles, 1988; Parcha, 2014). Of importance to the execution of projects, the theory considers the strategies used by members of a group to adjust to the communication styles of other members. These strategies include (Coupland *et al.*, 1988; Hehl and McDonald, 2014; Jones *et al.*, 1999):

- approximation of the convergence and divergence of communication patterns;
- interpretability – people adjust their communication dependent on other's interpretative competence;
- interpersonal control – people attend to their role relations; and
- discourse management – people judge and respond to the conversational needs of others.

Convergence occurs when people emphasize similarities in their communication in order to identify with one another; conversely, a convergent dialogue is more supportive and amicable. Divergence can be used by a person to show dominance and superiority – and can emphasize the differences between people's rank and authority (Giles *et al.*, 1987). Additionally, communication and accommodation theory mediates interpersonal and intergroup relationships (Gallois *et al.*, 2005; Gasiorek and Giles, 2012). In these intergroup settings, "speech accommodation is often positively evaluated" (Gallois *et al.*, 2005, p. 19). Therefore, project managers who do not recognize differences in speech patterns within stakeholders or modify their speech accordingly, can be regarded as non-communicative.

It might be argued, therefore, that project managers should engage in convergent communication. Moreover, projects are becoming more complex, and requiring integration of diverse stakeholders in various geographic locations with different cultural and linguistic backgrounds. Many cross-cultural relationships break down because of failures in communication due to different understandings of communication (Hurn and Tomalin, 2013).

In a project management context, information sharing entails not only objective information dissemination, but also intersubjective interpretation (Miranda and Saunders, 2003). The message is not passively received and understood, rather it is the receiver or audience actively developing meaning; and this is created in terms of their perspectives on the world in which they live and the concrete situation at hand (Foster and Jonker, 2005). To obtain a common understanding of the project information, effort needs to be taken to understand stakeholders' perspectives. Such views of the world may, of course, be from different cultural backgrounds.

Project managers also need to appreciate that when communicating project information, the communication process is not complete until it is clearly understood – with a shared

meaning by the stakeholders acknowledging with appropriate feedback. The incorrect understanding of the information can lead to confusion and mistakes (Folland, 1983). Deliberate strategies to establish common contexts and shared meanings should be built upon a sound theory of knowledge in social groups, whether they are teams, organizations or any form of social collective (Jackson and Klobas, 2008).

Different levels of knowledge and experiences within stakeholders must also be considered. Project managers must recognize barriers to communication and consider the communication process from the standpoint of recipients' (stakeholders') expectations and knowledge (Folland, 1983). As a feature of the stakeholder's engagement, project managers will have to acknowledge the existence of alternative perspectives and adjust their communication styles. Ultimately, when convergence takes place a bond with stakeholders will be formed to establish secure common meaning.

2.3 Stakeholders theory

The majority of project stakeholder research has been devoted to understanding how to manage stakeholders effectively. Much of this research has focused on creating practically oriented stakeholder management schemes and classification methods (Bourne and Walker, 2005; Chinyio and Akintoye, 2008; El-Gohary *et al.*, 2006; Olander and Landin, 2005).

A project creates a dynamic context for stakeholder management because a project moves through different phases during its lifecycle (Key, 1999). Consequently, project stakeholders' potential to take action and their ability to influence the project management's decision-making changes over the project lifecycle as the project proceeds from the investment preparation phase through the project execution phase to the operations phase. The majority of prior-project research has focused on the management of primary stakeholders that are important with regard to the project's economic interests (Aaltonen and Kujala, 2010). The various interest groups, the motivations behind their actions and their potential influence during the project lifecycle, especially on the part of management, have been identified as a major challenge in large international projects (Bourne and Walker, 2005; Chinyio and Akintoye, 2008).

For an extensive review and in-depth analysis of stakeholder theory (see, e.g. Donaldson and Preston, 1995; Friedman and Miles, 2006; Key, 1999).

The stakeholder perspective requires project management to become more responsive to forces in their external environment by engaging in situational analysis and widening their understating of their external stakeholders (Welch and Jackson, 2007). This point was poorly considered in the T5 construction project.

To maximize trust, the communication process needs to begin long before project plans are drawn up and continue throughout the life of any project (Khan and Gerrard, 2006). The communication needs are different along the different phases and they should be acknowledged and planned (Lohikoski *et al.*, 2015; Welch and Jackson, 2007) taking in account the need to prioritize stakeholders (Luoma-aho and Paloviita, 2010).

In the project's conceptualization and planning phases communication focuses on the project's content and plan, in addition to establishing the rules of behavior and clarifying the team's purpose (Katzenbach and Smith, 1993). In the project's execution phase, communication focuses on explaining the goals and objectives and on ensuring and enhancing motivation (Mukherjee *et al.*, 2012). In the post-project phase, communication focuses on ensuring that information exchange is related to documenting the project activities and results and gathering and storing the lessons learned for future projects (Turkulainen *et al.*, 2015).

2.4 Stakeholders' salience

Prioritizing stakeholders also means consideration of the salience of stakeholders shifting during the lifecycle of projects (Altinay and Miles, 2006). The literature recognizes that

identifying the changes in the salience of stakeholders and the dynamic nature of stakeholder analysis and managing those relationships over the project lifecycle will provide valuable insights (Jepsen and Eskerod, 2009; IPM, 2008).

As the project unfolds, stakeholders may vary in their level of importance – therefore, tracking the interactions may identify “who and what really counts” for project success (Assudani, 2010).

A stakeholder salience framework has been proposed by Mitchell *et al.* (1997) that explains the process of managerial decision making. The salience framework classifies stakeholders according to three dimensions: power, legitimacy and urgency. These three attributes determine stakeholder salience as the degree to which managers give priority to competing stakeholder claims in their decision-making process, i.e. how much and which type of attention stakeholders receive from management. As a consequence, salience attributes are associated with the possibility of stakeholders to take part in the project management’s decision-making processes. Stakeholder salience does not remain in a steady-state during the project lifecycle and stakeholder management is a dynamic and shifting process (Altinay and Miles, 2006). It is important for project managers to develop robust relationships with these various stakeholders (Bourne and Walker, 2006) and to structure their communication patterns at different lifecycle stages of the project for a successful outcome (Assudani, 2010).

In the T5 project customers represent the unsatisfied stakeholders. In the planning and execution phase their salience is low because they are not directly involved and they are not perceived to possess important information that could be used by the management. However, in the opening phase the customers’ salience increases due to their increased legitimacy and urgency. Consequently the success of the planning and construction phases is counterbalanced by the opening failure because the salience of the stakeholders is different in the two stages.

3. Trust in communications

Often projects are defined as temporary organizations set-up to achieve specific goals and objectives; and typically these projects can be classified into two types, inter-organizational (internal to organization but may cross-divisional boundaries) and intra-organizational (between two or more organizations) (Williamson, 2014). It has been noted that a key factor to project success is the development of trust between the individuals in the project team, the project team, the project board, and, if the project is intra-organizational, then between the two-plus organizations that have been contracted to deliver the project (Ibbott and Keefe, 2004; Kadefors, 2004; Rose and Schlichter, 2013). Because of the nature of the temporary organization, often there is insufficient time to build the necessary interpersonal trust required to increase the likelihood of project success (Munns, 1995). On the flipside, excessive trust, trusting without suspicion, creates a risk that the symptoms of groupthink will occur leading to defective decision making and thus impacting on the success of a project (Erdem, 2003).

