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The role of communication style in adaptation to interorganizational project disruptions

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Abstract

Interorganizational projects often suffer disruptions that require participating organizations to adapt in order to restore project operations. We study the role of communication style in facilitating adaptation to such disruptions. Whereas the literature on interorganizational communication has emphasized communication mode and frequency, we study the content and features of written communication in seven U.K. construction projects. Communication style mattered for adaptation quality in these projects, and we found that several properties of communication style were particularly important for adaptation: cost and information orientation, as well as informality, precision and authenticity. Moreover, managerial slack and organizational reputation were important precursors of communication style. These results provide novel insights into the role of communication style in adaptation to interorganizational project disruptions. We discuss the implications of these insights for research on interorganizational projects in operations and supply chain management.

KEYWORDS

adaptation, communication, construction industry, disruptions, interorganizational projects, multiple-case study

1 | INTRODUCTION

Successful project management is an elusive endeavor. A global survey conducted by the Project Management Institute (PMI) estimates that roughly $2 trillion dollars are wasted every year due to poor project management practices (PMI, 2018). Project management in industries such as construction, shipbuilding, information technology, film and television, and aerospace is challenging requiring dozens of independently owned organizations to work together for a short period (Mishra & Browning, 2020; Parvan et al., 2015).

Successful project delivery hinges on continuous communication—information sharing and processing—among project organizations (Galbraith, 1973; Oke & Idiagbon-Oke, 2010). Superior communication can engender commitment and trust (Brinkhoff et al., 2015; Gligor & Autry, 2012) while low-grade communication can derail problem-solving efforts (Foss et al., 2016; Mohr & Spekman, 1994). However, while the operations and supply chain management literature has studied the frequency and mode of communication in interorganizational projects, research has overlooked communication content, thus falling short of elucidating about the role of communication

content in engendering information sharing (Kaufmann et al., 2022; Srivastava & Chakravarti, 2009). A better understanding of the role of communication for promoting specific behaviors calls for attention to *what* is written or said ("communication content") as well as *how* it is written or said ("communication properties"). In this paper, we study the role of *communication style*, defined as a repeated pattern in both the content and properties of an individual's or organization's communication, in adaptation to disruptions in interorganizational projects.

Scholars have studied the role of transactional and relational contracting to support interfirm cooperation and successful delivery of joint projects (Akkermans et al., 2019; Tangpong et al., 2010). Previous research has shown that project relationships often rely on a combination of relational norms to achieve cooperation and transactional mechanisms such as contractually-stipulated economic incentives, formal dispute resolution procedures, and legal rules (Cao & Lumineau, 2015; Liu et al., 2009). While some of these studies have pointed to information exchange as a key component of relational contracting (Heide & John, 1992; Zhou et al., 2014), research falls short of studying the ways in which the communication content may also be a manifestation of relational contracting. Our study speaks to the ways in which this manifestation may occur, particularly when prior relationships between firms are absent, so that elements of the relational contracting are "spontaneous." Spontaneous relational contracting is usually developed prior to interaction or upon the very first encounter, which is different from relational norms and trust developed through repeated interactions (Meyerson et al., 1996; Schilke & Huang, 2018). Such relational contracting is similar to "swift trust," defined as trust that is formed based on second-hand knowledge derived from social categorization and institutions (McKnight et al., 1998).

Communication matters because interorganizational projects repeatedly face disruptions that call for adaptation by participating organizations (Choo et al., 2015; Keller et al., 2021; Maylor et al., 2018). Adaptation refers to actions taken in response to a disruption enabling a project (or transaction) to progress toward completion (Gulati et al., 2005; Williamson, 1991). Disruptions can be triggered by events that occur outside an interorganizational project (e.g., a regulatory change); by events occurring within one of the partnering organizations but initially outside the scope of the project (e.g., personnel turnover); or by specific events that occur during the course of the project (e.g., a partner neglects its responsibility). We study the last type of disruptions, which has also been referred to as "disturbances" (Ashby, 1952), "exceptions" (Galbraith, 1973) and "glitches" (Hoopes & Postrel, 1999; Mishra & Sinha, 2016). We explore disruptions that occur when one or more firms

participating in projects fail, either intentionally or unintentionally, to carry out an assigned task. Firms must therefore identify workable solutions together with their partners in order to avoid delays and extra costs that would arise from deficient or absent adaptive action.

Because in an interorganizational project no single firm enjoys hierarchical authority over its partners, disruptions cannot be resolved by simply referring the issue to a more senior manager. Reducing information processing needs is also usually not an option given the information processing requirements for project completion (Galbraith, 1973; Stock & Tatikonda, 2000). Moreover, disruptions also cannot be contracted against entirely (Williamson, 1985) because the details of them are impossible to anticipate. Therefore, in this context, communication "is necessary to create awareness about others' actions" (Gulati et al., 2005, p. 423) and can become an important mechanism for achieving adaptation. However, while communication has been discussed as a means to influence expectations and commitment, and thereby cooperation (Mohr & Nevin, 1990; Narayanan et al., 2011), extant research is silent about communication as a means to promote adaptation to disruptions. In particular, research has paid little attention to communication style; namely, a consistent pattern in *what* (content) and *how* (properties) messages are conveyed among interorganizational project participants. Therefore, our first research question is: *How does communication style support or hinder adaptation to disruptions in interorganizational projects?*

The literature on relational contracting suggests that communication style may in part be driven by a history of prior transactions. For example, Gligor and Autry (2012) and Huang et al. (2008) report that social ties between managers influence communication between parties. However, little attention has been paid to exchanges that lack prior ties, raising the question of the antecedents of communication style when partners do not share a prior relationship. Moreover, other possible antecedents of communication style have been little explored. For example, managers might choose a communication style that helps to further their firm's strategy. Thus, a second interrelated research question is: *What determines communication style in interorganizational projects?*

By exploring the effects of communication style on adaptation, our study augments organizational information processing theory (OIPT) (Galbraith, 1973; Tushman & Nadler, 1978)—a theoretical approach that operations management scholars have frequently drawn upon (Peng et al., 2014; Srinivasan & Swink, 2015, 2018). According to OIPT, organizations are designed so that information flows in directions and volumes that satisfy the organization's information processing requirements

as set by its environment, thereby achieving "fit." Our paper extends this approach in two ways: (1) by studying the style ("what and how") of information flows, rather than their directions and volume only, and (2) by studying dynamics of differential adaptation to disruptions (also called "exceptions" in OIPT) within a given organization structure, rather than the fit between structural choices and information processing. We suggest that, in the future, OIPT could be developed to incorporate these two elements, thereby going beyond static organizational design to analyze differential (dynamic) adaptation to disruptions ("exceptions") in interorganizational projects. Another contribution is to the relational contracting literature in operations management (Mahapatra et al., 2010; Zhou et al., 2014). In contrast to common analyses of the shadows of the past and the future, we explore aspects of the relational contract during the focal transaction. We show how communication as a manifestation of relational contracting may occur in the absence of prior relationships.

We address our research questions using an inductive, multiple-case study approach (Eisenhardt, 1989; Ketokivi & Choi, 2014). This research design was suitable given the scarcity of prior research about the communication-adaptation link, and the opportunity to study multiple cases as a way to control for the impact of factors that might be idiosyncratic to an individual project. The disruptions in each project are the basic unit of analysis. We studied formal meeting minutes, reports, and digital logs of government-financed low income housing projects in the U.K. Such forms of communication are common in interorganizational projects (Foss et al., 2016). An unusual feature of our analysis is that we were able to study written communication, rather than having to rely on self-reported perceptions of it, as is common in the literature on communication style (Joshi, 2009; Prahinski & Benton, 2004). Written communication captures "an essential aspect of the conceptual apparatus through which we apprehend and engage in the world" (Langacker, 2008, p. 4).

Our study elucidates how and why communication styles differed systematically across projects for which adaptation to similar disruptions was consistently higher or lower in quality. First, we specify that communication content in our projects followed one of two approaches, with each bearing different implications for adaptation. Projects for which adaptation quality was higher featured communication styles in which greater attention was paid to reducing other participants' costs, and to information accuracy. In projects with persistent low-quality adaptation to disruptions, communication styles emphasized shifting costs onto other participating organizations and a lax approach to information accuracy. Perhaps against expectations, communication with a strong orientation toward own-cost reduction backfired, leading to poor adaptation and extra costs in these cost-driven projects. Second, our case analysis suggests that communication content enhanced adaptive action through three well-defined linguistic properties: informality, precision, and authenticity. Third, we show that two related constructs were important drivers of the communication style used in our cases: managerial slack and organizational reputation. Organizations with stronger reputations for project performance in the U.K. construction industry, and with less managerial slack available, consistently displayed an own-cost orientation in their communication content, and communicated with less informality, precision, and authenticity. As a result, adaptation to disruptions in their projects was worse. The opposite was the case for less well-known organizations with more managerial slack available.

Our findings augment the operations literature on communication (e.g., Paulraj et al., 2008) by providing preliminary evidence that communication styles contribute to differential adaptation to disruptions in interorganizational projects.

2 | CONCEPTUAL BACKGROUND

Communication is touted as the "glue" that holds parties together in interorganizational projects (Mohr & Nevin, 1990, p. 36) by facilitating the transmission of persuasive information (Ahearne et al., 2022; Paulraj et al., 2008). The importance of communication is also mentioned as part of relational contracting (Heide & John, 1992; Zhou et al., 2014), but the role of communication in adaptation to disruptions in interorganizational projects is little-studied in that literature.

2.1 | Communication content in interorganizational projects

The literature on communication in operations and supply chain management and marketing has focused on communication frequency and modality, while communication content, as "the message that is transmitted" (Mohr & Nevin, 1990, p. 39) has been much less studied. Table 1 provides an overview of this literature.

Scholars of communication distinguish formal communication content from informal communication content (Carr & Pearson, 1999; Mohr et al., 1996). Gundlach and Cadotte (1994) and Fisher et al. (1997) examined the degree of perceived coerciveness conveyed in messages between parties. More recently, Srivastava and Chakravarti (2009) show that detailed messages (e.g., inclusion of information

TABLE 1 Literature on communication in interorganizational projects

Research question (communication-focused)	Communication facets				Industry setting and data type			Level of analysis	Antecedents and consequences of communication		Link to OSCM topics
	Freq.	Direc.	Modal.	Content	Industry	Percep.	Concrete		Determ.	Conseq.	
Anderson and Weitz (1989) How does trust and communication influence the continuity of the relationship?	X	X			Electronics	X		Dyad	X	X	Tie continuity
Brinkhoff et al. (2015) What is the effect of trust on project performance? To what extent do commitment and communication mediate this relationship?	X				Multiple	X		Project	X	X	Trust, commitment
Chen et al. (2004) To what extent does strategic purchasing foster (via communication) supply management capabilities?	X				Manufacturing	X		Firm	X	X	Customer responsiveness
Cousins and Menguc (2006) How do buyers use supply chain integration and socialization to improve supplier communication and operational performance?			X		Multiple	X		Firm	X	X	Socialization, performance
Ebadi and Utterback (1984) To what extent does interorganizational communication affect technological innovation?	X		X		Marine biology	X		Project	X	X	Innovation
Gligor and Autry (2012) How do personal ties between employees of supply chain partner firms impact business-related communication processes?	X		X		Logistics	X		Firm	X	X	Personal ties
Huang et al. (2008) To what extent do communication channel and the complexity involved in the purchase influence trust?			X		Multiple (students)	X	X	Firm	X	X	Trust
Hutchison-Krupat (2018) How do incentives and senior leadership's communication influence an organization's portfolio decisions, and profitability?				X	Formal model	X		Firm	X	X	Profitability

