

[AQ1] The power of humour to unite and divide: a case study of design coordination meetings in construction

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THE POWER OF HUMOUR TO UNITE AND DIVIDE

[AQ0]

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ABSTRACT

Design coordination meetings are the formal discussion venues that support interdisciplinary group interaction during the construction process. Social behaviour needs to be recognized, understood, and evaluated by group members if meetings are to be productive. The role of humour during the practice of coordinating building design has not previously been studied. A non-participant observation method was used to collect qualitative data from consecutive contractor-led design team meetings during a live building project. Using a 360° panoramic video-recording camera, episodes of humour were captured and collated into packets of rich data. These packets were then organized, structured, and analysed using NVivo computer-assisted qualitative data analysis software. The results of the analysis showed that instances of humour do not happen at random but at specific times when they performed distinct functions to facilitate the design coordination process. One notable example was the role of humour in helping to form a cohesive team that was able to manage conflict successfully and thus engender a positive cultural environment. The inclusive findings of the study have demonstrated that humour is a functional aspect of group dynamics during the coordination of design in construction that can influence social interaction and task-related performance.

Keywords: Construction design ; interdisciplinary team ; humour ; cohesion ; conflict

Introduction

Most construction management research that looks at the coordination of building design tends to focus on the “integration” of “fragmented” discipline-specific design-related tasks and their associated outputs rather than examining the social interactions between team members (Cidik and Boyd 2019). A notable exception to this is the work of Cidik and Boyd who advocate the need for studies that try to understand the practice of coordinating design in construction that adopts a practice-based ontology. By using such an approach, Cidik and Boyd have explained that building design develops as a result of the “path dependent” actions of the individual members of the team and the interdisciplinary social interactions between them. They postulate the concept of a “shared sense of purposefulness”, which they explain refers to the “temporary and precarious organizational state of a design team in which each of the interacting team members has achieved a state of purposefulness to resume individual action” (Cidik and Boyd 2019, p. 1).

Despite Rooke (2001) stipulating that humour is an important cultural feature of the construction industry, there is a lack of research that investigates the role of humour in the practice of coordinating design in construction. Or, more specifically when contextualized within Cidik and Boyd's work, the role of humour in enabling each of the interacting design team members to achieve their "shared sense" or "state of purposefulness". Embracing the interdisciplinary principles advocated by Kock *et al.* (2019) and Volker (2017), this study draws theoretical and methodological inspiration from the social sciences to report the findings of a study that focused on the role of humour in contractor-led design meetings (CLDMs).

Building on the relevant body of research in the social sciences, this study aims to understand the use, role, and impact of humour by the interacting group members of the CLDMs for a live construction project. Accordingly, the objectives will be to investigate how humour contributes to the social- and task-related activities and behaviours of the interacting group members, and the impact of their humour and behaviour on the practice of design coordination for the case study building project. A review of the extant, relevant literature in the social sciences will include theories associated with group dynamics, the dominant "observed" themes associated with cohesiveness, culture, and conflict, and, of course, humour. An overview of the innovative method used to collect, structure, analyse, and interpret the rich, qualitative data from the CLDMs will also be presented.

Group dynamics

Critical to the success or failure of a project, the "team" as a focus of investigation can often be overlooked (Wysocki 2002). The social- and task-related functions of a team and its members have been explained from two theoretical genres. First, theories associated with "teamwork" tend to originate from empirical studies that are focused on traditional management teams and operations research (Levi 2017). Second, knowledge associated with "group relations" theory has tended to arise from experimental, psycho-analytic studies that have tried to understand how people working together in groups operate in contrasting ways (Bion 1961, French and Simpson 2010). Group dynamics theory accordingly adopts a social-psychological perspective of how people can work together in small groups and how they can improve their behaviour and performance (Lewin 1951).

Group dynamics research has included studies that look at "shared perceptions of trust" (De Jong and Dirks 2012), which is an essential component of good social relations (Morton *et al.* 2006). Trust, which is an individual behaviour but can also be viewed at the team level (De Jong and Dirks 2012), is closely associated to psychological safety in teams where members perceive they are free to take interpersonal risks and to express their thoughts and feelings without fear of consequences (Morton *et al.* 2006). Issues of professional differences (Loosemore and Tan 2000) and the sometimes aggressive and adversarial behaviour (Karlsen *et al.* 2008) of groups reinforces the importance of establishing trust and psychological safety, mainly when people have to work collaboratively with the aim of being innovative to solve difficult problems. For this reason, both designers and constructors need to trust one another and to feel safe to express their diverse viewpoints, share knowledge and learn from each other (Edmondson and Nembhard 2009).

Team cohesion

Team cohesion is the interpersonal bonds that hold a group together where members like one another and feel connected because of their social relationship (Levi 2017). The team is influential in shaping good social relations among its members to allow them to work effectively and to complete tasks without conflict arising (Morton *et al.* 2006). By way of example, Badke-Schaub *et al.* (2009) have illustrated the importance of social interactions in the development of a "shared" design within an engineering design team. This "shared-ness" takes time to develop and is dependent upon the team's coordination of roles, cohesiveness, and leadership (Glock 2009). Good social relations are thereby reliant on skills such as cohesion as a result of effective communication and conflict resolution.

Cohesion arises from the emotional ties that team members have with one another. Team cohesion can have a positive impact on its performance in design meetings (Glock 2009). It is of particular importance when the team's task requires high levels of interaction, coordination, and interdependence, which usually is the case for teams developing high quality, innovative design (Beal *et al.* 2003). Groups with good social relations and sufficient cohesion are better equipped to manage conflicts constructively when compared to those with poor social relations who may avoid dealing with problems altogether (Levi 2017). Excessive cohesion, however, may be detrimental, as high levels of team

cohesiveness can impair group decision-making (Beal *et al.* 2003). By way of illustration, “Groupthink” can arise when team members “agree” to a decision not because they believe it is the best outcome but because they do not want to upset the team’s social relationships (Janis 1982).

Team culture

A further factor that influences how team members behave, communicate, and perform is team culture; this refers to the parameters of group dynamics as the shared values, beliefs, and norms of a team (Levi 2017). In the context of the construction industry, the management of team culture is important because of the longstanding opposing perspectives of designers and constructors. Eynon (2013) has explained that this is because designers and constructors belong to different “tribes” with conflicting values, cultures, and history.

Teams do not develop their culture overnight. They incorporate cultural norms and values from their parent organization and from society (Wheelan 2005) [AQ4]. In the case of the construction industry, this has tended to happen because of the professional, statutory, and regulatory bodies that govern the different disciplines, i.e. designers and constructors. As a case in point, Kululanga (2009) has investigated the impact of entrenched cultural barriers in construction, particularly in relation to innovation in contracting organizations. Critical in fostering innovation is the team culture and the team leader’s behaviour to induce a climate that is supportive of and receptive to innovation (Panuwatwanich *et al.* 2008). Such an environment allows innovative solutions to arise during the design development process (Breuer *et al.* 2012).

Social conflict

High levels of conflict have been identified as the key factor that hinders productivity in the construction industry (Latham 1994, Egan 1998). It is a behavioural characteristic of interdisciplinary teams due to the different approaches of the professional disciplines when solving design-related problems (Badke-Schaub *et al.* 2009). Conflict can be regarded as an aspect of creativity when developing an innovative design solution (Gambatese and Hallowell 2011). It usually occurs when two or more social agents interact with one another when attempting to attain their individual or mutual objectives which may well become incongruous or inconsistent (Bradford *et al.* 2004). Such incompatibility usually occurs due to competition, resource scarcity, or divergent attitudes, values, beliefs, skills, and abilities (Tjosvold *et al.* 2014). Conflict can also arise when team members use emotionally undermining language, intimidation tactics, or *ad hominem*.

Arguments between team members can leave recipients feeling bruised, humiliated, and offended (Simons and Peterson 2000). A range of interactional moderators may influence the experience. As an illustration, Norrick and Spitz (2008) demonstrated that various types of humour could shape and moderate conflict episodes, which confirms more extensive evidence that open environments characterized by collaboration may minimize relationship conflict in teams (De Dreu and Weingart 2003).

Humour

The prevalence of humour research has increased in recent years, as its influence in the workplace has become increasingly recognized (Butler 2015). Previous lack of interest can be attributed to the historical perspective that humour was considered an emotion; consequently, this was the antithesis of rationality and, therefore, of less critical importance within organizational settings. A change in this perspective (see Ashforth and Humphrey 1995) accepts that emotion is best considered as intertwined with rationality and, therefore, worthy of investigation. Emotion within organizations is now supposed to be an inseparable (and sometimes inaugural) part of emotional life and, accordingly, critically important to understand about organizational performance, specifically about culture, leadership, and group dynamics.