Erdem (2003) proposes that an optimal level of trust, where project members are able to trust each other, freely express their view and concerns, defend alternative solutions and retain a degree of skepticism is needed for a project to be fully successful with the need for both distrust and trust to be evident within the project team to achieve optimal trust and dissuade groupthink mentality. Distrust is recognizable when there is a healthy doubt about decisions and/or people holding negative expectations toward decisions (Lewicki *et al.*, 1998). Moreover, distrust can also provide the benefits of identifying undesirable behaviors, possible consequences, an escape from restrictive thinking and mental monotony (Erdem, 2003).

Knowing that trust is a key factor to project success, an understanding of trust is required. However, this can be complex and very much dependent on the project being undertaken.

Rousseau *et al.* (1998) undertook a cross-discipline review of trust and developed the following broad definition of trust: “trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another” (p. 45). Paraphrased, this might be put as trust is the decision to become dependent on another to achieve an outcome (preferably positive). For project management, trust can be defined as the client becoming vulnerable by trusting others with the skills necessary to achieve the necessary outcome; and the reverse when staff are exposed to the client as they are dependent on the client to keep undertaking the work with them (Munns, 1995; Smyth *et al.*, 2010).

A range of literature has identified two key conditions required to be present for trust to arise: risk, as risk gives trust the opportunity to arise therefore producing a reciprocal relationship and interdependence, where the interests of one party cannot be achieved without the reliance on the other party (Rousseau *et al.*, 1998). Additionally, the nature of risk and trust changes as interdependence increases (Sheppard and Sherman in Rousseau *et al.*, 1998). Rousseau *et al.* (1998) identified different forms of trust:

- Deterrence-based trust: this form of trust emphasizes the utilitarian considerations that a party will be trustworthy due the contractual penalties for breaches of trust.
- Relational trust: this form of trust stems from the relationship developed overtime between two parties.
- Calculus-based trust: this form of trust emerges when one party perceives that the other party intends to perform an action that is beneficial.

4. Framing a communications model

A summary of the key literature reviewed on groupthink, communication accommodation theory, and trust is provided in Appendices 2 and 3.

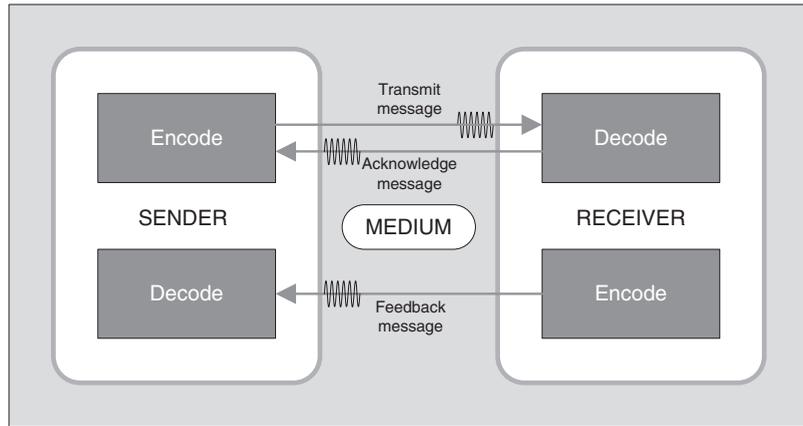
It is proffered that the theories of groupthink, team-think and communication accommodation can be used to form effective strategies to enhance the formation of trust within teams that in turn will enhance the effectiveness of communication channels within managing a project.

It has been noted within the literature that trust is a critical factor to the success of project as it facilitates clear and honest communication. But too much trust can be detrimental to the project or team as it increases the probability of negative effects of groupthink (Erdem, 2003). Clearly, establishing and maintaining a balance between distrust and trust to establish an optimal trust threshold within the project stakeholders is a considerable challenge for project managers.

We argue that the literature supports the view that there is a direct link between groupthink and the level of trust in a team. There is a need to develop an effective communication strategy to develop an optimal level of trust within a team through the mitigation of groupthink and communication accommodation and the promotion of team-think. The better the communication between stakeholders, the easier trust is built which in turn feeds back into better more open communication that can further build and develop effective trust relationships/partnerships. Thus it is a continuous cycle of communication and trust that can lead to more open and honest strategies for dealing with project issues, negotiations and any crisis that emerge. Put simply, this can be shown in Figure 1 that depicts a closed loop of ongoing sending-receiving-modifying-sending. Continuous acknowledging and modifying is required – not as often witnessed, a single message is sent (e-mailed) and the assumption then made that the receiver (stakeholder) understands implicitly.

The premise behind the proposed conceptual framework of this work, however, is that through the management of groupthink and communication accommodation, the quality

Figure 1.
Closed loop
communication model

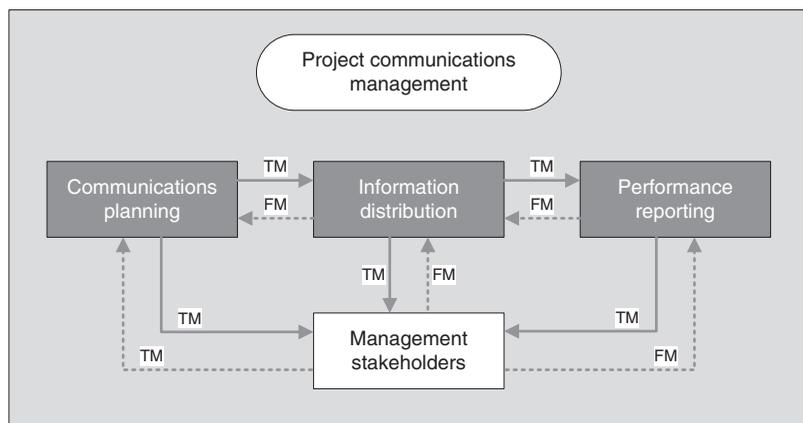


and effectiveness of the communication channels up and down a project's organizational structure will increase, allowing the project stakeholders to freely raise any concerns without fear of embarrassment and retribution, and be encouraged to express alternative solutions to problems or crisis events. This increased communication will in turn increase the amount and type of trust developed through the management of team behavior and minimization of groupthink occurring by open and effective communication channels. This cycle would continue until an optimal level of trust is established and then continue to maintain the level of trust developed. This concept is shown in Figure 2 and identifies the need for communications planning, a process for distributing applicable information to stakeholders (not "one-size fits all") and developing a mechanism to determine the efficiency and effectiveness of the communication through performance reporting.

5. Exploring the theories with a case study

Prior to undertaking extensive empirical field research, with the underlying need for development of instruments for data collection for eventual testing of propositions/hypotheses, an initial confirmation of their conceptual and theoretical validity has been

Figure 2.
Project communication
process



Notes: TM, transmit message; FM, feedback message

undertaken through grounding with a short case study. Such confirmatory reflection using published cases is an established research method (Sauser *et al.*, 2009).

In-depth case studies are appropriate for studying poorly understood phenomena (Marshall and Rossman, 2014), and where contextualization and vivid descriptions of organizational behaviors is important (Lee, 1999). The case study is an appropriate method as the question of innovation, risk and uncertainty in the T5 project is exploratory and aimed at theory building (Eisenhardt, 1989; Yin, 2013). The case was selected as it has a number of “rare or unique” qualities that make it a logical candidate for “theoretical sampling,” and it displays characteristics of a “revelatory case” (Eisenhardt, 1989; Yin, 2013). T5 presented an unusual opportunity to study a research site in which inherent risks and uncertainties are extreme and innovation is a necessity (Davies *et al.*, 2010).