TABLE 1 (Continued)

Research question (communication-focused)	Communication facets				Industry setting and data type			Level of analysis	Antecedents and consequences of communication		Link to OSCM topics
	Freq.	Direc.	Modal.	Content	Industry	Percep.	Concrete		Determ.	Conseq.	
Johnsen et al. (2020) How do communication media affect cooperation when the buyer has private information about the end-customer demand?			X		Multiple (students)	X		Firm		X	Cooperation
Joshi (2009) How does collaborative communication foster continuous supplier performance improvement? What are the combined effects of collaborative communication and control?	X	X	X	X	Multiple	X		Firm		X	Commitment, knowledge
Kaufmann et al. (2022) How can buyers use narratives in different power situations to influence suppliers and improve their negotiation outcomes?			X		Multiple	X		Firm		X	Power, negotiation
Koza and Dant (2007) To what extent do communication strategies affect conflict resolution behaviors? To what extent relationship climate and control mechanisms influence communication strategies?		X			Retailing	X		Firm	X	X	Control, conflict
Lawson et al. (2008) To what extent does communication frequency affects performance improvement reported by buying firms?	X		X		Manufacturing	X		Firm		X	Social capital
Modi and Mabert (2007) To what extent does communication mediate the relationship between operational knowledge transfer activities and supplier performance improvement?	X				Manufacturing	X		Firm	X	X	Knowledge transfer

(Continues)

TABLE 1 (Continued)

Research question (communication-focused)	Communication facets				Industry setting and data type			Antecedents and consequences of communication			
	Freq.	Direc.	Modal.	Content	Industry	Percep.	Concrete	Level of analysis	Determ.	Conseq.	Link to OSCM topics
Mohr and Sohi (1995) To what extent do information sharing and communication (i.e., frequency, bidirectionality, and formality) influence dealer's perception of communication quality and satisfaction with communication?	X	X	X		Electronics	X		Firm	X	X	Satisfaction
Narayanan et al. (2011) How does communication effectiveness impact project performance and customer satisfaction?	X	X			IT services	X		Project	X	X	Project performance
Oke and Idiagbon-Oke (2010) To what extent do communication channel types influence social ties and innovation project development time?	X	X			Government	X		Individual	X	X	Innovation
Paulraj et al. (2008) To what extent does interorganizational communication mediates the links between antecedents (i.e., long-term relationship orientation, network governance, information technology) and outcome variables (i.e., buyer's and supplier's performance)?	X				Manufacturing	X		Firm	X	X	Strategic collaboration, performance
Prabinski and Benton (2004) Is the impact of the buying firm's strategy for communicating supplier performance evaluations mediated by the buyer–supplier relationship and supplier's commitment? Do suppliers perceive that the buying firm's communication of the evaluation affects their performance?	X	X	X		Automobile	X		Firm	X	X	Innovation

TABLE 1 (Continued)

Research question (communication-focused)	Communication facets				Industry setting and data type			Antecedents and consequences of communication			
	Freq.	Direc.	Modal.	Content	Industry	Percep.	Concrete	Level of analysis	Determ.	Conseq.	Link to OSCM topics
Ross et al. (1997) To what extent does the frequency of two-way communication influence the perceiver's estimate of asymmetry in commitment relationship?	X	X			Insurance	X		Firm		X	Commitment
Srivastava and Chakravarti (2009) How do communication types (i.e., informational, relational, and coercive messages) and mutual trustworthiness reputations influence sequential bargaining between an uncertain manufacturer and an informed distributor?				X	Multiple (students)		X	Firm		X	Negotiation
Van De Vijver et al. (2011) How does socialization influence communication quality between buying and supplying companies over time?				X	Logistics and IT services	X		Dyad	X		Socialization
Wu et al. (2017) To what extent does communication (i.e., formal, informal and willingness) influence conflict (i.e., task, process, and relationship)?	X	X			Building	X		Project		X	Conflict
Yan and Dooley (2013) How do intensive communication and congruent goals influence project performance, under various conditions of uncertainty?	X				Multiple	X		Project		X	Innovation
Zhang et al. (2011) To what extent does the purchasing agent's strategic communication capability influence the supplier's trust of the buying firm?				X	Automotive and food	X		Firm		X	Trust

(Continues)

TABLE 1 (Continued)

Research question (communication-focused)	Communication facets				Industry setting and data type			Level of analysis	Antecedents and consequences of communication		
	Freq.	Direc.	Modal.	Content	Industry	Percep.	Concrete		Determ.	Conseq.	Link to OSCM topics
This study — How does communication style support or hinder adaptation to disruptions in interorganizational projects? What determines communication style in interorganizational projects?				X	Building		X	Disruption and project	X	X	Adaptation quality to disruptions

Note: We searched the articles published between 1988 and 2022 (up to February) in the following outlets: *International Journal of Project Management, Journal of Marketing Research, Journal of Marketing, Journal of Operations Management, Journal of Retailing, Journal of Supply Chain Management, Management Science, Manufacturing and Service Operations Management, Operations Research and Production and Operations Management.*

about a product) result in quicker agreement between manufacturers and distributors than the communication of offers and counteroffers only. Joshi (2009) shows that the extent to which suppliers' perceptions of manufacturers' use of reasoning and logical argumentation during communication with suppliers enhances the suppliers' knowledge and commitment. Van De Vijver et al. (2011)'s case study suggests how past conflicts can undercut the commonly reported enabling role of socialization on perceptions of communication quality (e.g., open dialogue). Because these studies rely mainly on self-reported survey data, these studies are limited to analyzing perceptions of, rather than actual, communication content.

The marketing literature on sales processes has studied differences in the patterns by which buyers communicate with salespeople, and described such patterns as "communication styles" (McFarland et al., 2006; Sheth, 1976). This research stream also does not study the details of communication content and properties. There is therefore a paucity of evidence in the operations, supply chain, and marketing literatures on how communication style influences actions.

The literatures in management and communication studies, on the other hand, do study how the structure of the message—its "linguistic properties"—influences others' actions. Managers' use of specific words and formulations encapsulate deliberate strategies (Um et al., forthcoming). Notably, disruptions may stimulate managers' use of different linguistic properties aimed at, for example, creating a sense of urgency and aligning the parties' interests (Leonardi et al., 2012). These studies of linguistic properties explore how managers cognitively construe goals and events (Chung & Pennebaker, 2008; Langacker, 2008). In a study of corporate reports about sustainability practices to shareholders, for example, Crilly et al. (2016) analyze the managers' use of "exclusion words" (e.g., "however," "but") as a way to gauge the degree of transparency in communications about the organizations' environmental sustainability goals. The use of exclusion words is generally understood to denote transparency; that is, explicit and detailed information about goals, obligations and benefits (Crilly et al., 2016). Linguistic properties thus offer a glimpse into managers' communication styles (Choudhury et al., 2019).

Overall, research about the antecedents of communication styles—entailing both content and properties—is limited (see Table 1). Communication style may in part be driven by history of prior transactions (Poppo & Zenger, 2002; Tangpong et al., 2010; Zhou et al., 2014). Personal relationships (Gligor & Autry, 2012) are associated with transparent communication, while trust increases perceived communication informativeness in supply chain projects (Brinkhoff et al., 2015). The management and

communication literatures touch only indirectly on the antecedents of linguistic properties (e.g., Graf-Vlachy et al., 2020; Streufert et al., 1968). The lack of more sustained attention to the precursors of communication styles is surprising, especially in supply chain projects in which participating organizations rely so heavily on communication for successful project completion (Lawson et al., 2008; Prahinski & Benton, 2004).

2.2 | Adaptation to disruptions in interorganizational projects

"Disruptions" generally refer to shocks or changes in the environment in which the parties are transacting, such as a drastic change in an input price. In most projects, however, the more fundamental challenge facing the firms involves not so much major shocks, but more "mundane" disruptions: those that arise because of errors of inattention, misalignment of actions, or failure to apply full effort (Simon, 1973). While each disruption may have a relatively small effect on the cost of a project or the timeliness of its completion, the accumulation of many mundane disruptions may severely compromise the project delivery (Mishra & Sinha, 2016).

Communication is important for adaptation in interorganizational projects because many of the participating firms' tasks are specialized and highly interdependent with each other, in that one task cannot be completed until another is completed. The way in which one task is carried out often significantly affects the ways and order in which other tasks must be executed (Masten et al., 1991). Disruptions in projects can be understood as "exceptions" that cannot simply be passed on to a manager in charge, as OIPT would suggest (Galbraith, 1973). Persuasive communication is instrumental for adaptation in such projects because multiple firms are involved over which no firm enjoys hierarchical authority. Formal contracts provide some control, but litigation delays and costs, and the difficulty of stipulating unforeseeable contingencies, limit their usefulness for timely adaptation (Gulati et al., 2005; Williamson, 1985).

Despite extensive research on the linkages between communication and strategic outcomes, the paucity of research about communication in operations and supply chain management has contributed to a poor understanding of how communication influences action and strategic outcomes in interorganizational projects. The origins of this shortcoming are primarily three: relatively little attention to communication content, focus on perceived communication content rather than actual messages, and limited attention to the precursors of communication styles.

3 | INDUSTRY SETTING AND RESEARCH DESIGN

We study seven low income housing projects funded by the U.K.'s National Affordable Housing Programme, in which a local government housing authority was the customer. Each project was carried out by a main contractor, various subcontractors, and an agent (consultant) hired by the customer to advise and act on its behalf. The main criterion by which customers choose among bidders for a project was the fixed price quoted by the bidding contractor. By regulation, customers could not give weight to any previous dealings with a given main contractor. As an industry veteran explained to us, "Clients don't work with the same contractors repeatedly mainly due to OJEU [Official Journal of the European Union] procurement rules; meaning each job is competitively tendered. Clients who do want to work with the same contractor over and over would usually enter into a partnering arrangement, but this is quite rare in today's market." Five additional industry experts whom we contacted (C-suite managers) explained that prior ties are rare for small and publicly-funded building projects in the U.K.

Fixed prices put strong pressure on contractors to keep costs low, and therefore to choose subcontractors based on cost rather than other criteria such as previous relationships with them. Unanticipated costs based on site-specific circumstances could be passed on to the customers, but had to be extensively justified, and were subject to auditing by independent cost consultants (U.K. Ministry of Housing, Communities and Local Government, 2013).

We emphasize the lack of repeated relationships in these projects in order to rule out an alternative explanation for our findings regarding the importance of communication style for successful adaptation in our projects. Namely, communication styles in the projects may have been determined by previous relationships between the parties, thus supporting some "relational contracting" (Macneil, 1980). Indeed, studies of relational contracting have overwhelmingly emphasized repeated interactions as their basis (Cao & Lumineau, 2015; Liu et al., 2009). We discuss this point in more detail below.

We used an inductive, comparative case study approach to study our projects (Eisenhardt & Graebner, 2007; Meredith, 1998). Induction allowed for the discovery of relationships among concepts that have not been previously theorized (Yin, 1994). A multi-case study design was appropriate because theorizing from a single case (i.e., project) is vulnerable to the idiosyncratic nature of individual projects. We aimed to compare cases in order to identify potentially generalizable insights about the determinants of successful adaptation to disruptions in interorganizational

projects (Eisenhardt, 1989). The joint use of within- and cross-case comparisons strengthens both the internal validity and external validity of newly reported relationships between concepts (Ketokivi & Choi, 2014; Leonard-Barton, 1990).