Broadly, humour offers an opportunity for subversion and social compliance (Billig 2005). It can be used to maintain order and to challenge authority in organizations (Critchley 2007). Humorous leaders reportedly amuse followers by sharing funny events with them (Cooper 2005). Humour can be viewed as a management resource to motivate, stimulate creativity, and boost productivity (Romero and Pescosolido 2008). The presence of shared humour enables the establishment of the team as an identifiable entity (Romero and Pescosolido 2008) and is associated with higher organizational commitment (Susa 2002) higher levels of trust (Terrion and Ashforth 2002). Humorous leadership has

also been found to be beneficial, having positive associations with performance, satisfaction (Mesmer-Magnus *et al.* 2012), and increased innovation (Pundt 2015).

Laughter and humour are frequently used synonymously (Trouvain and Truong 2017). It is not necessarily the case, however, that humour and laughter are inextricably linked (Rogerson-Revell 2007). Not every act of humour is marked with laughter by the recipients or speaker. Aside from the humour, laughter can be evoked through nervousness, surprise, affiliation, maliciousness, face-saving, or as a form of threatening action (O'Donnell-Trujillo and Adams 1983). Gockel and Kerr (2015) found that humour directed at outgroup members increases perceived cohesion in groups, although not necessarily actual experiences of cohesion.

While widely viewed positively, humour can also be a means to manipulate relationships between groups and individuals (Greatbatch and Clark 2003); by way of example, through implied threats and ridicule (Janes and Olson 2000), where it is employed in a dysfunctional competitive manner (Holmes and Marra 2002b) through questioning, controlling, and regulating relationships, procedures, and information in a group (Keyton and Beck 2010).

Meetings are frequently utilized in organizations to facilitate communications and actions. They can be characterized by different degrees of formality/informality. Meetings viewed as formal, concerning increased structure, predictability of discourse, and behaviourally evident through displays of seriousness, respect giving and politeness (Irvine 1979).

In the context of meetings, humour patterns have been associated with socio-emotional communication and new solution creation. The presence of humour is a feature during meetings within the construction industry (Rooke 2001). Positive functions include solidarity and good relationships with fellow workers, improvements in job performance, encouraging creativity, and diffusing conflict among employees (Holmes 2000). Such positivity can be moderated by the climate of work insecurity (Lehmann-Willenbrock and Allen 2014) and humour has been associated with the manipulation of meeting procedures (Kangasharju and Nikko 2009) to re-establish group norms through ridicule in order to control the group behaviour, i.e. a warning to others (Janes and Olson 2000), and the exclusion of some members through transitioning from formal to informal dialogue (Holmes 2000). Critically, Evans and Steptoe-Warren (2015) found that cynical humour is more likely to be damaging to organizations when it is used without positive humour styles; for example, where a manager used primarily aggressive humour styles, subordinates often report them as weaker leaders. Furthermore, where inauthentic humour is recognized, it is found to be associated with organizational cynicism (Dean *et al.* 1998); thus, demonstrating the potential consequences to the organizational environment when dysfunctional humour has a negative effect.

“Banter” can be viewed as a form of teasing that invites verbal and non-verbal teases in response and can often involve “horseplay” (Trouvain and Truong 2017). These counter teases are typically construed as jocular, can be directed at the same target or others, and often involved elaboration on the original tease (Norrick 1993). Although the presence of banter has been associated with competitiveness (Traylor 1973), it has also been closely related to inclusion and acceptance in the group (Plester and Sayers 2007) and is often associated with informal social settings (Haugh and Pillet-Shore 2018).

Romero and Cruthirds (2006) outline an organizational model that illustrates how humour can bring about a range of potentially desirable outcomes (e.g. cohesiveness, creativity, culture), is moderated through the style of humour (e.g. affiliative, aggressive, self-enhancing), or the presence of sensitive topics (such as gender or ethnicity). This model then determines whether the humour is evaluated as positive or negative. Lehmann-Willenbrock and Allen (2014) broadly distinguish positive humour, where amusing communications produce positive emotions and cognitions, with negative or mean humour, which are intentionally harmful or intended to put down the recipient. A speaker's evocation of humour does not guarantee a successful outcome. Critical to the success of the humour is the extent that the evoker of the humour understands the audience (Romero and Pescosolido 2008). Joking is often referential, in that team-members will understand a given joke within the groups established culture (Fine and de Soucey 2005). Consequently, the understanding of the audience may be a critical moderator in project-based groups that are established for a specific task, and members may not have the time to understand their other members fully. For this reason, the humour may fail.

Within groups, the use of humour can generate and maintain social cohesion and group solidarity (Meyer 2000). In both work and non-work groups, humour has been shown to establish and reflect membership and solidarity (Habib

2008). The use of humour often indicates an ethos of members “not taking yourself too seriously” (Haugh and Bousfield 2012) but can also work so that members can be “put in their place” within an established group dynamic. A consequence of developing such strength of cohesion is the risk that doing so excludes those who are not able to contribute to the humour (Plester and Sayers 2007). Exclusion can be accomplished, as the use of humour manages the status and hierarchy of group members (Decapua and Boxer 1999) and relationship boundaries (Mills and Babrow 2003).

Humour can facilitate support by gaining the approval of others (Meyer 2000) and provide relief as a means of managing embarrassment, fear or stress in a difficult situation, or a face-saving strategy (O'Donnell-Trujillo and Adams 1983). It can also contribute to establishing a sense of psychological safety, whereby members can freely develop, communicate, and implement their ideas without any fear of repercussions (Carmeli *et al.* 2010). The absence of negative criticism is likely to lead to a feeling of working in a safe environment, which will allow others to act on creative thinking or have the freedom to implement new ideas (Romero and Cruthirds 2006).

Finally, humour can function as a facilitator of social conflict, allowing expression of opposition, resistance, and dissent (Mulkay 1988). Humour can be used to reinforce a position in the group (Watson and Drew 2017). It also offers the speaker the opportunity to take a position of superiority, allowing an attack on others in a socially-acceptable way or enhancing self-esteem at the expense of others (Rodrigues and Collinson 1995). This situation can often be achieved through merely defending any remarks as “I was only joking” (Billig 2001). However, the consequences of such displays cannot be simply disregarded, as the negative humour in team interactions is associated with reduced team performance (Kauffeld and Lehmann-Willenbrock 2012).

This study understands humour to be an “umbrella term” that covers a range of behaviour that is considered funny, such as wit, satire, and jokes (Lippitt 1994), but also incorporates improvised extended humorous sequences (Holmes *et al.* 2007), and where participants themselves seemingly understand sequences of interaction to be humorous, such as where laughter was a central feature (Watson and Drew 2017). While a sense of humour is considered to be a relatively stable personality trait (Ruch 1998), within the literature the measurement of this construct remains problematic with a lack of measurement consistency (Martin 2003, Kong, Cooper and Sosik 2019). Within the scope of this study, the focus will be on the outward expressions of humour only and consideration of the individual differences concerning participants will be bracketed as beyond the scope of the study.

This study responds to earlier conclusions by Mesmer-Magnus *et al.* (2012) that future research should target the role of humour in project teams and among coworkers, and that such research should use methods that allow the study of humour in the social context from which it occurs (Lehman-Willenbrock and Allen 2014). To date, no previous studies have been conducted in the context of the construction industry that adopts a qualitative “in vivo” approach to the collection and interpretation of humorous episodes between the team members of CLDMs. In doing so, this responds to earlier calls for more extensive databases of humour materials to be examined (Rooke 2001). This study uses an individual level, i.e. team member, unit of analysis, by focusing on each participant; the investigation will offer a unique insight into the emotional behaviour of people working in the temporary, fragmented, and sometimes adversarial setting of CLDMs. In its essence, this study, therefore, aims to understand the use and role of humour by members of CLDMs.

Research methodology

Methodological approaches have typically relied on survey designs to examine humour (see Evans and Steptoe-Warren 2015). These studies have focused on occurrences, prevalence, and effect of displays; often they are heavily coded and quantified and in doing so lose a great deal of contextual information, which is critical for understanding humour (Lehman-Willenbrock and Allen 2014). Where other designs have been employed, they have relied on self-report recall of events (see Garner *et al.* 2015) or contrived designs where conditions have been set up to elicit humour such as banter (see Haugh and Pillet-Shore 2018). Very few studies have directly examined “in vivo” humour (except for Kangasharju and Nikko 2009, McCreddie and Wiggins 2008). This study intends to bridge this gap by interpreting episodes of displayed humour between team members participating in CLDMs during a live building project.