Because of the lack of theories on stakeholder communication that take into account the dynamic context of project-based interventions, this research started without precise hypotheses or propositions. Instead, the research follows an approach that can best be described as theory elaboration (Ketokivi and Choi, 2014; Layder, 1993; Vaughan, 1992). Compared to testing a theory or developing a theory, in theory elaboration the empirical data serve to illustrate an existing general conceptual or theoretical framework (Ketokivi and Choi, 2014; Layder, 1993).

In the theory elaboration research approach, the emphasis is on the empirical context in which a general theory is elaborated. Our research builds on and elaborates on the generic ideas of the communication process in the context of megaprojects. In doing so, we illustrate how communication influenced the T5 case over the project lifecycle. A case study is beneficial because it facilitates the investigation of a phenomenon in its real-life context (Rowley, 2004); and second, case studies are considered suitable for research questions that ask “how” and “why” as in this study (Yin, 2013). We focus on a single project because it provides unusually revelatory information (Yin, 2013). The case is used to deepen our understanding of the developed theoretical propositions by illustrating how they can be interpreted in the analysis in a real-life project. Finally, in this paper that is primarily conceptual, the individual case study has illustrative purposes (Siggelkow, 2007).

The following section provides an overview of London’s Heathrow Terminal 5 project and illustrates how elements of groupthink, communication accommodation theory and trust are exhibited in the project, and which ultimately influenced the delivery outcome of the project-based intervention.

5.1 London Heathrow Terminal 5 airport

Despite initial problems experienced during its opening, the Heathrow Terminal 5 (T5) project is considered a success as it achieved its goals of delivering the project on time, within budget and with an exemplary safety record. A large part of its success can be attributed to British Airport Authority’s (BAA) innovative approach to project delivery.

During the planning phase, the client BAA, assembled a core team of senior managers and consultants to explore alternative practices, technologies and ideas found in other industries and megaprojects, combining these to create a new project delivery process (Davies *et al.*, 2009). The team’s knowledge of other projects and project management capabilities contributed to BAA’s decision to occupy the role of systems integrator for the project. As systems integrator, BAA was responsible for the management and governance through each phase of the megaproject and outsourced a large portion of design and construction activities, whilst maintaining in-house capabilities to integrate components and deliver a fully functioning system against time, cost and quality targets. Much of the success of this project has been attributed to the novel and innovative communication processes used; and the multiple matrix-team structures used to share experience, build trust, and support morale and motivation (Davies *et al.*, 2009).

Recognizing that the majority of megaprojects are unsuccessful based on time, cost, quality and safety objectives (Choi *et al.*, 2011), BAA conducted a study of previous megaprojects and airport projects and identified two key areas that contributed to poor performance: poor communication resulting in the lack of collaboration among project partners, and the client's reluctance to assume responsibility for project risk (Brady and Davies, 2010). To overcome these challenges, BAA developed a cost-plus incentive contract called the T5 Agreement, assumed full responsibility for the risk and worked collaboratively in integrated project teams with first-tier suppliers to create innovative solutions. Although many first-tier suppliers understood the benefits of collaborative teams, some were unwilling or unable to change their behavior. Therefore, BAA implemented a large change program to educate the supply chain and foster collaborative behaviors. In particular, communication and relationships (trust) were identified as imperative areas for improvement.

Prior to the T5 project, BAA also developed a continuous improvement project process which was primarily intended to improve the delivery of capital projects, with the longer-term objective being to utilize these capabilities in preparation for T5 (Davies *et al.*, 2009). The CIPP enabled BAA to develop capabilities in standardized designs (e.g. for offices and car parks) and modular components which could be used across routine projects, thereby enabling BAA to exploit the learning curve advantages and deliver cost-effective and profitable projects. The CIPP also helped BAA to understand its suppliers' capabilities and their ability to work under the environment of cooperation, trust and open-book accounting, which was later used under the T5 Agreement.

The T5 project was subject to a considerable number of project constraints, ranging from site constraints due to limited access and confined working areas as well as over 700 conditions including restrictions on delivery and working times. To remove potential delays, BAA used pre-assembly and pre-fabrication techniques to enable suppliers to manufacture, assemble and test components, and practice their installation before being taken to the site. Just-in-time logistics were used to maintain an effective schedule of deliveries moving through the single site entrance, which was supported by the establishment of two dedicated consolidation centers for storage and materials handling located nearby. The typical risks and uncertainties associated with integration of new technologies were minimized by implementing a policy decision to use only existing or well-established technologies. Where new technologies were introduced, they were initially tested and proven either in trial or in operational environments, before being integrated into T5.

Structural complexity was mitigated by categorizing all the T5 subprojects into four main elements: buildings, rail and tunnels, infrastructure and systems. Supplier complexity (due to the multiple number of suppliers) and information asymmetries were managed by introducing a single-model environment (SME) to ensure the same information was available to all parties involved. BAA made efforts to learn from other firms that had pioneered SME technology, and carried out continuous refinements to the SME to ensure that it was implemented and used effectively during project execution. Finally, socio-political complexity was managed by implementing integrated project teams (as discussed previously) which were co-located, co-incentivized and co-responsible for the output of their projects.

The T5 project has been hailed as a successful project and exhibits forethought and planning in appropriate communication. In summary, the communication methodology was applied to manage access and site constraints, reduce structural, supplier and socio-political complexities, and improve collaboration among project partners. Potential delays and risk were also mitigated by the implementation of pre-fabrication, pre-assembly and testing of components, and just-in-time logistics. Recognition of trust issues and the problems associated with groupthink is demonstrated in various aspects of the project, including BAA's introduction of its core project team, fostering of collaborative behaviors,

development and utilization of standardized designs, and its in-house project management capabilities. BAA's decision to take full acceptance for all project risks and implementation of a cost-plus incentive contract also assisted in improved performance, as it relieved suppliers of such burdens and encouraged innovative, collaborative behaviors. Finally, application of a communications strategy is also demonstrated through its careful selection of first-tier suppliers and the long-term partnerships it developed with its suppliers as part of the CIPP. Given the large number of external organizations involved, BAA was able to successfully manage the systems integration by working in collaborative teams and introducing the SME.

Most megaprojects are unsuccessful when measured against their time, cost, quality and safety objectives (Davies *et al.*, 2009), which may be due (in part) to the high levels of complexity and uncertainty associated with these projects. However, the T5 project provides an exemplary case of how awareness of the critical importance of communications was applied in conjunction with traditional project management practices to achieve project success.

6. Conceptual framework and testing of propositions

The conceptual framework to frame this work is depicted in Figure 3, and has been developed to scope the relationship and integration of theories discussed in this paper, namely: groupthink, communication accommodation theory and trust. By deduction and reference to the literature reviewed, several propositions have been identified to critically assess the applicability of the selected communication theories to project-based interventions.

Using the conceptual framework (Figure 3) developed from the literature we propose the following propositions for initial testing using the case of London Heathrow Terminal 5 (T5):

- P1. Recognizable features of groupthink are directly proportional to measures of team cohesiveness.