3.1 | Case selection

Consistent with the qualitative research tradition (Eisenhardt, 1989; Strauss & Corbin, 1990), we selected our cases based on their relevance to our research question. First, we aimed to minimize extraneous sources of variation among cases (Eisenhardt, 1989). For example, coordination needs in large and complex infrastructure projects differ from those in small and medium-sized projects, but a new school building also differs from a housing development. We therefore selected cases within the same building typology.

Second, we drew on seven cases of social (low income) housing projects in the U.K. These were typical housing projects in which multiple organizations came together over a period of time to deliver a low-cost building. We were motivated in part by interest in government efforts to address the long-standing housing shortage in the U.K. (Hills, 2007). The provision of decent social housing reduces poverty, enhances well-being and contributes to more inclusive, safer and resilient communities. Table 2 provides an overview of the seven projects. The average value of the projects was £1.8 million (SD = £900,627). The average construction time was about 15 months (SD = 5.62), involving an average of 40 independent organizations (SD = 13.46) working together in the project. The projects were completed between 2008 and 2011. Although each project was different along some dimensions, these projects were quite similar in terms of technical complexity, particularly given the wide range of project sizes and costs in the construction industry (Parvan et al., 2015).

Third, the organizational arrangements were similar across the seven projects, and were typical for small scale projects in the U.K. (also in the U.S.) construction industries (Winch, 2014). The client appointed a project management consultancy to oversee the project. This consultancy firm reported directly to the client and worked closely with the main contractor. The appointment of the main contractor was based on the lowest bid (also known as lump sum) in all seven projects.

3.2 | Data sources

We drew on multiple sources of primary and secondary data. Table 3 contains a description of the data sources for each project. Following our interest in communication and

adaptation to disruptions, the most relevant source of data was the project documentation. In particular, we studied monthly meeting minutes—the main form of communication between project participants across the seven cases (Wu et al., 2017), as well as information about the main events, organizations, and actions throughout each project. These documents proved advantageous compared to data gathered exclusively from interviews: first and foremost, by capturing what was being communicated; second, by involving low risk of information retrieval biases (Golden, 1992); and third, by avoiding reliance on the memories or idiosyncratic assessments of individual project participants, who may lack a complete and holistic view of the events. The latter can be a problem when studying construction projects because building projects often suffer from high participant turnover. We triangulated the information from meeting minutes with other project documentation (Jick, 1979), such as projects reports and letters.

Meeting minutes have several desirable features for examining communication styles, especially in our industry setting. Meeting minutes were legally required because the projects we studied involved government-regulated social (low income) housing. Meeting minutes are used to provide a detailed log of the project issues (e.g., quality, weather, design, reports, health and safety) and the actions taken by parties. Meeting minutes are a formal record of what was decided at each meeting, and for each project. In addition, all meeting minutes were circulated to, and approved by, major project participants—including the client, main contractor, client's agent, and main specialized contractors, such as structural works and mechanical and electrical engineering. Moreover, in each case, the minutes were written by the client's agent using industry-standard language. For each project, the same person wrote all of the meeting minutes for the entire duration of the project, thus ensuring consistency within projects and reliability in across-case comparisons.

We also gathered information about important events in interviews with key informants, using synopses of these events to aid our interviewees' retrieval of information. We collected information from the practitioner literature about the U.K. construction industry (e.g., Building Magazine, Construction News), the local press (e.g., Business Network Magazine, the Nottingham Evening Post), and company reports (Table 3). In addition, we emailed and phoned several project participants to clarify and triangulate information from secondary data sources.

3.3 | Data analysis

We began by indexing our data sources (Strauss & Corbin, 1990). For each project, we developed a chronological list of disruptions during the entire building project. We

TABLE 2 Housing projects studied

Dale Lane Road (Case #1)

Description	Size	Duration	Management
This is a mixed tenure housing ranging from local authority housing stock, privately rented dwellings, and owner-occupied properties.	*Building cost*: £1,449,363	*Project life cycle*: April 2008—May 2009	*Project leaders*: Client's agent and main contractor

Fulmar Road (Case #2)

Description	Size	Duration	Management
This site was a deactivated Air Cadet Force base that was purchased by the main contractor for an affordable housing development. The local council provided planning permission to build social housing.	*Building cost*: £2,263,532	*Project life cycle*: June 2009— February 2011	*Project leaders*: Client's agent and main contractor

North Wingfield (Case #3)

Description	Size	Duration	Management
North Wingfield is a large former colliery village in the county of Derbyshire. This social housing project was a two-plot development located in a residential area.	*Building cost*: £3,087,711	*Project life cycle*: January 2008— December 2009	*Project leaders*: Client's agent and main contractor

Rowlett Road (Case #4)

Description	Size	Duration	Management
The site was a large former colliery village in the county. The new project was a two-plot development that was in close proximity to shops, a community and medical centers.	*Building cost*: £2,780,000	*Project Life cycle*: August 2008— August 2009	*Project leaders*: Client's agent and main contractor

Blyth Court (Case #5)

Description	Size	Duration	Management
This was a 3-story complex of 35 dwellings; the tenants were mostly older persons. The bungalows were provided with lift, dining room, laundry, guest facilities, and community center.	*Building cost*: £1,715,234	*Project life cycle*: October 2008— September 2009	*Project leaders*: Client's agent and main contractor

Oakley Road (Case #6)

Description	Size	Duration	Management
The site was brought to the client by the local council. The Environment Agency (EA) objected the project twice due to high risk of flooding. This project was for women fleeing domestic violence in the local area.	*Building cost*: £925,527	*Project life cycle*: February 2008—April 2009	*Project leaders*: Client's agent and main contractor

Washbrook Road (Case #7)

Description	Size	Duration	Management
This project was in a semi-rural location, within an established residential area, with a small area of woodland to the immediate east of the site. The site has been introduced to the client by a local building company.	*Building cost*: £725,000	*Project life cycle*: April 2009— January 2010	*Project leaders*: Client's agent and main contractor

Note: We named the case studies after the street name of each social housing project.

made project summaries and developed categories of disruptions. We coded a "disruption" if the instance was an unanticipated event that was sufficiently important to delay the project and/or accrue losses for at least one party in the transaction (e.g., extra costs for the client) (Mishra & Sinha, 2016). We then examined project documents to study how communication enhanced or hindered adaptation to these disruptions arising during the project.

TABLE 3 Case data sources

	Meeting minutes	Project documentation	Practitioner literature	Interviews	Emails and phone calls
Dale Lane Road (Project #1)	• 12 progress meetings (145 pages)	• Site meeting notes (9 pages) • Project directory (25 pages) • Cash Flow Map (15 pages) • Environmental Certificates (38 pages)	• Trade press (142 pages) • Local press (3 pages) • Company reports (42 pages)	• Phone interview with the local police about the Secured by Design (SbD) certification	• Email exchanges with the SbD officer, the local police and main contractor (8 exchanges)
Fulmar Road (Project #2)	• 18 progress meetings (298 pages)	• Project directory (29 pages) • Cash Flow Map (29 pages) • Environmental Certificates (48 pages)	• Trade press (86 pages) • Local press (18 pages) • Company reports (15 pages)	—	• Email exchanges with the building control officer and the Delivery Manager (8 exchanges)
North Wingfield (Project #3)	• 19 progress meetings (387 pages) • Site meeting notes (20 pages)	• Discharge of planning conditions (6 pages) • Financial Committee report (22 pages) • Cash Flow Map (17 pages) • Environmental Certificates (118 pages)	• Trade press (225 pages) • Company reports (5 pages) • Local press (8 pages)	• Phone interviews with the local police officer and the client's project manager	• Email exchanges with a main contractor, building control officer and client (3 exchanges)
Rowlett Road (Project #4)	• 8 progress meetings (160 pages) • 3 development meetings (23 pages)	• Financial Committee report (16 pages) • Project directory (4 pages) • Cash flow (5 pages)	• Trade press (13 pages) • Company reports (7 pages)	• Phone interview with the project manager about the maintenance of common areas	• Email exchange with the client (1 exchange)
Blyth Court (Project #5)	• 12 progress meetings (263 pages)	• Financial Committee report (32 pages) • Environmental Certificates (98 pages)	• Trade press (58 pages) • Local press (1 page) • Company reports (15 pages)	—	• Email exchanges with the building control officer and the architect (4 exchanges)
Oakley Road (Project #6)	• 8 progress meetings (173 pages)	• Planning Permission Application (4 pages) • Letter from client (2 pages) • Main contractor reports (230 pages) • Environmental Certificates (68 pages)	• Trade press (13 pages) • Local press (5 pages) • Company reports (16 pages)	• Interview with the client's head of development and project manager	—
Washbrook Road (Project #7)	• 10 progress meetings (153 pages)	• Main contractor reports (78 pages) • Letter from the architect to the local council (22 pages) • Environmental Certificates (115 pages)	• Trade press (14 pages) • Local press (4 pages) • Company reports (8 pages)	—	• Email exchange with the project manager (1 exchange)

	Meeting minutes	Project documentation	Practitioner literature	Interviews	Emails and phone calls
Volume	1622 pages	1308 pages	698 pages	106 pages	12 pages
Use in analysis	To learn about disruptions and communication by lead organizations.	To find out further information on the progress on site against the schedule of works (i.e., *Gantt* chart).	To gather background information about the major project organizations.	Insights about specific episodes in the project and triangulation of information.	Insights about specific episodes in the project.

TABLE 3 (Continued)

Second, we moved from a descriptive to a systematic analysis of how participating organizations approached communication and its implications for differential adaptation to disruptions from the start of each project (Eisenhardt, 1989). To aid the data analysis, we created tables containing descriptions of actions along with supporting extracts of data (Strauss & Corbin, 1990). We focused on identifying commonalities and differences in adaptation to disruptions in our seven cases. We sought saturation of the mechanisms of the influence of communication styles on adaptation by carrying out within- and across-case comparisons (Barratt et al., 2011; Eisenhardt & Graebner, 2007). Similar to the inductive development of concepts and themes (Miles & Huberman, 1984), we ensured that each mechanism was internally consistent—the instances concerned indeed the same generative mechanism of adaptation—and externally different—no overlap between mechanisms—to ensure construct validity (Gibbert et al., 2008). We progressively developed empirically-grounded constructs about communication styles and differential adaptation across the seven cases of interorganizational projects.

Third, given our research interest in communication and the sheer volume of our monthly data across the seven cases (over 3700 pages), we built on the exploratory insights to develop systematic analyses of the style of communication. We compared the text segments used to analyze the adaptation to each disturbance. Studying meeting minutes provides the opportunity to delve into the differences in linguistic properties that became apparent when reading through the text segments. We followed up on preliminary leads about linguistic properties by using Linguistic Inquiry and Word Count (LIWC), which is based on theory-based dictionaries, to analyze the written communication (i.e., meeting minutes) in each project (Pennebaker & Francis, 1996). LIWC is "a transparent text analysis program that counts words in psychologically meaningful categories" (Tausczik & Pennebaker, 2010, p. 24). These features support reliability and construct validity in the analysis of textual data, therefore addressing the common criticism of inaccuracies in buyer–supplier communication studies based on incorrect or incomplete perceptions (Joshi, 2009, p. 146). Guided by our qualitative insights, and as we show below, we developed a computerized analysis of the meeting minutes to capture the linguistic properties that influence adaptation to disruptions.