The research methodology used to examine humour has typically employed subordinate/self-report surveys and interviews (see Evans and Steptoe-Warren 2015). Interview-based studies can provide the opportunity for participants to reflect on their experiences of humour, which can be beneficial in gaining a holistic appreciation of the lasting

impression, positive or negatively, any humour may have left. These approaches cannot treat episodes of humour as an exemplification of the events that take place in the humorous interactions between people, rather than representing what happens (Heritage 1984). Consequently, they lack any degree of granularity by offering abstract overviews of the actions that took place. McCreaddie and Wiggins (2008) demonstrated that where participants reported on previous laughter and humour, they were more inclined to misinterpret the humour, dismiss it as not having a purpose, or perceive it as something positive. Studies reliant on recollecting humorous events also neglect to attend to the practices through which humour related actions such as jokes, quips, smiles, and grins are produced (Norrick 1993). Often these studies focus on more extreme cases such as horseplay and practical jokes, which are memorable (see Raiden 2016) and neglect the low key, mundane, less memorable humour. Greatbatch and Clark (2003) point out that these studies do not consider that laughter displays generated from humour can occur during natural interactions. Ergo, it is critical to understand the interactional context surrounding the humorous remarks regarding the sequence of behaviours during which humour occurs (Robinson and Smith-Lovin 2001), which is often unavailable from many of these previously reported studies.

Case study data and observers' context

Primary data were collected over 5 months during fortnightly, pre-construction CLDMs for a privately-funded, new-build commercial building in the northeast region of England. The main contractor provided full access to the CLDMs of three live construction projects for the principal researcher's PhD research project. This paper is based on the data from one of these projects. It should be noted that such open access can be challenging to secure and the trust and confidence of the participants in allowing this level of scrutiny to take place is, perhaps, unusual.

The participants included representatives from the main contractor and sub-contracted design disciplines. Participants employed by the main contractor were identified as "constructors", while participants sub-contracted to the project team for design input were identified as "designers". The roles of the main contractor construction team included the project manager, design manager, construction manager, and mechanical and electrical engineering manager. The roles of the design participants included the architect, structural and civil engineer, and mechanical, electrical and plumbing engineer. The first design meeting was the first time the participants had gathered to review the building design since the main contractor was awarded the contract. The last meeting (8) took place while the initial site activities were starting, i.e. site set-up. Most of the participants were male, except for a single female present during all eight meetings. The age range of the participants was between 25 and 57 years.

A survey was used to gather demographic data such as the participants' age, role, and length of time involved with the project. The lead researcher also conducted a short interview with the design manager to understand the general details about the project, such as key contract and construction dates, the procurement format, and the organizational structure.

The time the participants had been involved with the project before the first meeting was observed varied. The longest duration for a member of the main contractor's team to be involved was 4 months (design manager); the longest duration for the designers was 14 months (structural and civil engineer). It is worth noting that the client had employed the designers before the contract was awarded to the main contractor. Once the contract was awarded, the designers were novated to and employed by the main contractor as subcontractors; this meant that some of the designers had been working together before the first meeting took place. Due to the contractual arrangement of a Design and Build procurement method, this also means the designers in the meetings were directly employed and contractually obligated to the main contractor's organization. The main contractor's team was only focused on the project throughout the study, while the designers were also working on other projects.

The dataset consists of 17 h, across eight meetings, of 360° panoramic video recording that captured not only the conversation of the participants but also their non-verbal communication; this allowed for what Symon and Cassell (2012) call "meaning-making". The use of a digital video recorder was chosen because it has become ubiquitous in everyday life. People are increasingly comfortable being filmed while completing everyday activities (Forsyth 2009). Pink (2013) suggests that the use of video offers ways to reveal, understand, and collaboratively reflect on research participants activities, practices, and experience.

Humour incidents – defined as two or more of the meeting participants laughing or reacting to a humorous event – formed the critical events that became the focus of the conversation analysis. The data extracts selected to be inclu-

ded in this paper were typical examples of the team’s humorous behaviour throughout the observed CLDMs within each theme. The humorous episodes from the dataset that were selected represented improvised extended humorous sequences (Holmes *et al.* 2007), or where the participants understood sequences of the interaction to be humorous and laughter was a central feature (Watson and Drew 2017), rather than instances where narratives of wit, satire and jokes were articulated (Lippitt 1994).

The length of the CLDMs varied between 50 and 75 min with the number of participants ranging from seven to eleven. The participants taking part in the CLDMs varied across the eight observed CLDM.

In most cases, the leader of a construction project is usually the project manager; however, during the observed CLDMs, the design manager undertook this role. The aim for the CLDMs was to share information among the group and to allow it to make decisions about the building design. The primary functions of the CLDMs were to establish the progress of the design documents and to discuss any interdisciplinary problems that required a design solution.

Data analysis method

The six stages of Powell *et al.*’s (2003) method for analysing video-recorded data was used to compose the narrative for each observed episode of humour:

- attentively viewing the video-recorded data and listening to the group conversation;
- describing the video-recorded data and group conversation;
- identifying critical events of humour;
- transcribing the group conversation and noting evident non-verbal communication that occurred during the critical events;
- coding and organizing the transcription of the group conversation; and
- composing the narrative of the critical events.

The conversational dialogue of each identified critical humorous episode was deconstructed and thematically structured using computer-assisted qualitative data analysis software to consider its role and function, understand its contribution to the group dynamic, and determine its contribution to the overall activities of the CLDM.

The basis of the analysis was derived from the five primary functions of humour and laughter, namely cohesion, superiority, support, relief, and social conflict (Greatbatch and Clark 2003). It was later decided to narrow the focus of the critical events to joint laughter to the participants’ conversation and to exclude incidents of evident non-verbal communication, such as eye contact and body language. By doing so, the internal validity of the results would, therefore, be maintained without introducing any potential subjective interpretation of the perceived meaning behind recorded incidents of non-verbal communication.

The analysis aimed to consider the impact of humour on the behaviour of the members of the CLDMs while also focusing on the project team while respecting the separate sub-groups of designers and constructors. Attention was paid to the occurrence of humour as a demonstration of possible positive or negative influences on the proceedings of the agenda and group dynamics.

The conversation analysis of the critical incidents was presented using the Jeffersonian (Jefferson 2004) system of transcription notation (see Table 1 for Jeffersonian key), which is designed to not only capture what was said but also how it was said. The resulting storyline provided a detailed version of the complex nature of the social interaction surrounding the critical humorous event.

Table 1. Jeffersonian key.

(.)	Noticeable pause
[Start of overlapping talk
(())	Non-verbal activity

So she=	Equals sign shows that there is no discernible pause
=said	Between one speaker's turn and another, e.g. latching
So::o	Colon mid word denotes stretched sound
h	Minimal (volume) laughter
ha	Laughter

Identification and interpretation of the critical incidents of verbal humour in the video-recordings were first undertaken by the principal researcher, who attended all CLDMs. She has over ten years' experience of working as a design manager in the construction industry and seven years working in academia. As a result, her experience fulfils the weak requirement of unique adequacy that there is knowledge of the research setting that allows recognition and understanding of what the participants would ordinarily know about (Rooke and Kagioglou 2007). The video-recordings were also independently re-interpreted by two other researchers: one of whom has over 30 years' experience as an academic and practitioner in construction management and the other over 20 years' experience as an academic and practitioner in psychology behaviour. Following critique of the use of inter-rater reliability scores within qualitative research (Campbell *et al.* 2013, Smith and McGannon 2018), the review of the data extracts adopted a critical friend approach (Smith and McGannon 2018) whereby the interpretation and consideration behind the coding and classification of the event were discussed and then critical feedback provided to the principal researcher. This approach also served to fulfil some of the substantial unique adequacy requirements or "ethnomethodological indifference" (Wakefield 2000) by allowing the principal researcher to take a step back from the data assumptions and take a more objective, non-judgemental assessment of what was taking place during the CLDMs.

The adopted two-staged method mitigated against naïve empiricism. Bryman (2015) has warned that social scientists are prone to dismissing findings that have no apparent connections to either grand or middle-range senses of theories. To mitigate against naïve empiricism, this study adopted a triangulated approach to the identification and interpretation of observed incidents of humour between the participants of the CLDMs. The findings are, therefore, suggestive and specific to the case study project, but have the potential for transferability (Tracy 2010) or case to case generalization (Chenail 2010). As a consequence, some of the findings may be transferable to other related settings and readers may identify where the research might overlap with their situation and intuitively transfer the findings to their activity (Smith 2018).

