

A CRITICAL EXAMINATION OF METHODOLOGIES FOR STUDYING HUMAN COMMUNICATION IN THE CONSTRUCTION INDUSTRY

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In the field of construction management there has been a small but growing interest in communication research. A problem faced by researchers embarking on this type of study is whether or not the research tools of the social scientist will remain successful when transferred to a new environment. The paper reviews some of the pioneering research projects and the methodologies used to study communication data from the construction process. Informed by the review, three pilot studies were undertaken to determine the suitability of some of the data collection methods for use within a specific environment. A matrix, identifying issues for consideration and the degree of negotiation and co-operation required to gain communication data from a prescribed context, is proposed to guide future research.

Keywords: communication, negotiation, co-operation

INTRODUCTION

Communication is a complex phenomenon, communicators simultaneously sending and receiving multiple signals at different levels (Kreps, 1989). Signals are sent at a subconscious and conscious level, however, without special equipment, the observations of communication are limited to aspects that are processed in our conscious. Interpersonal communication transmitted through expressions, sounds, actions and reactions can be observed by a third party. Whilst intrapersonal communication, inner thoughts, beliefs etc. can only be accessed by retrospective explanations, records or accounts supplied by the person in which the thoughts manifest.

Studies may seek to classify and categorise communication acts, enabling the development of models based on the classification system. A difficulty associated with studies of this nature is that they must transform communication that is continuous, intermingled, overlapping and rather abstract into observable phenomena. For classifications to be reliable, observations must be able to be categorised with significant degrees of confidence (Clark, 1991). Aspects of communication must be described so that they are not abstract, but observable acts and occurrences. Thus the study of communication is not easy, and care must be taken to select or develop an appropriate methodology that is reliable, consistent and produces valid results.

The multi-organisation and multi-disciplinary practice of construction further complicates studies of communication. Construct project objectives are achieved through interaction of individuals and groups of professional, themselves presenting a

complex and rather irregular variable. Construction professionals are individuals with varying levels of education and experience. They are associated to various professional bodies, employed by different organisations of varying size, participating in a project for different lengths of time at different phases of the construction process, communicating across shifting organisational boundaries to achieve individual, company and project objectives. For example, Gameson's (1992) research noted that differences in age, qualification, experience and profession affected the patterns and nature of interaction during the client briefing process.

The 'team' of professionals on a construction project is in a constant state of flux; interaction between professionals is dependent on the phase of construction and degree of specialist input required for solving the problems. Some of the interaction is planned and outlined in contractual arrangements, other interaction is unforeseen, thus requiring greater interaction to solve problems. Loosemore's (1999) results suggest that as unexpected problems manifest, the patterns of communication change, reflecting power and responsibility struggles.

Methods used to collect communication data must be capable of recording the interaction dynamics that allow research propositions, conjecture and theory to be tested, modelled and developed. Studies of communication must be flexible enough to capture relevant interaction dynamics. However, researchers cannot observe every event and must specifically identify the scope of the research, the units of interaction, the specific aspect of construction, and the phase of construction process that is to be observed. The scope of any study of communication during the construction process is limited both to communication behaviours that can be observed and by the resources available. Thus studies tend to be limited to one particular aspect of communication. For example, Gameson (1992) investigated client briefing, Bowen (1993) focused on the quantity surveyor / client relationship, Emmitt (1997) observed communication between the manufacturer and the specifier, and Loosemore (1996) investigated crisis management during the construction phase. These research projects further limit the scope of their research by the type of data collected and the methods used to collect it. Identifying and limiting the scope of the research is necessary so that the study provides meaningful and manageable data.

Incremental development of communication research

Studies of communication often aim to produce systematic statements about the nature and dynamics of human interaction, derived from an interplay of conceptual frames and data (Albrecht, 1997). The statements and theories provided by communication-based research provide a chronicle of theoretical insights that develop over time. Research is the delivery of a process rather than the development of an end product; it is an incremental development of understanding. Theory development is often referred to as a story, of the undertaking of logical and empirical challenges (Albrecht, 1997).

Research on communication in organisation settings is considered by some researchers as too complex or inappropriate to model using quantitative methods (Cassell and Symon, 1994). The use of quantitative methods alone offers a limited perspective since the experimental unit associated with a temporary multidisciplinary organisation is not one that can be totally controlled. The research unit being observed develops, changes and responds in different ways depending on how the professionals act out their roles. There is a danger, particularly with statistical methods, with becoming too focused on the intricacies of measuring, and thereby

focusing attention on the classification of interaction instead of observing the actual behaviour of interest: what is actually happening (Cassell and Symon, 1994). The use of self-reflective commentary on communication research can provide a perspective on the theory without which much of it would prove difficult to understand. The use of quantitative and qualitative research increase the detail of the information collected thereby improving the overall methodology and hence reducing some of the research limitations (Fielding and Fielding, 1986).