4 | DISRUPTIONS AND ADAPTATION QUALITY

4.1 | Gauging project disruptions

We identified two main types of disruptions common in the seven construction projects we studied: misspecification of

crucial activities and temporal resource misallocation. As shown in Table 4, misspecification of crucial activities refers to mistakes and oversights about critical activities while the latter type concerns timing of task execution. In our empirical setting, disruptions in terms of misspecification of crucial activities ranged from the incorrect location of a water storage tank (Dale Lane) to unfitness of the technical solutions adopted for the building's lift and firing systems (Blyth Court) and discrepancies between kinds of materials being used for carpentry and joinery work (Oakley Road).

As for temporal resource misallocation, disruptions typically included late submission of legally-required information to the local council (Washbrook Road), delays in revising an essential part of the drawings (Rowlett Road), and late communication of the technical specifications of biomass systems for fitting in the building (North Wingfield). To address concerns about reliability of the data coding, two researchers who were not members of the author team coded the disruptions independently. We found high inter-coder reliability (Krippendorff's alpha = .93). Table 4 provides a cross-case analysis of disruptions types. Misspecification of crucial activities ($N = 104$) and temporal resource misallocation ($N = 88$) disruptions occurred in all seven projects ($N = 192$).

A monthly ratio (number of disruptions/duration of the project) shows the average number of disruptions experienced per month for each disruption type (Table 4). Of the seven cases, three (North Wingfield, Rowlett Road and Oakley Road) suffered a higher monthly ratio of temporal resource misallocation than misspecification of crucial activities. In the other four cases, misspecification of crucial activities was the most recurrent disruption.

4.2 | Gauging adaptation quality

The literature in operations and supply chain management suggests that identifying workable solutions is of upmost importance in avoiding delays and excess project costs (Scott-Young & Samson, 2008). Accordingly, for every disruption, we examined the adaptive action taken, and assessed its quality along two dimensions: "timeliness" and "fit."

Timeliness refers to whether adaptation actions following disruption were relatively fast or slow (Akkermans et al., 2019; Williamson, 1991). The importance of timeliness was stressed by the managers working in these projects as they warned project participants, for example, that "immediate action is required" (Fulmar Road), "delays will have a knock down effect" (Blyth Court), or "the decisions must be made as a matter of urgency" (North Wingfield). The projects all had a tight deadline and a single disruption—if not addressed in a swift fashion—could

derail the workflow of the entire project. Table 5 provides illustrative examples of adaptation actions.

Different types of disruption could require different adaptation speeds or vary in the difficulty of identifying workable solutions. However, we find no evidence that adaptation quality was conditional on the disruption type.[1] Thus, differences in adaptation quality are not attributable to the type of disruption. Overall, we find a stark contrast in adaptation quality when disruptions occurred in our otherwise similar supply chains projects.

Fit refers to the extent to which the proposed solutions fitted—and solved—the technical or operational problem causing the disruption. The coding of this dimension was relatively straightforward as we could triangulate the meeting minutes, project reports and memos to identify if the parties actually developed a suitable workaround to the disruption. If, for example, the "planners rejected [again] the metal front railing for timber" (Rowlett Road) or the "main contractor reports to have received two differing responses from the police concerning the scheme" (Dale Lane), then we coded the adaptation actions as displaying low fit. Given that the projects were relatively standard for the U.K. construction industry, the limited fit between solutions and problems was surprising. Two independent coders showed strong agreement regarding the coding of the adaptation quality (Krippendorff's alpha = .84).

The next step in our analysis required us to develop a metric of adaptation quality for the disruptions that struck each project, thus enabling a systematic cross-case comparisons. For each disruption, the adaptation actions received a score of "0" (poor adaptation), 1 (medium) or 2 (robust adaptation).[2] Figure 1 shows the frequency of adaptation scores based on the coding of the adaptation quality for each disruption.

Adaptation quality varied meaningfully across the seven cases, despite the projects being similar and having faced a similar monthly average of number of disruptions. A set of cases distinctively displayed low adaptation quality (Dale Lane, Fulmar Road, and North Wingfield) while another set showed high adaptation quality (Rowlett Road, Blyth Court, Oakley Road, and Washbrook Road).

5 | INFLUENCE OF COMMUNICATION STYLES ON ADAPTATION

The inconsistencies concerning adaptation across the seven projects provided impetus to explore the influence of communication on the adaptation quality to disruptions. Two elements of communication style played a central role in influencing differential adaptation in projects: communication content and linguistic properties.

TABLE 4 Disruptions

	Illustrative examples	A No.	A Monthly ratio	B No.	B Monthly ratio	Total No.	Total Monthly ratio
Dale Lane Road (Project #1)	The designed location of the water storage tank had to change because the initial location impacted adversely on the storage space (Meeting Minutes, p. 2).[a] The main contractor was late in handing in reports of the completed works on site to the client delaying the discharge of relevant planning conditions, which was a major disruption by delaying the transfer of public funds to the project (Meeting Minutes, p. 2).[b]	15	1.25	12	1.00	27	2.25
Fulmar Road (Project #2)	Highways Authority reported that the soak ways underneath the highway needed to be updated because the proposed solution was inadequate for that site (Meeting Minutes, p. 3).[a] The architect was late in finalizing the landscaping scheme and issue it to the planners for final approval, causing delays for organizations working on site (Meeting Minutes, p. 5).[b]	27	1.50	19	1.06	46	2.56
North Wingfield (Project #3)	Issues with the Highway Covenant off Chesterfield Road which gives an Easement of 10 m from the back edge of the path into the site which affects plots 8–13 on the Wayside Close development (Meeting Minutes, p. 4).[a] Late and conflictual information about the specifications of the biomass systems coming from the engineers and the client was disrupting the work on site by the main contractor (Meeting Minutes, p. 7; Project Report, p. 10).[b]	18	0.95	24	1.26	42	2.21
Rowlett Road (Project #4)	Design changes required to meet planner's demands as the "Local Council wanted 'contemporary' look to the scheme—uses a combination of cladding, metal windows and mono pitch roofs to achieve this" (Meeting Minutes, p. 3).[a] Revised plans from the Mechanical Engineering sub-contractor "were delayed by 3 weeks, which led the client to claim delays on site and in placing orders with suppliers" (Meeting Minutes, p. 3).[b]	3	0.38	7	0.88	10	1.25
Blyth Court (Project #5)	Incompatibility of technical solutions adopted for the lift and firing system (Meeting Minutes, p. 8).[a] Outstanding information on the radiators from the plumber - Standard Assessment Procedure (SAP) calculation delayed by several weeks, so that the sub-contractor delayed orders (Meeting Minutes, p. 2).[b]	24	2.00	10	0.83	34	2.83
Oakley Road (Project #6)	Discrepancies between kinds of materials being used for carpentry and joinery work, such as doors and window frames, and the material specified in the contract between the client and main contractor (Meeting Minutes, p. 5).[a] Outstanding collateral warranties from sub-contractors, mechanical electrical precast floor sub-contractor (Meeting Minutes, p. 6). Such warranties are legally required and late submissions can delay access to public funds.[b]	7	0.88	9	1.13	16	2.00

TABLE 4 (Continued)

	Illustrative examples	A No.	Monthly ratio	B No.	Monthly ratio	Total No.	Monthly ratio
Washbrook Road (Project #7)	"Changing the location of the parking spaces" to "ensure [natural] lighting requirements in the bathrooms" and "the existing vehicle access to the former garage should be reinstated to footway" (Meeting Minutes, p. 17).[a] The main contractor delayed information about the pilling logs to the local council (although this information had been already shared with the client) (Meeting Minutes, p. 6).[b]	10	1.00	7	0.70	17	1.70

Note: In total, we studied 192 disruptions across seven cases. The inter-coder reliability is high (Krippendorff's alpha = .93).

[a]Misspecification crucial activities.

[b]Temporal resource misallocation.

5.1 | Communication content

Written communication content refers to what is written and shared between the project parties (Fayard & Metiu, 2014). As we elaborate below, we progressively moved from a comparison of disruptions (i.e., events) and subsequent adaptation actions in our projects to identifying and interpreting emerging data patterns across the seven case studies (Gibbert et al., 2008; Ketokivi & Choi, 2014). On the one hand, for projects in which adaptation was poor, communication by lead organizations (main contractor and client's agent) was first and foremost devoted to allocating costs and responsibilities to other participating organizations. On the other hand, in projects in which adaptation quality was emphasized, communication aimed at reducing others' costs, stimulating cooperation, jointly establishing procedures, and reaching out for additional information for regulatory compliance. Table 6 shows illustrative examples from projects in which adaptation quality was high versus low. Our qualitative analysis underscored two distinct approaches to communication content: "Cost-orientation" and "Information-orientation."

5.1.1 | Cost-orientation

In some projects, the project communication focused almost solely on the costs of individual items and on the building's total cost. In the Dale Road project, a lead organization stressed that the client (rather than the client's agent) would be responsible for paying for specific items, such as the ecological survey and the video system. The focus on own costs, even for small amounts, is also evidenced when the main contractor warned the client

that "a door entry system with the possibility for a video is included in the cost, but the video system is not" (Meeting Minutes, p. 6). Adaptation to disruptions in Dale Lane was generally slow and difficult. In contrast, in Oakley Road project, organizations sought ways to reduce client costs (not their own) by, for example, proactively communicating suggestions about reaching out to the community in order to address concerns about the car park. The locals had complained to the Local Council about being unable to use the adjacent car park because of constant use by trucks supplying the project. If the client had not engaged with the locals, the Local Council could intervene (e.g., to fine the client). Adaptation to disruptions in the Oakley project generally was relatively fast and easy (Table 6).

Communication content also reflected managers' attempts to shift costs onto other organizations. In the Fulmar Road project, the main contractor formally communicated to the client that they (main contractor) will "seek to recover the costs" from the client that they had incurred to satisfy Section 106 Agreements (Fulmar Road; Meeting Minutes, p. 7), but without providing further explanation. Communication that solely aimed at shifting costs was distinctively manifest in other low quality adaptation projects, such as Dale Lane and North Wingfield (Table 6). In North Wingfield, the main contractor sternly advised the client to send all the relevant information about pre-construction services, or else "they [main contractor] would employ a surveyor and invoice the client" (Meeting Minutes, p. 7). This warning was issued after the client discovered underground power cables when demolishing a garage erected on site (Table 6). In high quality adaptation projects, by contrast, communication about potential liabilities for costs was far more tentative. For instance, in the Washbrook Road