Results and discussion

The results of the data analysis on the use and role of humour by members of CLDMs are presented in this section and discussed in the context of previous literature. The data analysis focused on the functions of the observed critical incidents of humour and joint laughter that were recorded during the CLDMs. The function of the humorous incidents – where two or more of the meeting participants were laughing or reacting to a humorous event – formed the critical events that became the focus of the conversation analysis. Across eight meetings, 102 critical humorous events were identified following the conversation analysis. The frequency and distribution of the critical events are illustrated in Table 2, along with the duration and date of each meeting, the number of participants, and the duration of humour episodes per meeting. While themes identified during the analysis were consistent with previous research (Greatbatch and Clark 2003), it is beyond the scope of this study to make further inter/intra industry comparisons. For example, as to whether this constituted significantly high or low levels of humour compared to the norm within the construction industry.

Table 2. Overall results.

Humour function	Meeting 1	Meeting 2	Meeting 3	Meeting 4	Meeting 5	Meeting 6	Meeting 7	Meeting 8
Date	21-03-18	04-04-18	18-04-18	02-05-18	16-05-18	13-06-18	27-06-18	11-07-18
Duration	140 min	125 min	130 min	120 min	130 min	155 min	145 min	155 min
Number of meeting participants	8	8	4	10	8	10	9	11

Humour function	Meeting 1	Meeting 2	Meeting 3	Meeting 4	Meeting 5	Meeting 6	Meeting 7	Meeting 8
Total number of humour events	28	15	4	9	15	9	6	16
Duration of humour events	12 min	7 min	2 min	5 min	6 min	5 min	3 min	12 min
Cohesion	✓	✓	✓	✓	✓	✓	✓	✓
Conflict	✓	✓			✓	✓	✓	✓
Relief		✓	✓		✓	✓		
Support from others	✓		✓	✓				
Superiority						✓		

In all CLDMs, the team demonstrated the use of humour as a social mechanism to foster cohesion and to manage conflict, which was consistent with previous research (Greatbatch and Clark 2003). Humour was present during both task-focused, and non-task-focused conversations, i.e. within the core business of the meetings, and actions that were discussed continued to be accomplished while still interwoven with non-task-focused conversations.

Team cohesion

Instances of team cohesion (Levi 2017) were evident in all eight meetings. Humour materialized consistently in three ways – banter, humour at the expense of self or others, and “in-jokes” – which are shown in Table 3. A further minor theme “humour at the expense of the project” was also evident in the data; however, as it was not prominent or seemingly as crucial to cohesion, the focus here is solely on the three main themes that were consistent throughout.

Table 3. Cohesion results.

Humour function	Total number of critical events	Meeting 1	Meeting 2	Meeting 3	Meeting 4	Meeting 5	Meeting 6	Meeting 7	Meeting 8
Banter	49	✓	✓	✓	✓	✓	✓	✓	✓
Humour at the expense of self or others	45	✓	✓	✓	✓	✓	✓	✓	✓
In-joke	2								✓

Banter

“Banter” is a form of teasing that is often responded to with counter-teasing that is jocular (Norrick 1993). Across the case study project, the banter was most commonly observed during the CLDMs as a form of cohesive behaviour (49 events, 19 events between constructors, eight events between designers, and 22 between constructors and designers) where it reflected a form of togetherness. This observation is in line with previous studies that noted banter was related to inclusion and acceptance in the group (Plester and Sayers 2007). The frequency of banter across the meetings challenges a view of banter that it is often associated with informal social settings (Svennevig 2000; Haugh and Pillet-Shore 2018).

Some patterns were evident between the contributions to the banter across the different professional groups. Predominantly, banter occurred between the constructors and the designers, or between the constructors as a subgroup. Only seven instances of banter occurred between the designers with the first instance taking place during Meeting 3. The amount of time spent together might explain these lower levels of occurrence. During the 4-month observation period, the constructors as a subgroup spent a lot of their working lives together focusing on a joint project, while the designers were effectively independent subcontractors brought together for developing and delivering the design of the case study project. Consequently, the relationships between the design consultants, of differing professions, have not formed the same informal, familiarity exhibited by the constructors.

The use of banter involving the constructors demonstrates a level of comfortable informality and, interestingly, the presence of familiarity during the first and subsequent meetings appears to create a positive, comfortable working environment throughout for the group. Extract 1 – Meeting 1 (see Figure 1) is taken from the first meeting and demonstrates the group’s use of humour through banter.

Figure 1. Extract 1 (Meeting 1): Banter connected to task-related conversation. Adapted from Based on Sacks *et al.* (1974). AQ12