It can be observed from the case of T5 that collegiality and team development activities promoted negative aspects associated with groupthink. This first resulted in a breakdown of communication and poor team cohesiveness that ultimately led to problems during the opening of the terminal. Had the symptoms of groupthink been identified, managed and addressed there was potential that an optimal level of trust could have been developed between BAA and BA resulting in them becoming too trusting of each other and an

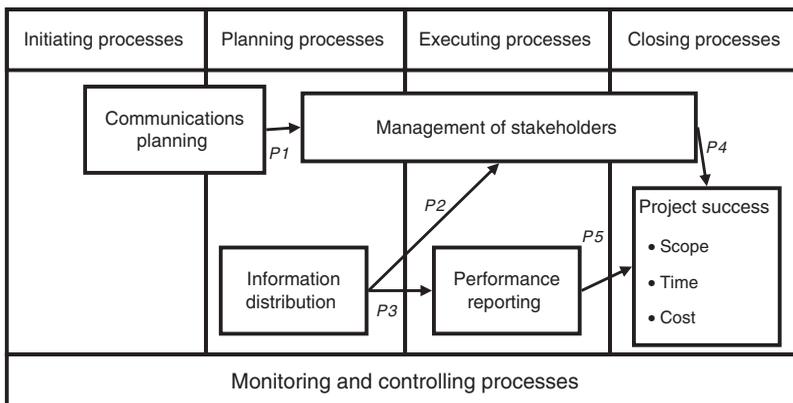


Figure 3. Conceptual framework: integration of communication theories to project management

overreliance to the problem solving process. What appeared to be open and honest communication was in fact compliance to the stringent process:

P2. Recognizable features of effective communication are directly proportional to stakeholder satisfaction.

Information dissemination is not communication. The T5 case identifies the inclusion of data management systems introduced to support the flow of information and data transference between stakeholders. What was arguably lacking, however, was a closed loop communication process that measured the degree of understanding between the multi-national and national stakeholders engaged with the project:

P3. Performance measures should promote stakeholder communication integration.

The T5 case identified performance measures that were reported to the miscellany of stakeholders. However, no recognition was acknowledged of the differing information needs of the stakeholders. Through the novel use of the T5 agreement, the risk was placed on the client (BAA) and interdependence was gained between British Airways (BA) and BAA through the 170 small integrated teams developed to deliver the project (Brady and Davies, 2010):

P4. Management of stakeholder welfare is directly related to success of project-based interventions.

P5. The relevance of the performance metrics is directly related to success of project-based interventions.

7. Discussion

The T5 project is an ambiguous success: so we consider the multidimensional approach in determining project success; and we could say that on the aspect “end-user experience” the project is, arguably, not a success. This is, in part, due to the T5 project having a myriad of stakeholders; and that they have different power-legitimacy-urgency (i.e. salience) along the project lifecycle. Whereas the end-users have a low salience in the planning and construction phases. Consequently, the developed model should include stakeholders’ considerations and their dynamic evolution during the project phases.

London’s Heathrow Airport Terminal 5 (T5) is an example of when too much trust, not enough distrust and a breakdown in communication can result in an apparent failure of communication. In March 2008, BAA opened T5 after six years of construction at a cost of £4.3 billion (House of Commons, 2008), with it being heralded a resounding success (Davies *et al.*, 2009). It was successfully completed on time and on budget (Brady and Davies, 2010). But this success did not carry over into the initial operational phase of the project. On opening day, the terminal, its owners BAA and BA were confronted by considerable problems resulting in 68 flights being canceled, 23,205 pieces of luggage requiring manual sorting, and disruptions to some 36,000 passengers. A subsequent inquiry by the House of Commons Transport Committee highlighted a lack of communication between BAA and BA, a breakdown in the integrated teams that saw the construction complete on time and budget, a lack of a contingency planning for any potential issues and too much faith in their testing regimes prior to opening – all leading to the chaos that was the opening of T5 (House of Commons, 2008; Brady and Davies, 2010).

The T5 case exemplifies how groupthink can affect communication and the outcome of a project-based intervention. The subsequent inquiry identified that while BAA and BA worked as an integrated team and had developed tightly coupled system, it failed in maintaining this in the months after construction and prior to opening (House of Commons, 2008; Brady and Davies, 2010). This was highlighted by a statement by BAA’s CEO, Colin Matthews, when asked by the Transport Committee to give the reason for the failure

on opening day, his response was: “[...] most important was the need for the airport operator [British Airport Authority] and the airline BA [British Airways] to be fully integrated [...] while this appeared to be the case during the construction of T5, around or prior to the opening of T5 it seemed that this togetherness deteriorated” (House of Commons, 2008).

It could be argued that the integrated team of BAA and BA suffered from the negative effect of groupthink as the Chief Executive Officers of both BA and BAA have stated that they relied too heavily on the result of the testing, as well as the fact that it was a state of the art building and the assumption was it would just work and everything would be all right. The inquiry found that no contingency plan was developed even though it had been highlighted by union representative that the systems were not functioning correctly; and historically there was evidence that the systems had a high chance of failing during the opening (House of Commons, 2008). These failures to communicate, integrate, and promote the common belief within senior management that all would be okay, are clear examples of groupthink. The effect ultimately caused chaos at the opening of one of the largest projects in Britain’s recent commercial history.

The T5 case also identifies important reference to the interplay recognized in communication accommodation theory. The implicit and explicit characteristics are evidenced by the way individuals interacted and accommodated the way they communicate to identify with each other. This, coupled with understanding the needs of stakeholder groups, was clearly failing in the managing of communications for T5. Appreciating communication accommodation theory may have engendered greater trust across a broad range of stakeholders and cultural situations. T5 has been identified with conflicts in heterogeneous cultural workgroups; and which would have benefitted from convergent conversations during the early development of a new trust relationship between parties (Ayoko *et al.*, 2002; Giles, 2008; Hajek *et al.*, 2008).

Within the literature it has been identified that two key conditions should be present for trust to arise: risk, as risk gives trust the opportunity to arise; thereby producing a reciprocal relationship and interdependence, where the interests of one party cannot be achieved without the reliance on the other party (Rousseau *et al.*, 1998). These conditions were clearly seen in the case of T5 especially in both the construction and operational/opening phase of the T5 as BA and BAA were heavily reliant on each other given the risk of the opportunity, successful construction and opening were dependent on both organizations trusting that the other would complete what they had agreed to do.

These two aspects of trust, deterrence-based trust and relational trust can be seen in the relationship (relational trust) between BA and BAA, in particular in the agreement (deterrence-based) binding the two organizations. The agreement, the ‘T5 Agreement’, was based on two principles the client always bears the risk and integrated project teams (Brady and Davies, 2010). It was the principle of integrated work teams that saw the use of trust having a very positive effect on the project outcome – but only in the construction phase and not the operational-opening of the terminal. The integrated teams were set-up in a way that they were within a tightly coupled system. This approach echoed an approach where individuals are co-responsible for the output and the development of solutions to problems in their teams project (Brady and Davies, 2010); and thus, making each team within the two organizations accountable for their actions.

7.1 T5 Multi-stakeholder complexities

Beyond the challenges of the main terminal buildings and new air traffic control tower the project involved new roads, hotel facilities, the diversion of two rivers, over 13 km of bored tunnel and more. The construction of T5 presented both high transaction complexity and high infrastructure complexity, so it represents a challenge also in the field of procurement management (Caldwell *et al.*, 2009).

As the case of T5 shows, risk and uncertainty in megaprojects can never be eliminated, but can be kept to a minimum by planning in advance and following carefully prepared routines to reduce the possibility of predicted outcomes from occurring. However, when megaprojects encounter unknown problems or emergent events – as they invariably always do – a well-rehearsed, automatic or pre-programmed response is not always sufficient (Davies *et al.*, 2010).