TABLE 5 Adaptation quality

	Examples	Qualitative assessment	Overall[a]
Dale Lane Road (Project #1)	Faced with an absence of a pedestrian route into the complex from the drawings, the main contractor, architect and client took over 4 months (out of 12 months) of disagreement about the exact solution. Following the unsuitable location of the water storage tank, the main contractor contested the proposed solution as it disrupted work arrangements while the client was concerned about storage space for future tenants.	Adaptation to disruptions was slow and contested; information was neither abundant nor shared in a timely manner.	Low
Fulmar Road (Project #2)	The client's agent, the main contractor, and the architect took over 2 months to agree on and update the technical solution concerning the soak ways underneath the highway. The architect was late to finalize the landscaping scheme; the main contractor was reportedly reluctant to some aspects (e.g., amendments to internal layouts).	Organizations often spent several months chasing information concerning specific disruptions.	Low
North Wingfield (Project #3)	Organizations took several weeks to get back on basic aspects about the specification of the biomass system; the information about this system was often contradictory which contributed to delays in its installation. The main contractor took over 5 weeks to contact the telecom provider to relocate the telecom cable on site (the main contractor claimed that the client should have sorted out this issue before start on site).	Despite the threat of a project standstill, adaptation was disrupted by a "back and forth" that played a role in the delayed completion.	Low
Rowlett Road (Project #4)	Ongoing requests (just under 2 months) from the main contractor to consult the ownership documents following complaints about the positioning of site boundary; the client engaged the solicitors as parties failed to agree. The main contractor often took several weeks to provide solutions to multiple client's requests (aimed to enhance the future tenant's experience).	Organizations often contested proposed solutions and speedy information exchange was not always achieved.	High
Blyth Court (Project #5)	Two months after the client' query, the main contractor confirmed (following communication between the project managers and the sub-contractors) that maintenance-friendly flush cisterns will be indeed installed. The main contractor and the Fire Brigade were slow (over 3 months) to address concerns about the lift and firing (relating to the fire strategy), but the main contractor promptly informed their sub-contractors of the changes.	Although relatively slow in adapting to disruptions, organizations tended to accept the solutions and make the necessary adjustments.	High
Oakley Road (Project #6)	As additional costs for pipe works were omitted, the main contractor sought information from the engineers and remedied this issue. Several discrepancies between kinds of materials contracted and applied in the project; the client and the main contractor quickly evaluated the discrepancies and they agreed on the solution (e.g., additional works free of charge).	Organizations agreed on the response to the disruptions within a short timeframe.	High

(Continues)

TABLE 5 (Continued)

	Examples	Qualitative assessment	Overall[a]
Washbrook Road (Project #7)	Although the initial submission to the local council felt short in many ways, several parties exchanged information and all amendments within a month. Information about the pilling logs was not passed to the local council (the main contractor had shared the information with the client, though) the main contractor promptly sent the information to the local council.	Adaptation was fast; the relevant parties contributed with solutions.	High

[a]These scores are based on the analysis of Figure 1.
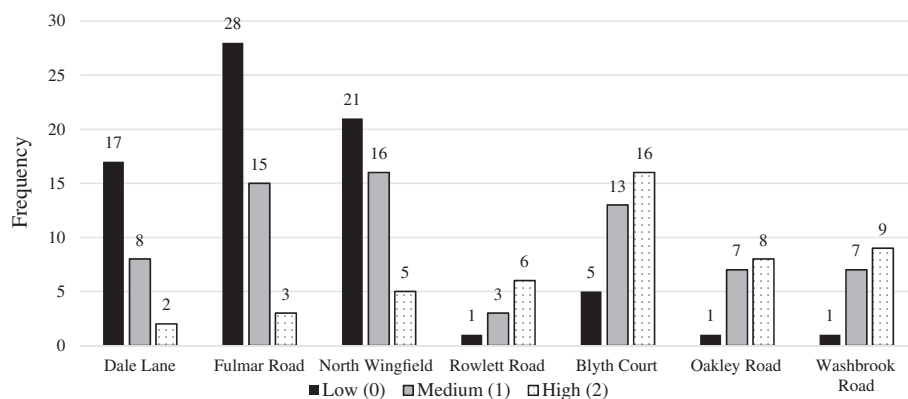
FIGURE 1 Frequency analysis of the data on adaptation quality. For each disruption, we coded the raw data for adaptation quality across two dimensions: time (0 = sluggish; 1 = timely); and fit (0 = problematic; 1 = fit). The inter-coder reliability is high (Krippendorff's alpha = .84)

project, the client's agent, following a chat with the main contractor on site (mentioned in the meeting minutes), advised the client that if he opted for a wooden fence a planning application would be required. In addition, a wooden fence would be more affordable than, for example, a brick wall (Washbrook Road; Meeting Minutes, p. 11). The main contractor genuinely sought to lower the client's costs by exploring different options, rather than shift costs onto others, or otherwise avoid them (Table 6). Cost-related aspects are an essential part of communication in interorganizational projects—more so in cost-focused projects, but communication emphasizing cost shifting was prevalent in projects with low adaptation quality in comparison to projects with high adaptation quality.

5.1.2 | Information-orientation

The meeting minutes laid bare discrepancies concerning the precision of the information that was shared between project parties. In low quality adaptation projects, information sharing was in several instances deficient or incorrect. In the Fulmar Road project, the client's agent indicated that the client should email the agent's main office as opposed to calling the agent's manager appointed to the project on

the phone (although the project documentation showed the contact details of the agent's manager only). This information breakdown led to delays in processing information, and was evidenced by instances in which items in the meeting minutes had to be "re-minuted" (Meeting Minutes, p. 9). The client's agent in Dale Lane eventually admitted to the client that the "wrong wording [in his reports] probably transited from another project" (Meeting Minutes, p. 8). This situation was awkward because the names of some project protagonists were wrong—as checked against the project directory—as well as the project's name. Although this may appear to be a minor oversight, a delay by 4 weeks in circulating the correct contact details meant that the main contractor had to keep asking: "who is to contact for queries about the project?" (Meeting Minutes, p. 2). Legally, the project directory should always be up-to-date, visibly placed at the site office, and added to all main project-related documents (e.g., project reports and meeting minutes).[3]

In high quality adaptation projects, by contrast, lead organizations developed accurate documentation to support information processing between the parties. For example, following technical shortcomings in the Blyth Court Road project, the main contractor's manager distributed a detailed construction schedule in the second onsite meeting, in addition to providing a digital copy to

TABLE 6 Lead organization's communication content (illustrative evidence)

	Costs	Information	Adaptation quality
Dale Lane Road (Project #1)	*Count*: ◆◆◆◆◆◆◆◆◆◆◆◆◆◆ (14) *Illustrative examples*: The client's agent claimed that the Ecological Survey "was something that he should prepare for in the due course" following questions from the client (Meeting Minutes, p. 3). This instance was in the context in which the client's agent charged for arranging for Ecological Survey; which was required to be submitted to the local council as soon as possible. The main contractor warned the client that "a door entry system with the possibility for a video is included in the cost, but the video system is not." (Meeting Minutes, p. 6) Indeed the main contractor raised a list of items that were not included in their bid, such as the fit out of plot no.6 as the show home and putting up signs that the site will be fenced off (the site was being used as car park by locals). (Meeting Minutes, p. 3 and 7)	*Count*: ◆◆◆◆◆◆◆ (7) *Illustrative examples*: The client's agent admitted to the client that the "wrong wording [in his reports] probably transited from another project" (Meeting Minutes, p. 8). The names of some project protagonists were wrong, as well as the project's name. The main contractor informed the client's agent that the "bid was based on an estimate for this type of project; materials are yet to be decided by the main office." (Meeting Minutes, p. 1) The client's manager wanted to know the materials in advance so that he could enquire the local council about the feasibility. Instead, the main contractor "advised any formal communication should go through the regional office." (Meeting Minutes, p. 3)	Low
Fulmar Road (Project #2)	*Count*: ◆◆◆◆◆◆◆◆◆◆◆ (11) *Illustrative examples*: The clients' agent asked the main contractor for the breakdown of costs, as agreed: separated by building costs and external work costs. It followed a stern request from the client's general manager for "a breakdown of the building costs." (Meeting Minutes, p. 12) The main contractor was prompt to inform the client "that no cost allowance was made to Section 106 Agreement costs" (agreements made between local authorities and developers) and the main contractor "seek to recover the costs" (Meeting Minutes, p. 7).	*Count*: ◆◆◆◆◆◆◆◆ (8) *Illustrative examples*: The client's agent indicated to the client that they [client] should email the main office—as opposed to call the manager appointed to project. This procedure was led to delays in information, as it was evidenced in many instances with "(item re-minuted)." (Meeting Minutes, p. 9) Following questions from the client, the main contractor asked the client's agent for "any comments from the planners on the drawings." (Meeting Minutes, p. 2) The client's agent took 3 weeks to reply to the main contractor who in the meanwhile had instructed the site foreman to follow the drawings placed on the office site.	Low
North Wingfield (Project #3)	*Count*: ◆◆◆◆◆◆◆◆◆◆◆◆◆(13) *Illustrative examples*: The clients' agent required that the main contractor be specific about the site set-up due discrepancies with proposed plan. The main contractor manager reminded the client's agent that it was not "their responsibility that the site boundaries in the drawings used for the bid were incorrect." (Meeting Minutes, p. 4) The main contractor advised the client sent all the information about pre-construction services, or else "they [main contractor] would employ a surveyor and invoice the client." (Meeting Minutes, p. 7) This assertion was in the context of the start on site when the client found underground power cables when demolishing an garage erected on site.	*Count*: ◆◆◆◆◆◆◆ (7) *Illustrative examples*: The client's agent confirmed to the client—after several attempts—that they will organize a site meeting; however, the client's agent warned that the date of the meeting "needs to be discussed internally at the head office." (Meeting Minutes, p. 7) The client was surprised to learn from the main contractor that "only the fencing sub-contractor have been placed to date." (Meeting Minutes, p. 1) The names, contact details and licenses of most sub-contractors need to be in place at the start—this information should feature the project directory that used for communication.	Low

TABLE 6 (Continued)

	Costs	Information	Adaptation quality
Rowlett Road (Project #4)	*Count*: ◆◆◆◆◆◆ (6) *Illustrative examples*: The client's agent indicated to the main contractor that "savings on rendering rear elevations" (rendering refers to apply a first layer of plaster or cement on a wall) should not be considered so that it minimizes potential negative planning implications (Meeting Minutes, p. 3). The main contractor advised the client "Eternit" (Dutch manufacturer) cladding was increasing the costs, and it should be abandoned. Indeed, the main contractor's site manager suggested to the client's manager the he contacts "our general manager to discuss opportunities for 'value engineering' [cost reduction]." (Meeting Minutes, p. 6)	*Count*: ◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆ (19) *Illustrative examples*: The client's agent informed that the main contractor and the sub-contractors on site that he "would like to do weekly inspections with a brief report and photographs." (Meeting Minutes, p. 6) Such inspections helped to identify "any issues and critical matters" (Meeting Minutes, p. 3), answer questions from workers and run of the client's request past the sub-contractors (e.g., key fob options and position of the landlord meters (notes from Project Delivery Team Meeting, no.3). The main contractor's general manager introduced the managers linked to the project to the client's agent, and shared their phone numbers. Moreover, the main contractor informed the client that "direct line to the site manager is pending connection to the landline for telephone and fax." (Meeting Minutes, p. 10)	High
Blyth Court (Project #5)	*Count*: ◆◆◆◆◆◆◆ (7) *Illustrative examples*: The client's agent informed the client of his intention to "produce a rigorous schedule of provision sums for updating and reviewing at each site meeting." (Meeting Minutes, p. 9) In effect, it meant that payments to the main contractor was based on a rigorous assessment of progress of work on site. The main contractor informed the client's agent that "he suspected that the location of the extraction fans is not workable, special in the top floors." (Meeting Minutes, p. 6) It turned to be the case; and the main contractors worked out a solution at no extra cost for the client.	*Count*: ◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆ (21) *Illustrative examples*: The client's agent got in touch with the local planners "to see if a separate new build and refurb submission should be made or just one combined submission." (Meeting Minutes, p. 3) The main contractor's manager brought and distributed a detailed construction program to the second on site meeting (in addition to the digital copy sent to the client and their agent). It enabled the meeting participants to raise any issues and provided a clear visualization of which contractors and when will be onsite. (Meeting Minutes and Project Report)	High
Oakley Road (Project #6)	*Count*: ◆◆◆◆◆◆ (6) *Illustrative examples*: The client agent advised the client that if he opted for a wooden fence, it would not require a planning application—in addition, the wooden fence was an affordable option compared to, for example, a brick wall. (Meeting Minutes, p. 11) The main contractor drew clients 'attention about the short durability of vinyl in high traffic areas (Meeting Minutes, p. 7). The short durability of this material was increased maintenance costs for the client.	*Count*: ◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆ (20) *Illustrative examples*: The client's agent advised the client about the need to get in touch with the adjacent owner and the local council to avoid future disruption about the car park (Meeting Minutes, p. 5). This followed a request by the adjacent owner to suspend works. The main contractor's manager offered to "take up with the planners" (Meeting Minutes, p. 10) suggestions to change the ground foundations. At the same time, he also "contacted directly the engineers to get further information about the calculations used in the foundations." (Meeting Minutes, p. 6; also in a copy of the email to the client)	High
Washbrook Road (Project #7)	*Count*: ◆◆◆◆◆◆◆ (8) *Illustrative examples*: The client's agent advised the client to inform the local council about project changes or else it	*Count*: ◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆ (22) *Illustrative examples*: The client's agent shared a set of guidelines about the health and safety file with the main	High