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CDM : are we happy with our buildability on that because I know we had a discussion
      about it
      yesterday
CPM : yeah we talked about it because I had it my head that it was going down into the
      basement um (...) of the lower ground floor
DArc : ha ha ha
CMPE : (smiles/turns head to CMPE)
CDM : (smiles, moves head from side to side)
CPM : um but it is not is it so I think we are probably a little bit more comfortable
      with
      that now =
CCM1 : = me and *Brian had very much convinced ourselves that it was in the
      basement
      [and were having a lot of conversations about it =
      (Sniggers/smiles/shakes head)
CDM : [ha ha ha ha ha
DArc : [ha ha ha
CDM : =and then they came and
      asked
      [me and I sorted them out
      [and then *Alex just pitched up and put us both in our place [ha ha ha]
DArc : [ha ha ha ha ha ha
      ha
CDM : *Alex was the only one that could was going to be able to get in to actually
      install
      the pipes
DArc : [ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha
CDM : [ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha ha
CMPE : (smiles)
CDM : there they are look there they are (points at drawing) ha ha ha
CCM1 : she was wondering why she was going to have to become our [drainage installer
      [I think that might
      have
      gone away now
CDM : it has I think yeah so-
DArc : I swear to be fair they were shown in the model down to the basement because we
      didn't
      know what was happening with the connection that grey area in the tender
      (smiles/nods)
CDM : [so it was there
CPM : [so we were right
DArc : yeah yeah yeah
CDM : no no no [there was drawings that suggest-
      [you didn't tell us that
CDM : there was drawing suggesting that they were going down into the basement
DArc : but they were clouded there was a red comment saying needs to be resolved in
      terms of
      civil engineering
      but that's =
CCM1 : = but these were the contingency drawings before we knew [it she
      was
      holding them back
      [no no
CDM : no(.)
      because you had seen *Robinson's new drawings which suggested that there was some
      underlab drainage on the ground floor (looks at CCM1 with large grin) so
      engage
      brain (points finger to her temple) and you should have known
      that's you told
DArc : ha ha ha ha ha ha
CCM1 : (grins)
CDM : (move head side to side to mimic cockiness)
CPM : our issue really with that is buildability of the actual void
CDM : yeah (nods head)

```

The focus of the humour in Extract 1 is connected to a task-focused interaction, i.e. design development of the project, and a misunderstanding that the constructor (CPM) and the constructor (CCM1) had towards the design. In lines 3–4, CPM confesses to his misunderstanding as to the level of the basement leading to smiling and laughter reactions from three of the other group members. CCM1 then also confirms he was of the same misunderstanding at lines 12–14, resulting in three of the members smiling and laughing (CDM, CPM and DArc). This acknowledgement, which could be viewed as reflecting poorly on them, demonstrates how banter can show the speaker is not taking themselves too seriously, which is possible in a close-knit group (Haugh and Bousfield 2012). That this is treated with light-heartedness is then emphasized by the constructor’s (CDM) role where it is made clear that she “sorted them out” “put us both in our place”. This response could have risked being viewed as a put-down or undermining the speaker, which can be common in banter (Bradney 1957, Sykes 1966). However, this is treated positively is evident from the collective laughter and observed smiling. A further elaboration of the banter is offered through CCM1 and CPM by acknowledging the smallest person in the room CDM would have been the only one who could have

fitted in to install the pipework (lines 20–21), which the CDM further elaborates upon by suggesting that she would become the drain installer (lines 26–27).

At this point, there is potential for the banter to conclude at line 2, where CPM who raised the topic attempts to move the topic along. However, the designer (DArc) at lines 30–31, becomes involved by introducing some insight to justify the initial confusion. In doing so, he is regenerating the banter by challenging the position that the CDM was correct. Lines 33–34 demonstrate in that both CPM and CCM1 respond to suggest they had been wronged or leads to some teasing that this was intentional misleading (“you didn’t tell us that” line 37; she was holding them back lines 42–43) and coming to a climax of CDM stating they should have “engaged the brain” lines 46–47 accompanied with non-verbal behaviours such as grinning and shaking head in cockiness. Again, in this instance, CPM at line 52 bridges the conversation back to the focus of the task, and although there are still some residual instances of more low-key laughter, the group moves on, and the banter concludes.

Although literature exists that indicates the potentially harmful use of banter during organizational meetings, especially concerning switching between informal and formal conversations (Rogerson-Revell 2007) and excluding specific members of the group. Within Extract 1, there are no indications from those directly involved or those in the meeting but not making any actual comments, which would suggest that the banter was perceived negatively. Furthermore, no events were observed during the case study observations that support this perspective. This occurrence may be due to the overall informal nature of the meetings. The client was not present at the meetings, and the individual constructors and designers appeared during the first meeting to have worked together on previous projects. Consistently during the eight meetings an informal atmosphere amongst the construction professionals was observed: excessive procedural structure, seriousness, increased structure, predictability of discourse and respect giving (Irvine 1979), were not dominant features. Creating a familiar, informal working environment through working with the same construction and design professionals, project after project, may create the condition for limiting conflict but also risk dysfunctional team performance behaviours such as “Groupthink” (Janis 1982). The presence of some level of conflict has often been considered a requirement for innovation and creativity (Tjosvold 1998, Jehn and Bendersky 2003) **QAQ5** and could be crucial in produce a design based on innovative integrations of ideas. The presence of banter is evidence of a degree of cohesion within the team, but also an indicator that this is not to the extent that team cohesion has subsumed the scope for individuals to articulate their opinions or engage in this level of humour between members.

The data demonstrates that banter can materialize amongst rational, legitimate task discussions without derailing the flow of the meeting whereas banter has often been viewed as disruptive, due to those taking part vying for influence or competing (Bradney 1957, Sykes 1966, Loudon 1970, Traylor 1973). Our findings demonstrate banter materializing effortlessly as part of the ongoing behaviour of the routine meeting tasks, further evidencing banter as symptomatic of a familiar, close-knit group (Plester and Sayers 2007). This outcome may suggest that concerns around disruption have been previously overplayed. However, some team members may have found these non-task interaction inclusions as disruptive but simply did not express this in the meeting; therefore, further research should examine the disruptive influence of banter during both task and non-task-focused interaction relationships to understand further how it might manifest in other teams and settings.

Overall, while previous research has demonstrated a negative side to banter (Bradney 1957, Sykes 1966, Traylor 1973), this was not within our findings. Furthermore, banter has often been associated with “horseplay” (Trouvain and Truong 2017); however, the examples in the case study are strikingly different from previous studies (see Raiden 2016) that have illustrated acts of “horseplay”. Primarily, the presence of banter illustrated the ease that the group worked together and was symptomatic of the broader team cohesion on display. Based on these findings, further research focused on understanding the conceptualization of banter is warranted to understand the function and manifestation of banter across different social settings.

Humour at the expense of self or others

Humour at the expense of self or others was observed almost as many times as banter (45 critical events, across eight meetings: 18 events between constructors and 27 between constructors and designers). Although these instances frequently focused on those that were not in attendance at the meeting (19 events), more often the humour was directed at those present (26 events).

A facet of this form of humour was often the use of stereotypes of caricatures being the basis of the humour; for example, the constructors used stereotypes of themselves to create humour, illustrating the referential nature of humour in that the team members understand the group within the given established culture they inhabit (Fine and de Soucey 2005). In Extract 2 – Meeting 4 (see Figure 2) the discussion is focused on a new set of double doors that have recently been added to a staircase half-landing to provide additional access to a service riser. However, the landing handrail is still positioned around the wall, including in front of the new doors. The group are looking at the elevation of the doors on the 3D model via the meeting room monitor. Initially, this error is highlighted by the structural/civil engineer DEng1 (at line 1), and the others respond with laughter. This form of self-direct humour based on established stereotypes in the construction industry was also used by the DArc during Meeting 6. He joked about how architects with allotments built their greenhouse from the free samples they are given from suppliers. The errors disclosed here (and in Extract 1 and elsewhere during the observations) demonstrate that members were willing to acknowledge their mistakes without fear of repercussion, reflecting a high degree of perceived psychological safety (Carmeli *et al.* 2010).

Figure 2. Extract 2 (Meeting 4): Constructor using stereotype of constructors to create humour. Adapted from Based on Sacks *et al.* (1974).



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DEng1 : obviously the handrail isn't going to be there?
        ((smiles, points at television))
DArc   : yeah no no no no no          {ha ha ha ((shakes head/smiles))}
DEng1  :                               {ha ha ha ha ha ha}
DEng2  :                               {ha ha ha ha ha ha}
CCM1   : ((smiles/turns head to television))
CDM    :                               {ha, ha, ha I like it ((smiles)) ha ha ha}
DArc   : fine
CDM    : we will build it like that mind ((smiles, turns head to
        DArc)) {ha ha ha ha}
DEng1  :                               {ha ha ha ha}
CCM1   :                               {ha ha ha ha}

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Meeting 4 duration - 120 minutes. The critical event 14 seconds and occurred 79 minutes into the meeting.

Participants Key

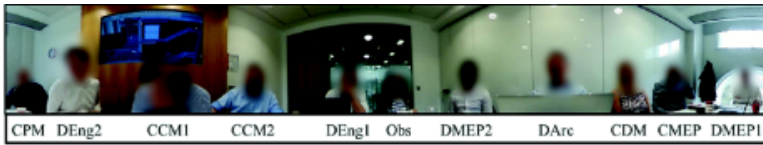
CDM	Constructor	Design Manager
CPM	Constructor	Project Manager
CCM	Constructor	Construction Manager
CQS	Constructor	Quantity Surveyor
CMPE	Constructor	Mechanical, Electrical & Plumbing Manager
DArc	Designer	Architect
DEng	Designer	Engineering Consultant
DMPE	Designer	Mechanical, Electrical and Plumbing Consultant
Obs	Observer	Principal Researcher

Jeffersonian Key

- (.) noticeable pause
- | start of overlapping talk
- (()) non-verbal activity
- So she= equals sign shows that there is no discernible pause
- =said between one speaker's turn and another e.g. latching
- So: colon mid word denotes stretched sound
- h minimal (volume) laughter
- ha laughter

Based on Sacks, H., Schegloff, E. A. and Jefferson, G. (1974) 'Conversation', *Language*. Linguistic Society of America, 50(4), pp. 696-735.

Figure 3. Extract 3 (Meeting 4): Constructor using stereotype of constructors to create humour. Adapted from Based on Sacks *et al.* (1974).



DEng1 : stands up and walks towards the television/points at the screen)) can we make that a triangular wedge, yeh, exactly, so it can be cut back in the future? to form = out of polystyrene?

CCM1 : = out of polystyrene?

DEng1 : {ha ha ha ha

DEng2 : {ha ha ha ha

CCM1 : {ha ha ha ha ((turns to face DEng1))

CCM2 : {ha ha ha ha

DArc : {ha ha ha ha ha

CDM : {ha ha ha ha ha

DMEP1 : ((Smiles))

DEng1 : not polystyrene ((smiles/sits back down)) maybe out of blockwork or something like that ((smiles)) (.) or gabions if it is a temporary structure

Meeting 4 duration - 120 minutes. The critical event 18 seconds and occurred 92 minutes into the meeting.

Participants Key

CDM	Constructor	Design Manager
CPM	Constructor	Project Manager
CCM	Constructor	Construction Manager
CQS	Constructor	Quantity Surveyor
CMEP	Constructor	Mechanical, Electrical & Plumbing Manager
DArc	Designer	Architect
DEng	Designer	Engineering Consultant
DMEP	Designer	Mechanical, Electrical and Plumbing Consultant
Obs	Observer	Principal Researcher

Jeffersonian Key

(.)	noticeable pause
I	start of overlapping talk
(())	non-verbal activity
So she=	equals sign shows that there is no discernible pause
=said	between one speaker's turn and another e.g. latching
So:so	colon mid word denotes stretched sound
h	minimal (volume) laughter
ha	laughter

Based on Sacks, H., Schegloff, E. A. and Jefferson, G. (1974) 'A Simple Systematics for the Organization of Turn-Taking for Conversation', *Language*, Linguistic Society of America, 50(4), pp. 696-735.

Where humour at the expense of others was observed, the design manager (CDM) was frequently the source, or actively involved, in these instances of humour (22 of the 26 events). The design manager's role provides the managerial link between the construction and design needs of the project, and in the case study, was the chair of the CLDMs. This central involvement in this humour further illustrates how leaders can use humour. Pundt (2015) found that leaders who used humour more frequently were reported to be more innovative, while leaders can also use humour to establish psychological safety (Carmeli *et al.* 2010). The observations highlight the use of leadership humour, in the role of the meeting chair, and how this established the meeting environment, which has positive effects on the behaviour of those attending. During the meetings, the leader reinforces the role and identity of group members, through cohesive humour behaviour, that benefits the whole team (Holmes 2000). Consequently, this may strengthen the design manager's position, with both the designers and the constructors potentially strategically aiding the delivery of the project and organizations' objectives, supporting the position that humour is often a management resource intent on boosting productivity (Avolio *et al.* 1999, Lyttle 2007, Romero and Pescosolido 2008).

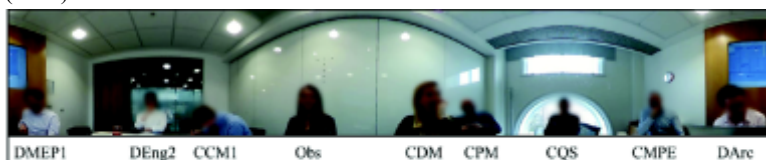
In Extract 3, which is also Meeting 4, the designer (DEng1) is talking to the constructor (CCM1) about the construction of a large concrete retaining wall. The second example plays on the stereotype that constructors will spend the least amount of money possible to deliver a solution on-site by suggesting it could be built using a cheaper material to purchase and install. A notable feature of this is that here the comment is not self-initiated but uttered by another. However, there is an immediate indexical understanding of what "out of polystyrene" (line 4) refers to as six of the members of the meeting respond with laughter while DEng1 elaborates on the joke by making further suggestions on the same theme of cheap materials they can use while smiling (lines 12-13).

These two examples demonstrate the constructors and designers' abilities to create and engage in humour at the expense of each other. The collective engagement in the humour demonstrates an efficacy which is relied on those involved understanding one another (Dewitte and Vergus 2001, Romero and Pescosolido 2008). It also represents the degree of collective familiarity they have developed (Meyer 1997, 2000). The group can function on the informal level (12 events categorized as non-task related), they are not purely focused on the task-in-hand namely to assess the

progress of design documents and resolve design-related problems, but do not lose sight of this (90 events categorized as task-related), as they ensure the meeting functionality alongside banter, teasing, and humour.

Most often, the focus on “humour at the expense of self or others” involved positive interactions; however, a small number of instances were more negative. This is evident in Extract 4, Meeting 4 (see Figure 4) where the focus of the humour is that the senior designer (DEng1) has not attended the meeting and instead sent a junior replacement designer (DEng2), which was a source of frustration to some in the meeting (lines 14–15) (Note: the issue of the senior engineer not attending in person the CLDM’s was not resolved during the eight meetings and remained a source of conflict in the group).

Figure 4. Extract 4 (Meeting 1): Humour at the expense of someone not attending the meeting. Adapted from Based on Sacks *et al.* (1974).



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CQS : I don't want to be particularly the one that says to
      *Robinsons "what's happening here lads? look we have been
      told X, Y and Z" I don't want to be that person
DEng2 : yeh you should bring that up with *Faul it's a bit out
      of [m::y (.) ((smiles)) ha ha ha
CQS : [yeh we have got a meet- telephone conversation
      this afternoon with *Faul so *Alex [will bring it up with
      him.
DEng2 : [yeh, yeh ((nods head))
DArc : I think in the spirit of the project for the sake of
      changing some numbers, I think we should be rational urw
      you know like I say I was going to have a chat with *Faul
      aside of this meeting but ((snigger/smiles)) he is
      obviously- he is elsewhere but yeah (.) [fine
CQS : [we agree with
      you on that
CDM : yeh [h h h h h h
DArc : [h h h h h h
  