The innovation potential of megaprojects is thus subjected to a fundamental unifying tension: on the one hand, they offer a one-off opportunity to invest in cutting-edge technologies and innovate socio-technical systems; on the other hand, project stakeholders have limited time to develop capacity to absorb novel technologies and negotiate differences on assessments of profitability and risk (Gil *et al.*, 2012). Importantly, the last time BAA had opened a new terminal at Heathrow airport was in 1986 (T4), and future tenants saw in the T5 project an opportunity to modernize their operations. For BAA, the sustainability of its monopoly on the major London airports hinged in part on its capability to improve service at the Heathrow airport, which scored repeatedly low in international surveys of passengers' satisfaction. In turn, British Airways planned to exploit the move to T5 to reengineer ground operations and generate efficiencies critical to compete with the rise of low-cost carriers and global airline alliances (Gil *et al.*, 2012).

Interestingly in the T5 project, significant heterogeneity across the myriad of project stakeholders has been observed in the initial assessments and thus the perceived benefits and risks could vary significantly as a function of the stakeholders' in-house expertise, attitudes to risk and embedded commitments. Gil *et al.* (2012) also indicate that each stakeholder's in-house capacity to understand the broader impacts of adopting new technology could evolve over project time.

In addition, the performance management system of the T5 project applied a Balanced Scorecard approach involving major stakeholders and contractors (Basu *et al.*, 2009).

A major cause of the problem was BA's decision to press ahead with the opening in the knowledge that its staff had insufficient training and familiarity with the terminal's facilities and baggage handling system (Done, 2008; Williams and Done, 2008; Davies *et al.*, 2010; Doherty, 2008). Communication managers will have to determine the extent to which stakeholders need to assimilate new information and become familiar with the various abstract and technical concepts before being able to make informed judgments (Khan and Gerrard, 2006). It will be a long time before the corporate reputation of British Airways recovers from over-promising and under-delivering, massively, as they did on T5 (Balmer and Worcester, 2009).

7.2 Optimal trust

It is possible to both over and underinvest in trust, and neither is desirable from either a moral or strategic point of view. Optimal trust lays in between (Wicks *et al.*, 1999). Selecting a trust level that is too high creates a suboptimal hedge against opportunism (i.e. too few incentives to deter opportunism, given the interdependence level) and misuses the resources of both organizations (i.e. too many resources invested in creating or sustaining trust). Optimal trust is a function of the match between trust levels and levels of interdependence in firm-stakeholder relationships (Wicks *et al.*, 1999).

Some level of trust is beneficial because it enables transfer of tacit knowledge and risk taking, but firms that overinvest in trust, trust too much, or invest in trusting relationships that have little value for the firm, may be misallocating precious resources and/or taking unnecessary risks that could have substantial negative effects on their innovation performance (Xavier Molina-Morales *et al.*, 2011).

Erdem (2003) discussed optimal trust in terms of the tradeoffs between groupthink and inquiry. In simple terms, optimal trust occupies the middle ground between having too

much and too little trust in a relationship (Bruhn, 2001). The critical question is to identify the threshold conditions that specify the relative weight of trust or distrust (Choudhury, 2008). Thus, both structural and behavioral processes can serve as threshold conditions. Choudhury (2008) utilizes control and learning as the threshold conditions of trust, where control stands for the functional value of distrust and learning stands for the functional value of trust. In addition, control mechanisms have an impact on trust level and that the trust level moderates the effect of control mechanisms in determining the control level (Das and Teng, 1998).

Gargiulo and Ertug (2006) identify three problems with too much trust: diminished information gathering and processing, blind faith, complacency. Trust is not a static state, resource or medium within which interactions take place, but rather “an ongoing process that must be initiated, maintained, sometimes restored and continuously authenticated” (Flores and Solomon, 1998, p. 206).

Optimal trust can be viewed as located at the top of an inverted U, where distance from the top, in the direction of either too little or too much, indicates a deviation from “optimal” (Stevens *et al.*, 2015). Adobor (2006) confirms this shape adding that a certain amount of uncertainty is necessary for trust to emerge. Beyond some threshold, however, increases in uncertainty led to a reduction in trust. Xavier Molina-Morales *et al.* (2011) show that there is a tipping-point beyond which additional increases in trust may bring diminishing benefits, and can even decrease innovation returns for the firms involved.

Stevens *et al.* (2015) introduces the concept of reorientation and recalibrations as tools to maintain the optimal trust. Reorientation processes include significant efforts to change the attributions *vis-à-vis* past behavior, to re-establish social equilibrium among the parties, and to make structural changes via adjustments to goals and incentives. In contrast, recalibration is a process consisting of smaller actions taken proactively to keep trust near its optimum. Reorientation processes are generally triggered by a perception that trust levels are seriously suboptimal. This perception may result from dramatic events or from the realization that relational aspects that once were the basis for positive expectations are having negative consequences. In contrast, recalibration processes are perpetual and low-drama, embedded in ongoing interactions, and associated with organizational routines and associated with pragmatic problem-solving practices. While optimal trust clearly is not a fixed or quantifiable goal, the focus is on intentional and explicit learning from mistakes and deviations, and the use of continuous improvement methods to keep enhancing processes (Stevens *et al.*, 2015).

7.3 Contractual time-line pressures

In the literature it has been widely acknowledged that time pressure increases the groupthink phenomena. This aspect must be also considered in the T5 case. The optimal trust level has been kept till approaching the opening deadline, then the groupthink increased and it led to not consider the advices and symptoms of the opening failure.

By 2005 the T5 team’s sense of urgency to freeze the design became overwhelming:

We’re about 15 months from commissioning. Design needs to be finished because we’ve to build it. And the only way to drive this forward is to get ownership of areas, and get more dictatorial rather than consensual management. The tipping point should have happened, I suggest 6 months ago! (T5 Construction leader – taken from Gil *et al.* (2012)).

The sense of urgency impels project managers to ask for decisions to be made as early as possible so as to ensure there is enough time left to detail, implement and test the new technologies, whilst leaving prudently a buffer for accommodating risk. The pressure to deliver on time also creates a sense that adopting a new technology adds risk of further adaptation and derailing the project schedule. To compound the difficulties to adopt new

technologies, collective decisions that involve many equally legitimate stakeholders are unsurprisingly difficult to achieve quickly. (Gil *et al.*, 2012). In a multi-stakeholder, schedule-driven project like T5, conflicting interests and unmovable deadlines limit the stakeholders' eagerness and time to learn about new technologies, as well as to negotiate differences on assessments (Gil *et al.*, 2012).

The implementation of new technologies and the little focus on the training phase are among the causes of the opening failure.

8. Conclusions and future research direction

8.1 Key results

This paper explores communication theory, specifically groupthink and communication accommodation theory, and relevance of trust within the context of project-based interventions. Key concepts of relevant aspects of communication were identified; including the conditions and symptoms of groupthink, the applicability of groupthink in temporary organizations, and communication accommodation strategies. The inclusion, and importance, of trust was identified within temporary organizations and in the development of effective working relationships in inter-organizational projects was also provided. It was recognized that there are number of different forms of trust and that an optimal level of trust should be achieved to mitigate the chance of groupthink occurring and that a connection between trust, risk and interdependence is present within relationships. It is argued that recognition of groupthink and communication theory should be acknowledged in project-based interventions as a means of understanding team dynamics and stakeholder relationships. This understanding can then, in turn, be used to assist in the development of trust and developing an optimal level of trust between the players and key stakeholders.