TABLE 6 (Continued)

	Costs	Information	Adaptation quality
	could lead to costs or fines, and possibly delays. (Meeting Minutes, p. 8) To warn the client about privacy issues in "plots 4 and 8 and the need to find out more information about the Code for Sustainable Homes; the context of this example is the Code for Sustainable Homes was linked to funding from public agencies—failure to achieve the target score would result in additional costs." (Meeting Minutes, p. 9)	contractor, as well as suggestion on how to avoid "paper work delays." (Meeting Minutes, p. 6) The main contractor submitted marked up drawings to the client's agent alongside a revised program with the client's agent—this was in addition to the submission of the drawings done in conjunction with the timber supplier. (Meeting Minutes, p. 10)	

Note: These illustrative examples were purposefully sourced from the projects' first 2 months. Because the first 2 months are the common denominator for all projects, the count (shown in brackets) can be directly compared across cases. The overall score of adaptation quality follows Figure 1 and Table 5.

the client and client's agent. The schedule provided a comprehensive visualization of who and when specific sub-contractors will enter on site—as shown on one of the annexes (Meeting Minutes and Project Report).

Furthermore, project organizations who focused on information sharing proactively reached out to parties outside the project. Following concerns about the foundations in the Fulmar Road project (a low quality adaptation project; Table 6), the main contractor wondered if the client's agent had received "any comments from the planners on the drawings" (Meeting Minutes, p. 2). Finding out any relevant information from the planners was actually the client's agent responsibility. Nonetheless, the client's agent took 3 weeks to reply to the main contractor, who in the meantime instructed the site foreman to follow the drawings left at the office on site. As the email attached to the meeting minutes showed, the local council took five working days to reply—compared to the 3 weeks taken by the client's agent. In an otherwise similar instance of a high quality adaptation project, the main contractor's manager for Oakley Road immediately offered to "take up with the planners" (Meeting Minutes, p. 10) questions concerning change in the ground foundations. The client's agent volunteered to "contact directly the engineers to get further information about the calculations used in the foundations" (Meeting Minutes, p. 6; also in a copy of the email to the client). Organizations in high quality adaptation projects also sought information regarding regulatory compliance more frequently than those in low quality adaptation projects (Table 6).

In contrast to prior research, which has treated communication content as an all-encompassing construct (e.g., Joshi, 2009), the foregoing qualitative analysis unpacks two alternative approaches to communication content: (1) an approach focused on cost reduction/cost shifting with less concern for information precision, and (2) an approach more focused on information sharing and precision, less on cost shifting, and more interest in reducing other parties' costs. The former approach hampered adaptation quality, while the latter approach improved it. Below, we describe how these two approaches featured distinctive linguistic properties, all of which had non-trivial implications for adaptation quality in our building projects.

5.2 | Linguistic properties

Working through the communication content across projects made us cognizant of differences in grammar, tone and level of detail when the projects followed a cost- versus information-oriented approach. These differences were encapsulated in different linguistic properties, that is, structure or properties of a written message. We identified three distinct properties of communication in our data: informality, precision, and authenticity.

5.2.1 | Informality

Informality refers to casual and friendly features in communication (Prahinski & Benton, 2004).[4] Heterogeneity in informality appears in the official meeting minutes that were shared among project participants. While informality is a nuanced construct, the use of words such as "alright," "gotta," "gonna" and "wanna" is one of the most notable features of informality in written communication. Such informality could of course simply reflect individual managers' stylistic differences or preferences. However, we observed patterns of informality involving multiple managers for each project.

In high quality adaptation projects, the informality manifested in how instructions were communicated to project participants. For instance, in the Oakley Road project, the main contractor's manager casually offered to "take up with the planners" (Meeting Minutes, p. 10) suggesting to change the ground foundations while, at the same time, he reportedly "*wanna* [emphasis added] contact directly the [structural] engineers to get further information about the calculations used in the foundations" (Meeting Minutes, p. 6). While the use of a word like *wanna* alone may seem trivial, such words reflected broader patterns in written communication. Informality eases not only how information is passed on to parties, but a relatively relaxed communication reportedly contributed to "good working relationships" (Washbrook Road, Meeting Minutes, p. 5). Managers ask questions and treat communication as a two-way flow of information as opposed to relying on one-way and formal instructions. Informality improves information processing capacity and subsequent adaptive action between project parties.

When communication was characterized by low degree of informality, however, adaptation to the disruptions was hampered by parties' reluctance to implement suggestions or, in extreme instances, to pursue adaptive action. In Dale Lane, the client's agent informed the main contractor that "circulation space for heating is not required [between the walls], as stated by the drawings, so changes must follow" (Meeting Minutes, p. 9). The main contractor's site manager was surprised by the instruction because as requested, he had sent a picture of a wall—with space for heating—that was added to the last project report. The instruction was correct, as acknowledged by the site manager, but he passed this information to his senior project manager. This senior manager initially resisted this change, presumably because he felt overtaken by events. Based on examples across cases, low informality involved few instances of managers sounding out their counterparts. Low informality appeared to prevent the discussion of ideas and soliciting the views of project parties about specific aspects of the disruption, as well as possible solutions.

5.2.2 | Precision

Communication precision refers to the use of words that make distinctions and add nuance. That is, communication featured numerous distinctions and qualifications often revealing a deep understanding of the issues being communicated (Pennebaker & King, 1999). In some instances, organizations would use qualifications while in other instances the terminology was generic. In

the high-quality adaptation project at Washbrook Road, the client's agent articulated that "[the main contractor] responded to the piling queries as per the e-mail of 14th May 2009, *however* [emphasis added] the piling logs were not yet received" (Meeting Minutes, p. 3). The communication differentiates between an action already taken by the main contractors—also precisely accompanied by a reference to dated email exchange—and exact instructions about what was still outstanding (i.e., piling logs). Precision in this example, as in many other examples in our data, added concreteness to the actions required by other project parties and conveyed truthfulness in communication (Crilly et al., 2016).

In contrast, describing a similar instance about missing information, the client's agent in North Wingfield stated that "collateral warranties are still missing," yet this statement failed to clarify that the electrical, beam and block sub-contractors had already submitted their collateral warranties. As a consequence, the main contractor approached all sub-contractors, including those who had already submitted their collateral warranties. The openness and precision was further undermined when, two months later, the client's agent informed the main contractors that "the collateral warranties will be in an amended [National Housing Federation] format preferred by [the client]" (Meeting Minutes, p. 8). The main contractor asked: When will "these amended warranties be circulated?" (Meeting Minutes, p. 8), which was a necessary question due to the lack of clear information about such a standard procedure and the exact steps that needed to be taken.

5.2.3 | Authenticity

Authenticity in writing concerns the use of words that reveal the writer in an open or honest way, often making the writer more vulnerable as a result (Newman et al., 2003). The first clue to examining authenticity came when we encountered admissions by project participants. In some projects, communication distinctively featured open admissions by managers, such as "the client's agent noted that the date of the meeting needs to be discussed "internally at the head office" (North Wingfield; emailed attached to the Meeting Minutes). This statement was an admission by the manager that he was in a low position of authority within his organization, and had to defer to others. Yet, his admission helped the other project participants to appreciate this manager's perspective when deliberating about decisions in the project. The written message may also signal low authenticity, or even deception. Low authenticity often manifests in the use of prescripted "boilerplate" or "template" wording—as opposed

to communication that reflects candid and impromptu responses. Authenticity in the message greatly supported adaptation to disruptions as project participants openly sought others' views on the options that would work and be acceptable by the parties.

In low quality adaptation projects, authenticity was more limited, and probably further encouraged communication focused on costs as opposed to addressing disruptions jointly. In the North Wingfield project, the client's agent asked that the main contractor openly discuss the site boundaries following discrepancies with the proposed plan. In response, the main contractor's manager communicated to the client's agent that it was "not their responsibility that the site boundaries in the drawings used for the bid were incorrect" (Meeting Minutes, p. 4). By contrast, in high quality adaptation projects, lead organizations followed a more candid approach to communication, which helped parties to find solutions. For example, in the Blyth Court project, the main contractor advised the client's agent that "he suspected that the location of the extraction fans is not workable, especially in the top floors" (Meeting Minutes, p. 6). The main contractors worked out a solution and shared their proposal with subcontractors before implementation.

5.2.4 | Linguistic properties and adaptation quality

Due to the sheer amount of data and the requirements to develop cross-case comparisons to address our research questions, we turned to a computerized analysis of the linguistic properties. We used the Linguistic Inquiry and Word Count program (LIWC). LIWC was desirable for three reasons: the linguistic properties that we observed in our data were available, so that computerized analysis followed our qualitative assessment; this software is well-documented, thus providing a transparent analysis of written communication; and the analysis displays convergent and discriminant factor loadings (Pennebaker & King, 1999). LIWC uses dictionaries that identify which words belong to specific categories. The score for a given linguistic property is based on relative frequencies—the percentage of each text that is captured by a given category in the dictionary. For example, a score of 9.11 for "authenticity" means that 9.11% of the words in the text are captured by LIWC's "authenticity" dictionary.

Unlike prior studies that focus on specific linguistic properties from the onset (e.g., Crilly et al., 2016; Graf-Vlachy et al., 2020), we start from properties that we first observed based on manual coding and examples in our data (as illustrated above) and then use LIWC to run a

systematic, replicable analysis of three linguistic properties that engender differential adaptation quality. Figure 2 shows the linguistic properties (i.e., informality, precision, and authenticity) for each of the seven cases. Using standardized scores to ease the comparison across cases on each of the three dimensions, our findings show stark differences among cases (ANOVA tests: informality, $F = 17.616$ [$df = 6$]; $p < .001$; precision, $F = 66.263$ [$df = 6$]; $p < .001$, authenticity $F = 3.914$ [$df = 6$]; $p < .001$).[5]

The pattern across the seven cases is that projects in which organizations tended to focus their communication on costs distinctly used linguistic properties lower in informality, precision, and authenticity than when organizations tended to focus their communication on information-sharing. At least one dimension was necessary for high adaptation quality, however, not all three were required.