```

Meeting 1 duration - 140 minutes. The critical event 34 seconds and occurred 32 minutes into the meeting.

Note: *Pseudonyms have been used to protect the anonymity of the participants.

Participants Key

CDM	Constructor	Design Manager
CPM	Constructor	Project Manager
CCM	Constructor	Construction Manager
CQS	Constructor	Quantity Surveyor
CMPE	Constructor	Mechanical, Electrical & Plumbing Manager
DArc	Designer	Architect
DEng	Designer	Engineering Consultant
DMEP	Designer	Mechanical, Electrical and Plumbing Consultant
Obs	Observer	Principal Researcher

Jeffersonian Key

(.)	noticeable pause
	start of overlapping talk
(())	non-verbal activity
So she=	equals sign shows that there is no discernible pause
--said	between one speaker's turn and another e.g. latching
Seco	coloco mid word denotes stretched sound
h	minimal (volume) laughter
ha	laughter

Based on Sacks, H., Schegloff, E. A. and Jefferson, G. (1974) 'A Simplest Systematics for the Organization of Turn-Taking for Conversation', *Language*. Linguistic Society of America, 50(4), pp. 696-735.

The extract highlights how the humour functions towards others in different ways. Notably, the numbers of those involved laughing and responding are less; only CQS and CDM react; however, in earlier examples of banter or where humour is at the expense of others where they are present, a higher proportion of the group responds to the humour. This may indicate the humour was ineffective (Dewitte and Verguts 2001). The non-attendance by a group member may qualify as a straining from the group norms (the expectation to attend), resulting in frustration from some members, but the humour usage here may also be a means to re-establish these norms through ridicule in order to control the group behaviour, i.e. a warning to others (Janes and Olson 2000, Keyton and Beck 2010). In this instance, the humour is a marker here that there is some trouble happening with the group. Notably, DArc does not explicitly state words to the effect of “he’s not here, and he should be, and I have a problem with that” (lines 13–14)

“I was going to have a chat with DEng1 aside of this meeting but ((snigger/smiles)) he is obviously – he is elsewhere but yeah”. Despite this lack of detail, the group seems to be sufficiently aware that this statement is symptomatic of the frustration at DEng1’s lack of attendance, which is acknowledged by the laughter response by CMD (line 17). That this is problematic is also evident earlier in the extract where the CQS corrects himself “we have got a meet... telephone conversation (line 6)” making it explicit that the contact is not through the norm of the regular, physical meeting but a less preferable telephone call. Creating humour connected to someone usually present at the meeting could pose problems in the bonds and trust across the group, mainly if there is a concern that not attending might risk being spoken about negatively if they were not in the room. Trust is a particularly essential requirement concerning the group’s cultural norms (Karlsen *et al.* 2008). The unsettling position is also reflected in the half-hearted use of humour here, which may function as a closing down of the awkward topic or as a resource to reduce the tension (Kangasharju and Nikko 2009), face-saving (O’Donnell-Trujillo and Adams 1983), or just as a means of relief (Meyer 1997).

In-joke

Although the “in-joke” was only observed during the eighth meeting, it is a significant observation because it demonstrates the unifying form of humour that includes the whole group (Meyer 1997, 2000). The in-joke is based on a positive aspect of the project, i.e. a win-win scenario between the constructors and the designers. Extract 5 (see Figure 5) details the first time the in-joke becomes evident.

Figure 5. Extract 5 (Meeting 8): In-joke. Adapted from Based on Sacks *et al.* (1974).



DEng1 : I think right now it would be a bit too late to do that if I am I am honest it is a lot of arm detailing work that has already occurred all over the building we don't want to be revisiting such items

DArc : okay

DEng1 : I mean we need to be looking[for not-

CPM : [there is a potential lot of cost saving =

DEng1 : = it is just a general comment

CPM : well let's have a look and see it might it might come to nothing it might it might not be an issue anyway but- it's definitely worth looking at *Paul in terms of if there is a [cost saving.

DArc : [if there is a potential saving- if there is a sizeable saving there amongst the team, you know I am sure collectively we can come to some agreement okay yes, it's additional works and all the rest of it I'm sure we can get somewhere to =

CDM : = we can have a night out

DArc : aye [want to *Paul we can have a night out

CDM : [ha ha ha ha ha

DMEP2 : [ha ha ha ha ha

DMEP3 : [ha ha ha ha ha

DMEP4 : [ha ha ha ha ha

DArc : [ha ha ha ha ha right =

DEng1 : = yuh that's fine that's fine if it needs looking at then that's fine

Meeting duration - 155 minutes. The critical event 55 seconds and occurred 37 minutes into the meeting.

Note: *Pseudonyms have been used to protect the anonymity of the participants.