8.2 Contribution

Several propositions were identified and explored using the T5 case study; and a conceptual framework developed for future testing in the field. This exploratory work has advanced the understanding of leadership of projects and it has identified several interesting phenomena: first, it is recognized that there is a linkage and a cyclical process to trust and communication and their impact on relationships and project-based intervention success. Several theories, such as communication accommodation theory and stakeholder theory, have been taken in consideration to gain insight; and consequently it has allowed new insights to communication processes and optimal trust in project-based productivity interventions.

8.3 Implications

There are several implications of this work for theory: for example, if there is a cyclical process underlying optimal levels of trust and communication that impacts on relationships, how might this be identified and actions taken accordingly? Moreover, how can measurement of healthy trust/mistrust be quantified and monitored? How might the gaps in communication accommodation strategies be bridged (can information systems and technology help)? Additionally, this work contributes to practice by reviewing a case study from an innovative perspective, and thus it provides new considerations to guide the process of decision making in project-based interventions.

8.4 Limitations and future research

The limitation of a theory-elaborating case study, such as the one utilized in this study, does not lead to a validated theory, but it does provide empirical insights and theoretical ideas for future research. Clearly there are limitations with this work: for instance, the conceptual

model uses only the T5 case; also, the interplay and dynamics of differing types of project-based interventions could be an influencing factor in outcomes that needs exploring more.

Future research could engage in collecting large-scale data from other empirical contexts to test the propositions. There is a need to quantify in detail the impact of trust, groupthink and accommodation strategies. We are particularly interested in the special aspects of multi-cultural project teams within an international context.

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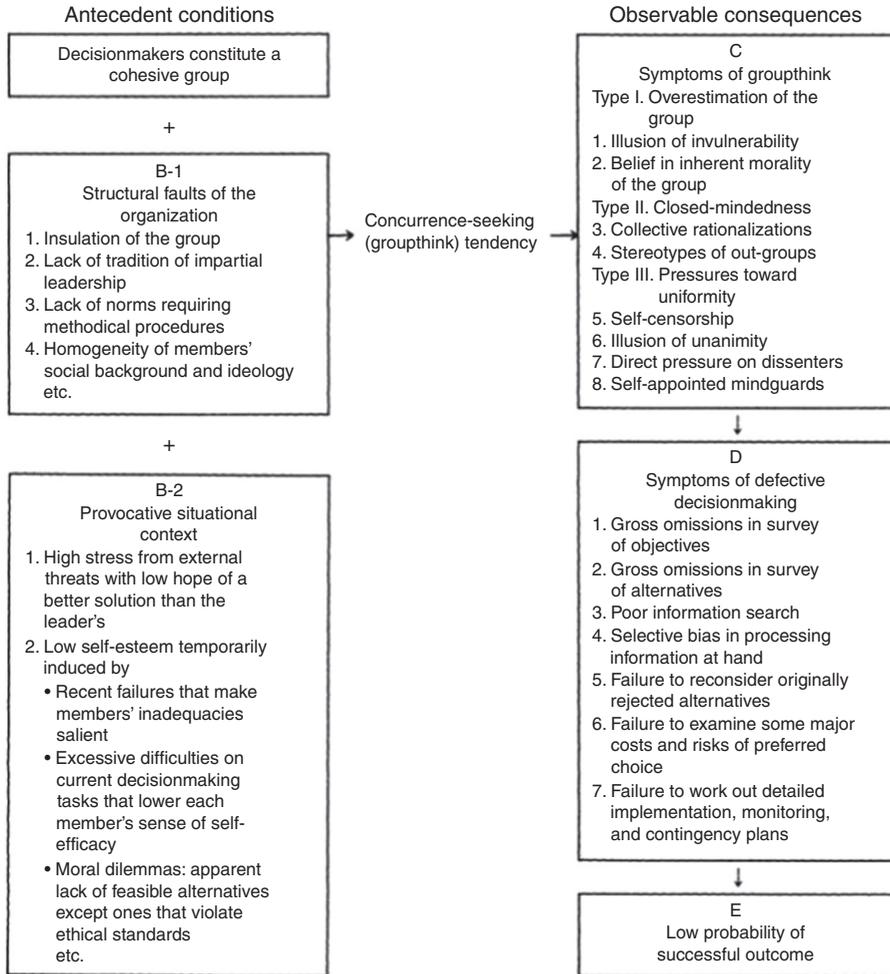


Figure A1. Janis (1972) Groupthink framework

Appendix 2

Table A1.
Summary of key
communication
theory literature

Author(s)/year	Title	Summary of article
<i>Groupthink</i> Neck and Manz (1994)	From Groupthink to team-think: toward the creation of constructive thought patterns in self-managing work teams	The authors' review Groupthink and develop a framework called team-think that establishes constructive synergistic team thinking and problem solving with its own set of antecedents and symptoms
Neck and Moorhead (1995)	Groupthink remodeled: the importance of leadership, time pressure and methodical decision-making procedures	The authors' review the original framework developed for Groupthink and propose a revised framework, that alters the role of the lead and adjust the connections between the antecedents and symptoms. It focuses its attention on the importance of time pressure and methodical procedures on the prevention of groupthink
Mohamed and Wiebe (1996)	Toward a process theory of Groupthink	The authors review and critique Janis's theory of Groupthink and propose that that theory could be developed into a process theory of Groupthink. They provide suggestions for testing Groupthink as a process theory through the use of case studies
Street (1997)	Groupthink: an examination of theoretical issues, implications, and future research suggestions	The author reexamines the theory of Groupthink and identifies four theoretical areas that were problematic to the Groupthink researchers, provided a basis for the reformulation for group cohesion and discussed issues relating to the nature of groupthink
Esser (1998)	Alive and well after 25 years: a review of Groupthink research	Provides a summary of empirical research on the theory of Groupthink. Results from two empirical research studies are compared
McCauley (1998)	Group dynamics in Janis's Theory of Groupthink: backward and forward	Examines the theoretical roots of Groupthink and proposes a broader and consistent use group dynamics research to advance of decision making problems. Reinterprets the Groupthink prediction of poor decision making occurs when group cohesion is based on the personal attractiveness of group members
Moorhead <i>et al.</i> (1998)	The tendency toward defective decision making within self-managing teams: the relevance of Groupthink for the 21st century	The authors build upon the existing framework of Groupthink and examine the variables that will affect the occurrence of Groupthink within teams
Choi and Kim (1999)	The organizational application of Groupthink and its limitations in organizations	The authors undertook a study that examined groupthink and activities in 30 organizational teams face with impending crises. Their results showed that groupthink symptoms consisted of two factors with one having a positive impact on team performance and the other having a negative impact on team performance
Henningsen (2006)	Examining the symptoms of Groupthink and retrospective sense-making	Explores the symptoms of Groupthink as two distinct and separate processes and how past research may have produced illusory correlations between the Groupthink symptoms due to retrospective sense making
Hallgren (2010)	Groupthink in temporary organizations	Builds on and contributes to the understanding of Groupthink in temporary organizations using a case study of the 1996 Everest disaster survivors

(continued)

Table AI.