Generalizing from the patterns we see in the qualitative data we studied, we suggest that a cost orientation slows adaptation as parties haggle over who is responsible for costs. In contrast, an information orientation focuses parties' attention on disruptions, and supports actual adaptation to interorganizational project disruptions. These two patterns are further reinforced by specific linguistic properties in communication by lead organizations. Under a cost orientation, lead organizations distinctively communicate with low informality, precision and authenticity, thus restraining a discussion and search for possible solutions, lacking precision about procedures, and eroding the willingness of parties to cooperate by not seeking an open approach to adaptation. An information orientation differs insofar high informality, precision and authenticity foster information processing capacity, signal truthfulness in communication and offers concreteness about the actions to be taken, and indicate to project participants that their views are taken on board when deciding about adaptive action.

Cognizant of the literature on performance of interorganizational projects (e.g., Narayanan et al., 2011; Scott-Young & Samson, 2008), we also learned that cases of high quality adaptation to disruptions distinctively experienced superior project performance in terms of costs and time.[6] Projects for which the quality of adaptation was relatively low also recorded both budget and time overruns. An example of a consequence of low quality adaptation was the delay that resulted from repeated failure to obtain an important certification of the security of the windows and door in the Dale Lane project.

So far, we have provided evidence that communication styles mattered for adaptation quality to disruptions in our interorganizational projects. But where did these styles come from?
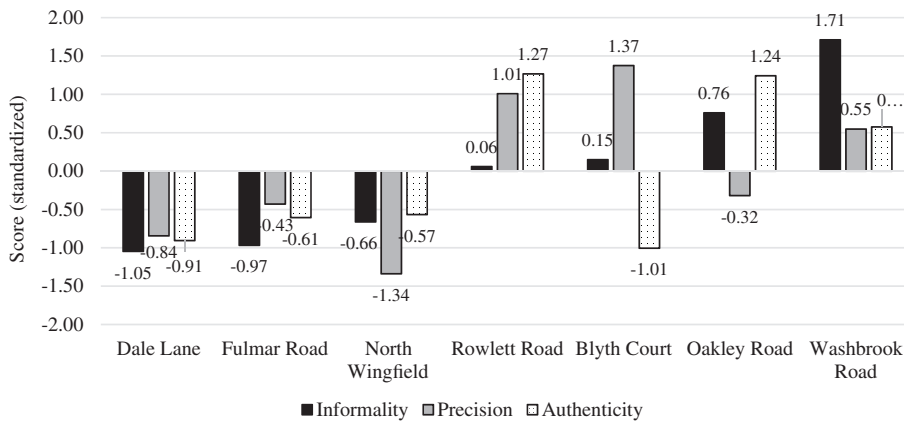
FIGURE 2 Linguistic properties. These scores for each dimension were obtained through Linguistic Inquiry and Word Count (LIWC), using the 2015 English dictionary (Pennebaker & Francis, 1996). We are interested in the extent to which the scores varied across cases, as opposed to the exact score of each case since the value for each case alone is not very informative due to the lack of prior research in similar settings that could serve as a reference point.

6 | ANTECEDENTS OF COMMUNICATION STYLES

6.1 | Managerial slack

Getting a building project off the ground, and achieving ongoing coordination among multiple participating organizations, requires significant time and effort from lead organizations. As we studied the project documents and project performance information, a pattern started to emerge: Managers who were engaged in other larger building projects paid less attention to communication procedures in the project considered in our study because these managers had less slack time. The absence of managerial slack stemmed in part from a choice by certain lead organizations to prioritize larger projects, which is common in the construction industry. Because larger contractors typically have higher overhead costs, such contractors often prefer larger projects over which they can better spread those costs.[7] Thus, a large main contractor may have more financial and technical resources than a smaller one, but the demands on those resources may be such that smaller projects suffer because of less available slack.

On the other hand, where the main contractor's managerial slack was greater, managers paid more attention to communication procedures. The documentation for projects that displayed high quality adaptation (e.g., Blyth Court, Rowlett Road, and Washbrook Road) included multiple notes, often handwritten by the project manager, about tasks to be completed and instructions to other organizations. Thus, our data indicate that the appointment of large lead organizations can be counterproductive because their managers spend less time coordinating other organizations. Our interviewees indicated that large organizations often promised highly experienced, award-winning managers to clients as a strategy to win projects. However, such managers had little slack to commit to the projects, presumably because similar promises have been made to other clients whose projects were running simultaneously. Thus, the larger organizations would appear to be eating into their reputational capital.

To further investigate the possibility that managerial slack affected communication style, we gathered multiple indicators of managers' resource slack for the lead organizations across our seven projects. We studied, for example, managers' seniority, distance between the main office and the project location, and number of managers' absences in project meetings (where their attendance was required). (The Data S1 details the indicators we apply to our empirical setting.) Table 7 contains a summary of the lead organization's managerial slack according to each building project. The table shows that when lead organizations tended to enjoy low managerial slack, their communication content tended to be cost-oriented and characterized by low informality, precision, and authenticity.

6.2 | Reputation concerns

Studying the project documentation and characteristics of the project management teams also led us to conjecture that managers from less well known organizations that operated primarily in the geographic region of the projects were more active in establishing communication involving information sharing than those from large, established and more distant firms. Such organizations may have overperformed in order to build their reputations for quality and timely construction, with an eye toward boosting the potential for future business. On the other hand, larger, more distant organizations may have underperformed because their reputations were already well-established. Thus, perhaps the main contractors for Dale Lane and Fulmar Road were large firms whose reputation concerns were weak because their main business was not local, and because their

T A B L E 7 Cross-case analysis of managerial slack and reputation

		Managerial slack	Reputation standing		Communication style	Adaptation quality
			General	Industry		
Dale Lane Road (Case #1)	Client's agent	Low	High	High	Cost-oriented	Low
	Main contractor	Low	High	High		
Fulmar Road (Case #2)	Client's agent	Low	High	High	Cost-oriented	Low
	Main contractor	High	High	High		
North Wingfield (Case #3)	Client's agent	Medium	Medium	High	Cost-oriented	Low
	Main contractor	Low	High	High		
Rowlett Road (Case #4)	Client's agent	Medium	Low	Medium	Information-oriented	High
	Main contractor	High	Medium	Low		
Blyth Court (Case #5)	Client's agent	High	High	Low	Information-oriented	High
	Main contractor	High	Low	Medium		
Oakley Road (Case #6)	Client's agent	Medium	Low	Low	Information-oriented	High
	Main contractor	Medium	Low	Low		
Washbrook Road (Case #7)	Client's agent	Medium	Low	Medium	Information-oriented	High
	Main contractor	Low	Low	Low		

Note: If firms show high reputation standing, these firms display limited reputation concerns.

managers likely did not believe that delays to such a small project could hurt their vaunted reputations (Table 7; see also Data S1).

To further examine this conjecture, we developed an indicator of lead organizations' reputations with potential clients, subcontractors, and the community more broadly (Table 7; for details, see Data S1). We studied the firm's standing in terms of general reputation—such as industry rankings and industry awards—as well as of reputation in the construction industry—such as type of contractor, and (positive) coverage in trade press. (The Data S1 describes these measures used to supported cross-case comparisons in detail.) The reputation standings of lead organizations in the industry varied substantially across all seven cases, from a client's agent that featured "Top 250 consultants," 5th place (by a main construction industry magazine) in North Wingfield to medium-sized client's agents that did not appear in the trade press at all. The main contractor's annual turnover also ranged from £7.1 million (Oakley Road) to £116 million (Dale Lane).

Based on analysis of these data, we conclude that, indeed, the lead organizations with the greatest experience and highest reputational standing in the industry were more likely to pursue cost-oriented communication, and low degrees of informality, precision, and authenticity. On the other hand, those lead organizations seeking to build up a reputation as strong performers (the smaller, more local firms) were more likely to use communication styles that emphasized information sharing, as well as

informality, precision, and authenticity. Thus, lead organizations' resources themselves were not leading to a superior communication style or indeed higher adaptation quality, despite the emphasis on such capability in some of the project management literature (Crawford, 2006).

7 | ALTERNATIVE EXPLANATIONS

As with much empirical research, we cannot definitively rule out all alternative explanations for our findings regarding the role of communication style in adaptation quality. However, the facts that: (1) all the projects we studied involved government-financed low income housing in the U.K., and that (2) all were relatively comparable in terms of cost, size, contractual governance, and ground conditions help to rule out explanations for adaptation quality based on project-specific characteristics. A remaining, important alternative explanation for our findings is that "relational contracting" between the participating organizations involved those communication styles that were more conductive to high-quality adaptation (information sharing, precision, informality, and authenticity), and that ultimately, relational contracting rather than communication style was the underlying cause of adaptation quality.

The characteristics of our industry setting cast serious doubt on this explanation, however. As explained

above, the fixed-price nature of the contracts, as well as EU and U.K. regulations, put strong cost pressure on contractors and their subcontractors. As multiple industry experts explained, these factors made it difficult for customers to choose favored contractors to deliver their projects, and for contractors to choose favored subcontractors. In addition, the literature on relational contracting explains that such relationships typically involve parties being "willing to absorb a lot of apparent static inefficiency in pursuit of their relational goals" (Goldberg, 1980, p. 339). The strong cost orientation in these projects made it difficult to accept such short-term inefficiencies. Similarly, relational contracting is thought to "create...relationships wherein...intricacy of...required responses may prevent the specification of precise performance standards" (Goetz & Scott, 1981, p. 1092). The projects we studied, however, were quite standardized.

A second set of reasons why relational contracting is an unlikely explanation for adaption quality in our projects is that we found very few references to prior ties, or to trust that managers established, in our project documentation or in our interviews, and no references to expected future interactions.[8] Indeed, even when a few prior ties did exist, ties did not necessarily result in higher quality adaptation or an information sharing-oriented communication style between participating organizations. For example, the main contractor for North Wingfield had performed one previous job for the client. However, the quality of adaptation was low for this project despite the prior tie. Indeed, we found that information sharing-oriented communication styles were present even in projects for which we found no evidence of prior ties. Prior ties, evidence from our cases would suggest, are not necessary for communication to be based on information-sharing, informality, precision, and authenticity.

Another possibility is that that high-power firms can simply force their counterparts to do all the adapting, and therefore need not adopt communication styles conducive to adaptation. However, if power was an important factor in our context, then we would observe high quality adaptation across all seven projects: high-power contractors with weak reputation concerns would have forced adaptation by their counterparties (regardless of the communication style), and low-power firms with strong reputation concerns would have followed a communication style conducive to high adaptation quality. Our findings, however, do not show the former. Indeed, we found no evidence from our project documentation or interviews that more powerful firms would be able to force their counterparts to do all the adapting.

8 | DISCUSSION AND CONCLUSION

Communication is essential for keeping interorganizational projects on track, as underscored by research on interfirm communication (Mohr & Nevin, 1990; Paulraj et al., 2008) and the literature on relational contracting (Poppo & Zenger, 2002; Zhou et al., 2014). However, relatively little research in these two literature streams in operations and supply chain management has examined communication content between parties (for exceptions, see Kaufmann et al., 2022, and Srivastava & Chakravarti, 2009). To our knowledge, no research has focused on the role of communication in adaptation to disruptions in interorganizational projects, and more specifically the role of communication style. This shortcoming is surprising given that communication is crucial in creating awareness about others' actions necessary for adaptation to disruptions in these projects. Our study provides preliminary evidence that communication style matters, and how it matters, in promoting or inhibiting adaptation to disruptions in interorganizational projects. Figure 3 shows a conceptual model capturing the relationships among constructs in our study. We suggest routes through which communication style influenced the quality of adaptation to disruptions, as well as main antecedents of communication styles.