Participants Key

CDM	Constructor	Design Manager
CPM	Constructor	Project Manager
CCM	Constructor	Construction Manager
CQS	Constructor	Quantity Surveyor
CMEP	Constructor	Mechanical, Electrical & Plumbing Manager
DArc	Designer	Architect
DEng	Designer	Engineering Consultant
DMEP	Designer	Mechanical, Electrical and Plumbing Consultant
Obs	Observer	Principal Researcher

Jeffersonian Key

(.)	noticeable pause
	start of overlapping talk
(())	non-verbal activity
So she=	equals sign shows that there is no discernible pause
-smd	between one speaker's turn and another e.g. laughing
Sooo	oohoo nial wood denotes stretched sound
h	minimal (volume) laughter
ha	laughter

Based on Sacks, H., Schegloff, E. A. and Jefferson, G. (1974) 'A Simplex Systematics for the Organization of Turn-Taking for Conversation', *Language*. Linguistic Society of America, 50(4), pp. 696-735.

The designer (DArc) has suggested that the senior designer (DEng1) looks at a design detail that is already complete. The DEng1 was initially reluctant to rework the design information. However, following this conversation, he agreed to look again at the information in case a cost-saving is possible. The conversation, including the humour, proved to be potentially productive for the project, and it is suggested as potential funds available for a group social activity. The humour here is responded to immediately with laughter from over half of the participants and smiles from the remaining members of the group. Later, during the same meeting during a discussion on finances, DEng1 says "All right, thank you. Is that going to be enough savings to have a party then?" demonstrating the in-joke has the potential to be further repeated. Notably, while the earlier reference to "having a night out" was said by CDM and DArc, the in-joke is later returned to by someone else (DEng1). Because the occurrence of the in-joke started during the eighth meeting, this might suggest that the group needed to work together for a period of time in order to reach the stage when an in-joke can take place, which may reflect team members developing an understanding of the audience prior to evoking jokes (Romero and Pescosolido 2008).

A function of the in-joke may reflect an attempt to reduce the tension of the problematic subject area (Kangasharju and Nikko 2009). The designers and constructors need to show a willingness to invest in the short-term pain (time

reviewing existing details) to allow for long-term project gain (improved buildability that saves time during the construction phase); therefore, the laughter may reflect the establishment of the support (Meyer 1997, 2000).

Although we have acknowledged the potential negative consequences of the behaviour described in the literature (Rogerson-Revell 2007), most of the findings here describe humour as having a positive influence on team cohesiveness and are consistent with previous literature (Meyer 1997, 2000). During the CLDMs, the team displayed cohesion using banter, humour focused on others, and in-jokes, often resulting in shared laughter (Kangasharju and Nikko 2009). Within construction, cohesiveness contributes to enhanced project team performance, particularly when striving for high levels of integration between designers and constructors (Atkinson and Westall 2010), and the findings demonstrate that humour plays a notable role in achieving this.

Social conflict

Humour directly linked to conflict occurred on 18 occurrences, (zero events between constructors, two events between designers, and 16 between constructors and designers), ranging across six of the eight meetings (see Table 4). During these observed critical events, the primary function, which occurred 13 times, of humour connected to conflict, is as a social tool to reduce tension and de-escalate the conflict. These instances were evident as conflict as there was the presence of a degree of opposition or dissent being expressed (Mulkay 1988, Rodrigues and Collinson 1995). However, these instances also did not feature as personal attacks (Rodrigues and Collinson 1995) or threats and ridicule (Janes and Olson 2000), which is characteristic of extreme conflict escalation.

Table 4. Conflict results.

Humour function	Total number of critical events	Meeting 1	Meeting 2	Meeting 3	Meeting 4	Meeting 5	Meeting 6	Meeting 7	Meeting 8
Conflict	18	✓	✓			✓	✓	✓	✓

Furthermore, none of the conflict events observed escalated into further instances of conflict and did not derail the development of the design process, which indicates further evidence of the role that effective humour can offer in contributing to organizational outcomes in groups (Holmes 2000), particularly in the function of acting as a buffer to ensure conflict does not escalate and team cohesion is maintained (Meyer 1997, 2000). Conflict is well recognized in academic literature as problematic to group performance (Jehn 1997) and is particularly so in the construction industry. However, it, if managed, can be viewed as a catalyst for innovation and creativity (Tjosvold 1998, Jehn and Bendersky 2003). Therefore, it is essential to understand the impact conflict might have on group behaviour, particularly during the design development phase of a construction project. It is noteworthy that despite evidence of cohesion, e.g. banter, in-jokes, and comradery, there were also still instances of conflict within the team that is evident within the humour. However, this conflict did not grow to derail the meeting progress, and there is not the evidence that humour is associated with undermining or attacking others (Hemmasi *et al.* 1994, Rodrigues and Collinson 1995, Holmes and Marra 2002a). Humour, as such, may not be acting to reduce the prevalence of conflict in the meetings, but instead, serve to ensure these instances do not escalate.

Consequently, humour may function as a means of reducing the tension (Kangasharju and Nikko 2009) or just as a means of relief (Meyer 1997), which ensures the conflict does not escalate further to personal attacks. An outcome of these behaviour patterns is that it allows the group to progress with the task, without any risk of escalation or lasting animosity, supporting previous studies that have indicated that humour can help to establish a sense of psychological safety (Carmeli *et al.* 2010). Extract 6, Meeting 6 (see Figure 6) is a typical example of how the group members used humour to relieve tension, associated with a potential conflict.

Figure 6. Extract 6 (Meeting 6): Humour to relieve conflict. Adapted from Based on Sacks *et al.* (1974).



CMEP : um I think they have issued ur::m any literature on urm
the likes of the CCTV that's been issued have you seen that
gents?
DMEP1 : I haven't seen it
CMEP : I believe it has been issued maybe check [with *Michael
DMEP1 : [is that on 4P's?
CMEP : I don't think so, but it can be uploaded to 4P's, can't it?
DMEP1 : to be honest I would prefer to get an email
CMEP : ha ha ha ha ha right
DMEP1 : I will see if I can =
CDM : = they don't work in 3D they don't
work in 4P's [ha ha ha ha ha ha
CMEP : [ha ha ha ha ha what do you like?
CDM : [ha ha ha ha ha we have got drawing boards
you know in the office.
DMEP1 : this isn't really a laptop it's just a cereal box I have painted
[ha ha ha ha ha
CMEP : [ha ha ha ha ha
CDM : [ha ha ha ha ha

Meeting 6 duration - 155 minutes. The critical event 39 seconds and occurred 141 minutes into the meeting.

Note: *Pseudonyms have been used to protect the anonymity of the participants.

Participants Key

CDM	Constructor	Design Manager
CPM	Constructor	Project Manager
CCM	Constructor	Construction Manager
CQS	Constructor	Quantity Surveyor
CMEP	Constructor	Mechanical, Electrical & Plumbing Manager
DArc	Designer	Architect
DEng	Designer	Engineering Consultant
DMEP	Designer	Mechanical, Electrical and Plumbing Consultant
Obs	Observer	Principal Researcher

Note: Pseudonyms have been used to protect the anonymity of the participants.

Jeffersonian Key

- (.) noticeable pause
- | start of overlapping talk
- (()) non-verbal activity
- So she= equals sign shows that there is no discernible pause
- =mid between one speaker's turn and another e.g. latching
- So:so colon mid word denotes stretched sound
- h minimal (volume) laughter
- ha laughter

Based on Sacks, H., Schegloff, E. A. and Jefferson, G. (1974) 'A Simple Systematics for the Organization of Turn-Taking for Conversation', *Language*. Linguistic Society of America, 50(4), pp. 696-735.

During the meeting, it was revealed by the designer (DMEP1) that the mechanical, electrical, and plumbing contractual arrangement with the main contractor and client does not include the need to populate a 3D model fully, only partially. This was received as negative news from the constructors and from the designer (DArc) and designer (DEng1) whom both intended to fully populate the 3D model with detailed design information. Extract 6 focuses on the conversation about a specific piece of information being provided to the designer (DMEP1). It should be noted that the 4Ps referred to in the extract is the common digital repository for project design information.