Author(s)/year	Title	Summary of article
Jones <i>et al.</i> (1999)	Strategies of accommodation: development of a coding system for conversational interaction	This article explains a coding system the authors' developed to operational the strategies proposed in the communication accommodation theory (CAT) in the academic setting. With results of the study indicated that it is appropriate to conceptualize the behaviors and strategies of CAT separately
Williams (1999)	Communication accommodation theory and miscommunication: issues of awareness and communication dilemmas	The paper reviews the theories of Communication Accommodation and the typology of miscommunication and raises some issues that might be worth further research: the degree to which communicators are aware of communication strategy and the concept of accommodation dilemmas and dilemma resolution
Ayoko <i>et al.</i> (2002)	Resolving the puzzle of productive and destructive conflict in culturally heterogeneous workgroups: a communication accommodation	The authors argue, using communication accommodation theory, that the type and course of conflict in culturally heterogeneous workgroups are impacted by the behavioral communication and strategies implied by group members
Giles (2008)	Accommodating translational research	In this article, Howard Giles, reviews the translational nature of communication accommodation theory (CAT) and how it is applicable to the translation of research into practice. In particular, Giles introduces four of CAT's principle strategies as manifestations of translational communicative practices, accommodation and the under-, over- and non-accommodation versions in real world situations
Hehl and McDonald (2014)	Older adults' pain communication during ambulatory medical visits: an exploration of communication accommodation theory	The author uses the theory of communication accommodation theory as a framework to examine pain communication strategies in older patients and their primary health care providers. The author provides an extensive overview of communication accommodation theory
Parcha (2014)	Accommodating Twitter: communication accommodation theory and classroom interactions	The author uses the theory of communication accommodation to assist in encouraging his students to engage in convergent conversation away from the normal classroom setting using Twitter
<i>Groupthink</i> Choi and Kim (1999)	The organizational application of Groupthink and its limitations in organizations	The authors undertook a study that examined groupthink and activities in 30 organizational teams face with impending crises. Their results showed that groupthink symptoms consisted of two factors with one having a positive impact on team performance and the other having a negative impact on team performance
Esser (1998)	Alive and well after 25 years: a review of Groupthink research	Provides a summary of empirical research on the theory of Groupthink. Results from two empirical research studies are compared
Hallgren (2010)	Groupthink in temporary organizations	Builds on and contributes to the understanding of Groupthink in temporary organizations using a case study of the 1996 Everest disaster survivors

(continued)

Author(s)/year	Title	Summary of article
Henningsen (2006)	Examining the symptoms of Groupthink and retrospective sense-making	Explores the symptoms of Groupthink as two distinct and separate processes and how past research may have produced illusionary correlations between the Groupthink symptoms due to retrospective sense making
McCauley (1998)	Group dynamics in Janis's Theory of Groupthink: backward and forward	Examines the theoretical roots of Groupthink and proposes a broader and consistent use group dynamics research to advance of decision-making problems. Reinterprets the Groupthink prediction of poor decision making occurs when group cohesion is based on the personal attractiveness of group members
Mohamed and Wiebe (1996)	Toward a process theory of Groupthink	The authors review and critique Janis's theory of Groupthink and propose that that theory could be developed into a process theory of Groupthink. They provide suggestions for testing Groupthink as a process theory through the use of case studies
Moorhead <i>et al.</i> (1998)	The tendency toward defective decision making within self-managing teams: the relevance of Groupthink for the 21st century	The authors build upon the existing framework of Groupthink and examine the variables that will affect the occurrence of Groupthink within teams
Neck and Moorhead (1995)	Groupthink remodeled: the importance of leadership, time pressure and methodical decision-making procedures	The authors' review the original framework developed for Groupthink and propose a revised framework, that alters the role of the lead and adjust the connections between the antecedents and symptoms. It focuses its attention on the importance of time pressure and methodical procedures on the prevention of groupthink
Neck and Manz (1994)	From Groupthink to team-think: toward the creation of constructive thought patterns in self-managing work teams	The authors' review Groupthink and develop a framework called team-think that establishes constructive synergistic team thinking and problem solving with its own set of antecedents and symptoms
Street (1997)	Groupthink: an examination of theoretical issues, implications, and future research suggestions	The author reexamines the theory of Groupthink and identifies four theoretical areas that were problematic to the Groupthink researchers, provided a basis for the reformulation for group cohesion and discussed issues relating to the nature of groupthink
<i>Communication accommodation theory</i>		
Ayoko <i>et al.</i> (2002)	Resolving the puzzle of productive and destructive conflict in culturally heterogeneous workgroups: a communication accommodation	The authors argue, using communication accommodation theory, that the type and course of conflict in culturally heterogeneous workgroups are impacted by the behavioral communication and strategies implied by group members
Coupland <i>et al.</i> (1988)	Accommodating the elderly: invoking and extending a theory accommodating the elderly: invoking and extending a theory	The authors' explore the role of the elderly in sociolinguistic theory and research using the parameters of speech accommodation theory and propose a new model of intergenerational communication. They develop three new strategies for accommodation theory: interpretability, discourse management and interpersonal control

(continued)

Table A1.

Table AI.

Author(s)/year	Title	Summary of article
Coupland and Giles (1988)	The communicative contexts of accommodation	The authors argue that the accommodation model had outgrown its early life as a set of propositions and could now be viewed as a generalized model of communicative interaction. They argue that communication accommodation can be used a full-range of interpersonal address-orientated strategies in discourse where people attune their speech patterns to their audience
Giles (2008)	Accommodating translational research	In this article, Howard Giles, reviews the translational nature of communication accommodation theory (CAT) and how it is applicable to the translation of research into practice. In particular, Giles introduces four of CAT's principle strategies as manifestations of translational communicative practices, accommodation and the under-, over- and non-accommodation versions in real world situations
Hehl and McDonald (2014)	Older adults' pain communication during ambulatory medical visits: an exploration of communication accommodation theory	The author uses the theory of communication accommodation theory as a framework to examine pain communication strategies in older patients and their primary health care providers. The author provides an extensive overview of communication accommodation theory
Jones <i>et al.</i> (1999)	Strategies of accommodation: development of a coding system for conversational interaction	This article explains a coding system the authors' developed to operational the strategies proposed in the communication accommodation theory (CAT) in the academic setting. With results of the study indicated that it is appropriate to conceptualize the behaviors and strategies of CAT separately
Parcha (2014)	Accommodating Twitter: communication accommodation theory and classroom interactions	The author uses the theory of communication accommodation to assist in encouraging his students to engage in convergent conversation away from the normal classroom setting using Twitter
Williams (1999)	Communication accommodation theory and miscommunication: issues of awareness and communication dilemmas	The paper reviews the theories of communication accommodation and the typology of miscommunication and raises some issues that might be worth further research: the degree to which communicators are aware of communication strategy and the concept of accommodation dilemmas and dilemma resolution