The communication style that prevailed in projects with high adaptation quality featured less emphasis on cost shifting, and linguistic properties displayed greater informality, precision, and authenticity. The opposite pattern was found for projects with lower adaptation quality. One might have expected that a communication style emphasizing cost considerations would be well-suited—and indeed desirable—for managing and rolling out cost-driven projects such as government-financed low income housing. Common sense would suggest that communication should underscore *costs* as a primary goal in cost-driven projects—unlike in innovation-driven projects. Yet, this kind of style can inhibit adaptation to disruptions that are inevitable and impossible to fully anticipate. Because the project parties were already aware that these indeed were cost-driven projects, communication with an emphasis on own costs can be redundant, and is often detached from the actual tasks and challenges faced by managers on site. These insights the following proposition:

> **Proposition 1.** *A communication style characterized by an information- rather than a cost-orientation, and grounded in linguistic properties of informality, precision, and authenticity, is conducive to high quality adaptation to disruptions in interorganizational projects.*

FIGURE 3 Emerging
conceptual model
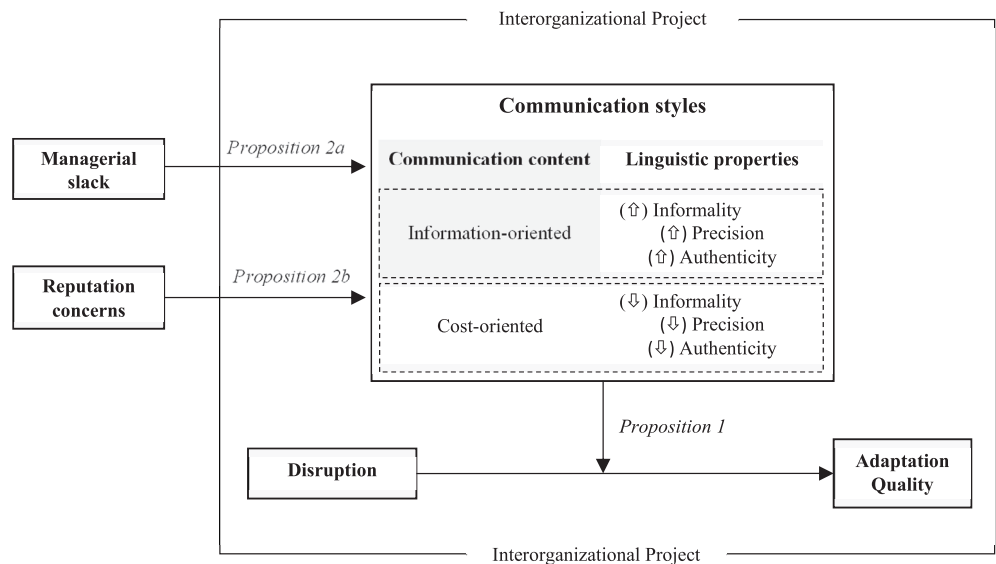
We also found that lead organizations with well-established reputations and experienced managers adopted own cost-oriented communication as part of a communication style that yielded low adaptation quality. These organizations chose to devote the minimum level of resources needed to complete the project adequately, implying that little managerial slack was available for pursuing a communication style that could support high quality adaptation to disruptions. Moreover, some lead organizations were pursuing own cost-oriented communication because managerial slack was limited and their reputation concerns were weak (Figure 3). Managers of these firms appeared to act under the belief that underperforming on what were relatively small projects in their portfolios would not significantly damage those reputations. Those smaller organizations, in contrast, sought to build up their weak reputations by pursuing information-sharing-based communication, paying attention to reducing clients' and other organizations' costs, communicating to achieve cooperation through convergent expectations, and seeking information for consummate, rather than perfunctory, regulatory compliance. These insights suggest the following propositions:

> **Proposition 2a.** *Managerial slack is associated with the adoption of communication styles characterized by an information- rather than a cost-orientation, and grounded in linguistic properties of informality, precision, and authenticity.*

> **Proposition 2b.** *Reputational concerns are associated with the adoption of communication styles characterized by an information- rather than a cost-orientation, and grounded in*

linguistic properties of informality, precision, and authenticity.

The cognitive-linguistic perspective we suggest here extends the OIPT (Srinivasan & Swink, 2015, 2018) by studying the content and the linguistic properties of information flows, rather than their direction and volume only. Our insights are particularly instructive to theorizing about adaptation to disruptions (also called "exceptions"). When faced with disruptions, managers might revise information processing needs and information processing capabilities to regain fit such that disruptions cease to occur (Galbraith, 1973). Disruptions in interorganizational projects pose a challenge to this tenet in OIPT. Against this backdrop, we extend the OIPT by contending that communication styles impact information processing capacity, which accounts for differential adaptation in projects. In particular, we draw attention to the link between linguistic properties and information processing capacity; for example, high informality, precision and authenticity foster signal truthfulness, concreteness about the disruption and needs, and openness to input from other parties. That is, linguistic properties of informality, precision, and authenticity are conducive to engage the project parties in understanding the disturbance and the required action as opposed to be told in a formal and vague way about the disturbance. We extend the OIPT by suggesting that communication style (i.e., communication content and linguistic properties) can narrow the gap between information processing needs and information processing capabilities, and thus stimulate adaptation to "exceptions."

Moreover, our study emphasizes the role of lead organizations' managerial slack and reputation concerns in

prompting specific communication styles—and therefore different information processing capability. Typically, creating slack is prescribed within OIPT as a way to reduce information processing needs (Galbraith, 1973; Peng et al., 2014). However, in our setting of building projects, we found evidence that large organizations, faced with limited managerial slack, might prioritize large projects over small projects, as with those we study. Large lead organizations may simply reduce their quality standards toward communication in small projects. Our study also shows the importance of adding reputation concerns to OIPT, which has largely adopted an organizational design view over social variables that might influence the fit between information processing needs and capabilities.

The foregoing insights further contribute to the literature about communication in operations management by conceptualizing communication style as reflecting a repeated pattern in the content *and* properties of an individual's or organization's messages. Our notion of communication style differs from exact research by, first, avoiding confusion between style and content (McFarland et al., 2006; Sheth, 1976) and, second, by drawing attention to linguistic properties rather than the perceived content only (Joshi, 2009; Prahinski & Benton, 2004; Van De Vijver et al., 2011). In addition, our study enriches the literature on transactional vs. relational contracting to support interfirm cooperation (Akkermans et al., 2019; Mahapatra et al., 2010) by shedding light on the role of communication style in adaptation. While some of these studies have pointed to information exchange as a key component of relational contracting (Heide & John, 1992; Zhou et al., 2014), we shed light on the ways in which communication style may also be a manifestation of relational contracting. Our study also speaks to the ways in which this manifestation may occur when prior relationships between firms are absent, so that elements of the relational contracting are "spontaneous."

Directions for future research stem from the boundary conditions of this study's theoretical insights. Future research should examine whether the patterns we found regarding the influence of managerial slack and reputation concerns on cost orientation vs information orientation are also present in larger building projects. Larger projects may involve contractors with low managerial slack and high reputation concerns, a combination that we did not observe in our data. We also envisioned opportunities to explore the extent to which our findings manifest in other industries, and in projects that are more innovation driven (Narayanan et al., 2020). Other studies might examine how social ties between project members shape linguistic properties or, instead, how these properties vary according to communication modes. Such

research would offer a way to continue theorizing about communication as a competence in interorganizational projects (Prahinski & Benton, 2004).

Future studies about communication content and the linguistic assessment of communication could focus on oral communication—for example, through direct observation and video recordings (Ahearne et al., 2022; Choudhury et al., 2019). Researchers might observe project meetings to learn about the influence of oral communication on how project parties reach, or not, a consensus about adaptation. Intonation and oral cues are an important, but under-researched aspect of information-sharing and information-processing in buyer and supplier relationships.

Another important direction for future research concerns the role of power asymmetry as an antecedent to communication style in determining adaptation to disruptions in buyer–supplier relationships. An obvious place to start is to specify the sources of power. For example, one large firm might be perceived as having more power relative to a small counterparty, but the latter might withhold specific unique expertise to frustrate adaptation. Such research could provide insight into the multiplicity of sources of power, and how managers use or counter power in ways that support or hinder adaptation to disruption.

Finally, future research could study the role of communication style in adapting to other kinds of supply chain disruptions. We conjecture, for example, that the linguistic properties identified in this paper also facilitate adaptation to natural disasters, terrorist attacks, pandemics, and so forth. However, there may be other properties that enhance adaptation to these other kinds of disruptions which display greater magnitude and frequency than the disruptions we theorized about in this study.

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ENDNOTES

[1] Dale Lane: $\chi^2 = 0.096$, $[df = 1]$, $p = .756$; Fulmar Road: $\chi^2 = 0.399$, $[df = 1]$, $p = .528$; North Wingfield: $\chi^2 = 1.643$, $[df = 1]$, $p = .200$; Rowlett Road: $\chi^2 = 0.476$, $[df = 1]$, $p = .490$; Blyth Court: $\chi^2 = 0.988$, $[df = 1]$, $p = .320$; Oakley Road: $\chi^2 = 1.778$, $[df = 1]$, $p = .182$; and Washbrook Road: $\chi^2 = 0.168$, $[df = 1]$, $p = .682$.

[2] Using the data from multiple sources, adaptation quality was coded across two dimensions: speed and fit (Akkermans et al., 2019). We coded time (0 = sluggish; 1 = timely) and fit (0 = problematic; 1 = fit). We added up the scores of the two

dimensions of adaptation quality into one score. The possible values were the integers 0, 1, and 2, where 0 denotes poor adaptation (sluggish and problematic) and 2 indicate robust adaptation (timely and fit), and 1 refers to mix categories where either timeliness or fit was lacking.

[3] An example of a performance consequence of low quality adaptation in the Dale Lane project is the repeated failure to obtain an important security certification for windows and doors.

[4] Across the seven projects, the lead organization's managers—including those writing up the meeting minutes and project reports—were British and had been working in the building industry for at least 5 years. Therefore, we assured that any differences in informality—or other linguistic properties—is not a byproduct of cultural or industry differences toward communication.

[5] We also checked whether the linguistic properties of the communication were conditional on whether the manager held a bachelors degree. We found no evidence for such relationships.

[6] Dale Lane Road (£6500 over budget—paid by the main contractor; 3-week delay), Fulmar Road (£17,000 over budget; 3-week delay), North Wingfield (£155,000 over budget; 2-week delay), Rowlett Road (on budget; on time), Blyth Court (on budget; 2-week delay), Oakley Road (£13,000 over budget; on time), Washbrook Road (on budget; on time).

[7] The relevant types of managerial slack in our cases involved the time and attention of higher managers and construction worker time. In addition, while in our cases the absence or presence of slack reflected project prioritization, in other settings the causes of slack may be different. Therefore, in seeking to generalize from our cases below, we focus on slack rather than prioritization as a key mechanism.

[8] While much research emphasizes the importance of prior ties for relational contracting (e.g., Cao & Lumineau, 2015; Gulati, 1995), it has also been pointed out that prior relationships do not guarantee relational contracting (Mahapatra et al., 2010). The literature on relational contracts in economics puts emphasis on expected future, rather than past, interactions (e.g., Baker et al., 2002).

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