Methods used for categorising and observing human interaction are said to require inference on the part of the observer (Duncan and Fiske, 1977). It is considered important to recognise discrete interaction variables within the context of the larger interaction sequence. Discrete observations that fail to recognise how a gesture, comment or interaction was used can sometimes be misleading. For example seemingly obvious statements such as “yes” and “no” have little real meaning unless you are able to hear the words before and after them, see the expression on a persons face, and experience the emotion used to project the statement. Some analysis techniques require the observer to use their own intuitive emotions to categorise the interaction, based on prior, present and possible future interaction; using ‘active outgoing emotion’, rather than pure logic that may ignore previous interactions (Bales 1951).

Qualitative research methods are considered to be more appropriate to research focusing on organisational process, as well as outcomes, whilst attempting to understand both the individual and group experience of work (Cassell and Symon, 1994). Using more than one methodology or tool to study communication can be advantageous. Moser and Kalton (1971) and Jobber (1991) have argued that a combination of research procedures is more useful than a single one, the different methodologies yielding different kinds of data which, when used together, allows a more comprehensive analysis of the phenomenon being studied.

Communication research methodologies applied to Construction

Perspectives from studies outside construction are important, however some of the most significant insights are gained from those who have applied and tested methods in construction. The following reviews identify some strengths and weaknesses of the research process.

Gameson’s (1992) study, of clients and potential professional’s first meeting, uses Bales’ (1951) Interaction Process Analysis (IPA) for classifying sequences and patterns employed by participants in problem-solving groups. It has been suggested that there are few methods of measurement and techniques for collecting empirical readings of group interaction and behaviour that are better than Bales’ IPA (Mills, 1967). The method offers a generic system for analysing the process of interaction rather than the content (Stone, Dunphy, Smith and Ogilvie, 1966). The model has been used to analyse labour mediations (Landsberger, 1955) undergraduate training groups (Stone et al, 1966) and construction professionals during initial meetings with building clients (Gameson, 1992). Bales (1951) describes the system as a way of classifying direct face-to-face interaction, as it occurs, in a series of ways summarising and analysing the resulting data so that it yields useful information. The limitations of Bales IPA model, identified by Gameson (1992), included an inability to measure and classify the problem being discussed. Despite these limitations the model was considered the most appropriate system to classify client – professional interaction. Additional measures were devised by Gameson to classify the content of interactions

with specific reference to the problem being discussed. Gameson transcribed the meeting allowing grouping and quantification of words used during the interaction. This provided information on the topics being raised by each professional.

In Hugill's (1999) reflection of a research method, used to investigate the project team through examination of the multidisciplinary team meeting using audio recordings, a particular point of noting the difficulties of gaining access to this sensitive environment is made. The reflection identifies problems experienced when attempting to negotiate access to observe the meeting. Hugill notes that only after several attempts did the researcher eventually gain access into the meeting. Initial attempts to gain access into meetings had been through the research team's contacts. A third party known to the research team had been asked to act as a 'middle man' and approach a client of a building project to seek permission to make audio recordings of construction meetings. Hugill explained that difficulties were experienced due to the third party inability to adequately explain the nature of group dynamics that the study was interested in, and what benefits those participating in the research could gain. Thus a significant negotiation process is often required to enter and research interaction in a professional environment.

Loosemore's (1996) investigation of communication behaviour patterns in building projects during crises management used diaries to collect case study data. Diaries for tracing information and associated communication behaviour have been used to produce retrospective accounts and re-constructions of actions and events. These can be used to produce a self-report or measure of the subject's feelings or beliefs. This type of methodology assumes that people can provide relatively accurate accounts of past events (Clarke, 1991). Whilst accounts may be abbreviated they provide a source of data that is almost unobtainable (Clarke, 1991). It is generally accepted, that with the use of diaries and retrospective accounts, the subjects have a general idea of the researcher's interest.

PILOT STUDIES AND RESULTS

Research methods, used by others, are not always successful when used to study a different aspect of the communication during a specific part of the construction process. With this in mind, in the present research, pilot studies were undertaken to test the suitability of three different methods of collecting interaction data between the participants in management and design team meetings held during the construction phase. The methods tested included the use of diaries to collect retrospective accounts of interaction during meetings, similar to those used by Loosemore (1996), audio recordings of meetings as used by Hugill (1999) and the observer entering the meeting to make written observations using Bales (1951) IPA.