Appendix 3

Project-based interventions

Author(s)/year	Title	Summary of article
Mumms (1995)	Potential influence of trust on the successful completion of a project	The author suggests that the initial opinions of the project team members entering a temporary organization, such as a project, are important on the spiral of increasing or decreasing trust. The author provides methods of reversing the initial outcome of mistrust should it arise and enable the project manager to build a more positive project environment
Lewicki <i>et al.</i> (1998)	Trust and distrust: new relationships and realities	The authors propose a theoretical framework for understanding simultaneous trust and distrust within relationships and explore the theoretical and practical signification for future research on the topic area
Rousseau <i>et al.</i> (1998)	To special topic forum: not so different after all: a cross-discipline view of trust	This article takes a cross-discipline view of trust with the view of adopting a multi-disciplinary view of trust and seeks to identify the shared understandings of trust. The author identifies the link between trust, risk and interdependence in many forms of relationships and notes that there are many forms of trust
Kasper-Fuehrer and Ashkanasy (2001)	Communicating trustworthiness and building trust in inter-organizational virtual organizations	A theory of trust in inter-organizational virtual organizations is proposed that is focused on building trustworthiness in that type of environment. The author's noted that three issues, communication of trustworthiness facilitated by ICT, the establishment of business understanding and business ethics were required to overcome build trust in these types of organizations
Erdem (2003)	Optimal trust and teamwork: from groupthink to team think	The author suggests that there is an optimal level of trust needed in team situations where there is a balance between trust and distrust. The author states that too much trust can lead to a negative impact on the project performance with evidence that too much trust can lead to Groupthink but the optimal balance can lead to team-think
Ibbott and Keefe (2004)	Trust, planning and benefits in a global inter-organizational system	The article explores the role and nature of trust, benefit and planning in the development of relationships in inter-organizational systems
Kadefors (2004)	Trust in project relationships-inside the black box	Using a general theory of trust, the author discusses the factors that influence the development of trust in client-contractor relationships and the effect the level of trust has on the contractual relation between the client and the contractor
Chen and Chen (2009)	Advanced multi-phase trust evaluation model for collaboration between coworkers in dynamic virtual project teams	The authors' review the challenge of developing trust in virtual project team (VPT) and builds an evaluation model to evaluate the trust of the lifecycle of a VPT

(continued)

Table AII.

Author(s)/year	Title	Summary of article
Greenwood and Van Buren III (2010)	Trust and stakeholder theory: trustworthiness in the organization-stakeholder relationship	The construct of organizational trustworthiness developed herewith is presented as a possible solution to the problem of unfairness in organization-stakeholder relations. While organizational trustworthiness does not create an ethical obligation where none existed before, stakeholders who lack power will likely be treated fairly when organizational trustworthiness is present
Maurer (2010)	How to build trust in inter-organizational projects: the impact of project staffing and project rewards on the formation of trust, knowledge acquisition and product innovation	The paper analyzes the outcomes and antecedents of trust in inter-organizational projects and identifies that trust between the project team members positively impacts on the acquisition of knowledge and product innovation. The paper also reveals that a stable project team and effective project objectives facilitate the development of trust
Smyth <i>et al.</i> (2010)	The value of trust in project business	The paper looks at establishing a value of trust in business with a particular emphasis on the financial value of trust and revisits the concept of trust. It argues for the establishment of a interpretative and socially constructed nature of trust
Zeffane <i>et al.</i> (2011)	Communication, commitment and trust: exploring the triad	This work examines the interplay between the issues of communication, trust and commitment. The results demonstrate the importance of effective communication within organizations as it relates to trust and organizational commitment. In particular, the study shows that trust and commitment do not just happen; they are forged and maintained through effective communication
Brewer and Strahom (2012)	Trust and the Project Management Body of Knowledge	The authors look at the extent to which "trust" is reflected in the functional description of project managers per the Project Management Body of Knowledge (PMBoK). It acknowledges that trust is first referenced in the fourth edition but only as desirable characteristics in the project environment. The authors note the trust requires a greater consideration in what is required to have successful project
Olson and Olson (2012)	Virtual team trust: task, communication and sequence	This study aims to examine the impact of communication medium, and sequence of conditions on trust in virtual teams. The work confirms that richer communication media have increased individual perceptions of trust

(continued)

Author(s)/year	Title	Summary of article
Rose and Schlichter (2013)	Decoupling, re-engaging, Managing trust relationships in implementation projects	The authors' investigate evolving trust relationships in longitudinal studies and develop two approaches to managing dynamic trust relationships – decoupling and re-engaging
Müller <i>et al.</i> (2014)	Ethics, trust, and governance in temporary organizations	The authors investigate the influence of governance structures of temporary organizations on the ethical issues faced by its managers, how they respond to these issues, and how that influences trust among stakeholders
Brewer and Strahorn (2012)	Trust and the Project Management Body of Knowledge	Four different approaches to the governance of projects are investigated and higher levels of trust are found in stakeholder-oriented governance, which can reduce transaction costs. The authors look at the extent to which "trust" is reflected in the functional description of project managers per the Project Management Body of Knowledge (PMBoK). It acknowledges that trust is first referenced in the fourth edition but only as desirable characteristics in the project environment. The authors note the trust requires a greater consideration in what is required to have successful project
Chen and Chen (2009)	Advanced multi-phase trust evaluation model for collaboration between coworkers in dynamic virtual project teams	The authors' review the challenge of developing trust in virtual project team (VPT) and builds an evaluation model to evaluate the trust of the lifecycle of a VPT
Erdem (2003)	Optimal trust and teamwork: from groupthink to team think	The author suggests that there is an optimal level of trust needed in team situations where there is a balance between trust and distrust. The author states that too much trust can lead to a negative impact on the project performance with evidence that too much trust can lead to Groupthink but the optimal balance can lead to team-think
Ibbott and Keefe (2004)	Trust, planning and benefits in a global inter-organizational system	The article explores the role and nature of trust, benefit and planning in the development of relationships in inter-organizational systems
Lewicki <i>et al.</i> (1998)	Trust and distrust: new relationships and realities	The authors propose a theoretical framework for understanding simultaneous trust and distrust within relationships and explore the theoretical and practical signification for future research on the topic area
Kadefors (2004)	Trust in project relationships-inside the black box	Using a general theory of trust, the author discusses the factors that influence the development of trust in client-contractor relationships and the effect the level of trust has on the contractual relation between the client and the contractor

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Table AII.

Author(s)/year	Title	Summary of article
Kasper-Fuehrer and Ashkanasy (2001)	Communicating trustworthiness and building trust in inter-organizational virtual organizations	A theory of trust in inter-organizational virtual organizations is proposed that is focused on building trustworthiness in that type of environment. The author's noted that three issues, communication of trustworthiness facilitated by ICT, the establishment of business understanding and business ethics were required to overcome build trust in these types of organizations
Maurer (2010)	How to build trust in inter-organizational projects: the impact of project staffing and project rewards on the formation of trust, knowledge acquisition and product innovation	The paper analyzes the outcomes and antecedents of trust in inter-organizational projects and identifies that trust between the project team members positively impacts on the acquisition of knowledge and product innovation. The paper also reveals that a stable project team and effective project objectives facilitate the development of trust
Mumms (1995)	Potential influence of trust on the successful completion of a project	The author suggests that the initial opinions of the project team members entering a temporary organization, such as a project, are important on the spiral of increasing or decreasing trust. The author provides methods of reversing the initial outcome of mistrust should it arise and enable the project manager to build a more positive project environment
Rose and Schlichter (2013)	Decoupling, re-engaging: Managing trust relationships in implementation projects	The authors' investigate evolving trust relationships in longitudinal studies and develop two approaches to managing dynamic trust relationships – decoupling and re-engaging
Rousseau <i>et al.</i> (1998)	To special topic forum: not so different after all: a cross-discipline view of trust	This article takes a cross-discipline view of trust with the view of adopting a multi-disciplinary view of trust and seeks to identify the shared understandings of trust. The author identifies the link between trust, risk and interdependence in many forms of relationships and notes that there are many forms of trust
Smyrn <i>et al.</i> (2010)	The value of trust in project business	The paper looks at establishing a value of trust in business with a particular emphasis on the financial value of trust and revisits the concept of trust. It argues for the establishment of a interpretative and socially constructed nature of trust

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