In line 4, DMEP1 responds to CMEP's statement that specific project information had been circulated (lines 1-4). The response is negative, "I haven't seen it" and quite curt. The speaker does not hedge his response or offer moderation to placate the negativity. When CMEP then responds to imply that the fault could be with the DMEP1 "maybe check with Michael" (line 5), the CMEP seeks further information "is that on 4Ps" (line 6). At this stage, CMEP attempts to resolve the issue, suggesting that they can upload the information onto 4Ps (line 7). He has likely picked up on a slight insinuation in line 6 from CMEP that as 4Ps is the standard information repository used; it should have been on there and was not. At this point, DMEP1 has the option at line 8 to accept the offer, which would have resolved the issue. However, instead, despite referring to 4Ps earlier, states he would prefer it on e-mail (line 8), which could be viewed as pedantic or inflexible, but serves to reject the offer providing an act of concession at line 7. CMEP's response is immediate laughter, reflecting a degree of awkwardness, but also the "ha ha right" (line 9) can be viewed as CMEP openly acknowledging or recognizing that DMEP1 is being aversive and not looking to help to resolve the situation. However, this does prompt some concession by DMEP1 (line 9) who starts to suggest he might

be open to seeking a solution “I will see what I can”, and although he is cut off, we can presume that this was leading to some suggestion of conceding to try to work with one of the options offered. However, he cuts off CDM (line 11) who interjects with humour to ease the tension “they don’t work in 3-D, they don’t work in 4Ps...we’ve got a drawing board in the office” (lines 11–14), which refers back to the tension generated by the disappointment of the contract not including a 3D model alongside the preference here to have the information via e-mail. The effect of the intervention here is to de-escalate the disputed issue immediately. This is evident through the shared laughter that includes CMEP initially and then DMEP1 (lines 16–17) following up with a joke “this isn’t really a laptop, it is a cereal box”, which prompts shared laughter and prevents any further tension. This results in the intervention by CDM and draws upon “humour at the expense of others” to resolve this potential trouble. This finding supports the view that it can be commonplace for humour to be evoked alongside discussion on errors (Carmeli *et al.* 2010), and that this allows issues to be resolved without further conflict escalation. Furthermore, the complexity of humour displays as a possible harmful function of humour, i.e. conflict, can be followed by a positive function of humour (at the expense of self) to contribute to a positive outcome collectively, and in this case, be productive rather than potentially destructive

Team culture

Team culture was found to be an important factor in shaping aspects of the humour and its relationship with cohesion and conflict. For example, the use of cultural differences between designers and constructors, which manifest themselves as stereotypes, was often a source of humour, which then functions to create positive cohesion and defuse potential conflict. This is particularly surprising because Loosemore and Tan (2000) identify the cultural relationships demonstrated by stereotypes, particularly between designers and constructors, as deep-rooted, strong and negative problems, which create the potential for conflict when these disciplines are required to work together. Although Eynon (2013) provides insights into the longstanding and opposing perspectives of designers and constructors as belonging to different “tribes”, with their respective values, cultures and history, the multidisciplinary nature of the CLDMs may explain why these tribe divisions were not as evident in our findings. A further explanation, however, could come from recognizing how the function of humour in shaping cohesion and managing conflict may also serve to break down barriers and allow greater possibility for collaborative practice in CLDMs.

This study used an individual team member level of analysis with designers and constructors forming subsets. It was evident that the chair of the meeting, the design manager (CDM), was often extremely engaged in the humour and, consequently, these findings are consistent with previous studies on leaders and humour (Mesmer-Magnus *et al.* 2012, Pundt 2015). Although the findings concur with the view that the adoption of humour in a meeting could be a specific management resource or influence strategy (Avolio *et al.* 1999, Lyttle 2007, Romero and Pescosolido 2008) the image of humorous managers sharing funny stories to bring about effect (see Cooper 2005) was not evident in the case study, and instead how humour was used as a resource was far more nuanced and sophisticated than may have been previously considered in the literature. In multidisciplinary project meetings, there is scope for the different groups to become the source of humour, as was evident in the findings. The role of the chair may also offer a greater licence to invoke humour directed at others; consequently, the use of humour by chairs or leaders of meetings may be an area that requires further research.

A further finding is the fostering of a cohesive environment, combined with the benefits of psychological safety created through humour, may aid the creation of a project team culture of trust, which has been identified by Karlsen *et al.* (2008) as essential for collaborative working. This is particularly important for construction organizations where research suggests a poor culture is associated with issues such as fragmentation, antagonism, mistrust, and poor communication (Ankrah *et al.* 2009).

Overall, although there is a concern that low levels of negative emotions and critical discussions could potentially hinder effective creativity and innovation (Gorse and Emmitt 2007). This was not observable during the CLDMs. Instead, humour functioned to reduce tension and divert the team away from any conflict escalation and providing a positive contribution to the overall culture of the team.

Conclusion

This study examined how humour contributes to social cohesion and conflict management during CLDMs. The results illustrate the dynamic role that humour can play within meetings involving multidisciplinary members and

how this can subsequently underpin ongoing tasks and decision-making. Often, humour has been viewed as a disruptive factor that hinders the core business of the meeting; rather than it is shown here to integrate within task and non-task-focused conversations without impairing progressivity. The use of specific aspects of humour – banter, in-jokes and humour at the expense of self and others – all contribute to the development of cohesion and conflict management within the team and can be marked as a measure of the state of inter-group relationships and the broader organizational culture. In particular, the use of humour as a moderator for conflict escalation is an essential area for further analysis, as the results suggest this can be a contributory factor in how such teams can constructively respond to errors or problems and create collective solutions when members effectively utilize it.

Limitations and future research

This study used video-based data collection to examine the role of humour during CLDMs and provided new insights and perspectives on interactions taken place in these settings. The analytic level is restricted to what is observable. Future research should incorporate mixed-method designs, which could allow a greater understanding of participants' perceptions or feelings, measurement of perceived cohesiveness, and member's differences, e.g. personality, that might shape the areas of humour, critical discussions, innovation, and decisions making. The CLDM meeting is not representative of the construction industry as a whole; therefore, our conclusions are limited to only transferability and case to case generalisability. Future research is required to examine these findings across the construction industry, different typical activity and other sub-groups, i.e. designers, constructors, in order to compare variability between the range of workplace contexts.

Disclosure statement

No potential conflict of interest was reported by the authors.

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AUTHOR QUERIES

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Response: Ok

Query: AQ4: The reference “Wheelan (2005)” is listed in the references list but is not cited in the text. Please either cite the reference or remove it from the references list.

Response: The reference is cited but it is missing from the reference list. The reference still needs to added to the reference list - Wheelan, S.A., 2005. The handbook of group research and practice. Sage.

Query: AQ5: The reference “Jehn and Bendersky (2003)” is cited in the text but is not listed in the references list. Please either delete the in-text citation or provide full reference details following journal style.

Response: Jehn, K.A. and Bendersky, C., 2003. Intragroup conflict in organizations: A contingency perspective on the conflict-outcome relationship. *Research in organizational behavior*, 25, pp.187-242.

Query: AQ6: The references “Barczak et al. (2010), Barrett et al. (2013), Clarke (2010), Consalvo (1989), den Otter & Emmitt (2007), Emmitt & Ruikar (2013), Emmitt (2016), Farh et al. (2012), Fine (1984), Foley & Macmillan (2005), Franz & Leicht (2016), Gorse et al. (2006), Harty (2008), Hemmasi et al. (1994), Hempel et al. (2012), Knotten et al. (2017), Lewis & Cheetham (1993), Tracy (2010), Wright (2004)” are listed in the references list but are not cited in the text. Please either cite the reference or remove these from the references list.

Response: Please remove all of the references from the reference list.

Query: AQ7: Please provide missing volume number for “Badke-Schaub et al., (2009)” in the reference list entry.

Response: I have had a look at this paper in various sources and none of them include a volume number.

Query: AQ8: Please provide missing volume number and issue number for “Breuer et al. (2012)” in the reference list entry.

Response: This is all the information I can find from various sources for this literature.

Query: AQ9: Please provide missing volume number and page range for “Cidik and Boyd (2019)” in the reference list entry.

Response: The page range is 1-14. I cannot find a volume. All I can find is that it was published on 9th April 2019.

Query: AQ10: Please provide missing publisher name for “Critchley (2007)” in the reference list entry.

Response: All the information I can find - Critchley, S., 2013. Humour as practically enacted theory, or, why critics should tell more jokes. In *Humour, work and organization* (pp. 25-40). Routledge.

Query: AQ11: Please provide missing volume number for “Jehn (1997)” in the reference list entry.

Response: Volume 42(3)

Query: AQ12: As per journal style we have a moved reference details provided in Figure 1 to the reference list and renumber the references according, and also reference citations have been added for Figure text. Please check.

Response: The information below the transcription needs to be added to keep consistency i.e. Meeting 1 duration, Participants Key and Jeffersonian Key. (See Figure 2-6).