In the pilot test, even though diaries are considered easy and quick to use, only one out of five professionals completed the sheets. This result was surprising since regular contact was maintained with all participants, and in some cases support for the research project was gained from more senior professionals (in the participant's organisation) who encouraged the participants to complete the data sheets. Even in the case of the one participant who completed the data sheets, the quality of the data reduced over time, questioning the consistency of the data.

As in Hugill's (1999) work the possible use of an audio recorder was investigated. Attempts were made to negotiate recording of two management design team meetings. The company's management team who organised the meetings were approached first

for their co-operation, followed by approaches to other participants in the meeting. Most of the professionals from different organisations were apprehensive over the idea of recording meetings using audiotape. The concerns were that the recordings may get into the 'wrong' hands and could then be used against an organisation. The process of gaining participant co-operation was time consuming; in one of the pilot studies over two weeks were needed to make contact with eight professionals from different organisations. A high degree of resistance was experienced from most of the professionals and two refused to be recorded. With the amount of resistance, and additional concern that recording may change communication behaviour, the methodology was abandoned.

The final method tested was for an observer to enter the meeting and record interaction using written data sheets. There was little resistance to attending and observing meetings. After the researcher had offered full confidentiality, none of the professionals approached during the pilot study refused to allow the observer into site meetings and record (write down observations). The Bales (1951) IPA technique was used to classify interaction.

Issues for consideration

Difficulties have been experienced with developing a methodology that allows the collection of meaningful data. The sensitive nature associated with observing behaviour that is based on interaction between two or more people in different organisations raises some problems. It is clear that an element of trust needs to be built between the researcher and organisations before interactions can be observed. Whilst audio recordings have been used in research by Gameson (1992), this was a staged meeting, and in Hughill's (1999) research difficulties were experienced when attempting to collect data using this method. Whilst it is considered possible to negotiate access to record meetings, the risk of being refused access is high. Concern over being recorded is not surprising considering the number of recorded conversations that find their way to the mass media.

The use of diaries also presented difficulties. Research methods that require professionals to undertake activities that are not part of their normal duties may hold a low priority and not receive sufficient attention to be usable. The degree of negotiation and co-operation for such a research project is important. Participants must have the time to co-operate and agree to provide the necessary information. A danger of carrying out work that requires participants to undertake additional activities is that, when building projects have problems demanding increased commitment by the professional, the research activity may suffer a reduced priority, either reducing the detail of data or failing to provide data. If the research requires all participants from different organisations to complete the diaries for the research method to be successful, considerable effort may be required to gain sufficient co-operation before the research can be undertaken.

The final method recording interaction using data sheets completed by the observer was the method that met with least resistance. Negotiation was required but parties were far less defensive than when attempting to negotiate the possibility of using audio recording. It would seem that the greater the invasion, the degree of recording of what might be sensitive processes, and active participation outside the professionals normal working practices, the greater the degree of negotiation and co-operation required by the research team.

The following model (Figure 1) provides a summary of some issues for consideration when selecting a method to gain interaction data.

Research method	Audio Recording of interaction – subjects agree to recording	Diaries, or verbal self reports. (Retrospective accounts)	Direct observation – subjects are aware they are being observed	Observation or recording without informing subjects
Issues for consideration				
Degree of negotiation required to gain entry into environment	High	High	Considerably less than previous two	None
Subject involvement / active contribution	None – unless the interaction environment is artificial	High	None – unless the interaction environment is artificial	None
Change of behaviour	Needs to be considered	Whilst behaviour may not change reports can be selective	Needs to be considered	None
Ethical Consideration	Confidentiality issues	Confidentiality issues	Confidentiality issues	May be considered unethical

Figure 1: Issues for consideration selecting methods for collecting interaction data.

CONCLUSIONS

This brief overview has presented some issues that should be considered before selecting a method to collect interaction data. Consideration must be given to the sensitive nature of the construction environment. While researchers often focus on problems, this is a time when professionals may be under considerable pressure and assisting researchers may hold a low priority. It would be wrong to suggest that research methods that require a high degree of negotiation and co-operation should not be used; they may be the only way of collecting that type of communication data. When entry to an environment is refused on a number of occasions but eventually gained, one has to question whether the case studies which allow access are representative of that type of environment. Studies that go into sensitive environments are important. As the communication studies continue to increase, the findings made using the different data collection methods, including those that gained access with relative ease and those that gained access only after a number of failed attempts, will provide valuable data. Studies that observe the same environment, using different data collection methods can be compared to help validate research data that are gathered. The more probing data collection methods, which are mostly resisted, will benefit greatly from the studies that use less intrusive methods. More work on communication methodologies and data collection techniques is required. Further discussion of research tools, their strengths and weaknesses and consideration necessary for successful application in the construction environment is necessary.

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