MOBILE PHONES IN PROJECT MANAGEMENT: THE PENDULUM OF PROFESSIONALISM

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Instant electronic communication has become a regular feature on many construction projects in recent years. However, the use of the mobile telephone for instant vocal communication, as opposed to more structured strategies for mobile computing, may produce problems. Anecdotal evidence suggests that there is concern about the instantaneous nature of this form of communication, its affect on behaviour and what constitutes "professional" practice in its use. The opportunity has been taken here, through the use of a questionnaire survey of project managers mainly from the construction process industry, to discover something about the use of mobile telephones in projects and the opinion of those who use them. Initial research suggested that the use of mobile phones did not have the planning, financial investment and in-use training support which are given to mobile computing tools. Some people in the construction team appear to have different approaches to mobile phone use and this may be age related. Positive and negative issues are identified which are associated with aspects of mobile phone use classified as professional [more formal and organised where high levels of understanding are generated and issues are clarified if necessary] and unprofessional [a more relaxed approach where understanding is not fully generated and issues are not fully clarified]. Further research on a longitudinal basis is strongly recommended to investigate these issues.

Keywords: project management, communication, mobile phone.

INTRODUCTION

The Construction Productivity Network held a workshop in 2008 as part of the launch of the Uniting Construction Information organisation, which seeks to increase collaboration in the use ICT in construction. The workshop paper indicates that the focus of the industry appears to be in considering the best way to use ICT through developing good practice examples and strategies for implementation. Most of these appear to involve the use of some form of software or hardware system to transfer information (CIRIA 2008). COMIT is a member of the UCI and its website has a series of case studies which show practice based examples of the use of mobile computing or communication technologies for improving processes. However, they all seem to be based on the use of the technology for the transfer of mainly non-vocal information (COMIT 2009).

The mobile phone seems ubiquitous in the western world (Levinson 2004) and many people on construction projects have one, either of their own or supplied by their company. The temptation to use the mobile for instant communication is high and

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anecdotal evidence suggests it is a tool which is used often for vocal communication. The concerns expressed in literature about the possibilities for distortion of vocal communication (Fryer at al 2004) raises concerns about how the mobile phone is introduced and operated in the project environment.

The aim of this paper is to concentrate on vocal communication only, therefore it is proposed to exclude mobile computing technologies all of which either do not include vocal communication or make it easier to add richness to the communicated message (Daft and Marcic, 2007) and therefore, guard against the distortion of the communicated message. It is the distortion of the message which is one of the fundamental issues dealt with in this paper.

The aim of the authors was to investigate the balance of use between what might be considered professional and acceptable or unprofessional and unacceptable behaviour in the use of the mobile phone in construction projects.

THEORETICAL BACKGROUND

Agar suggests that the introduction of the mobile phone has flattened society and introduced horizontal social networks (2004). Is this a situation which is healthy in a project environment where hierarchal methods of reporting and communicating are still employed? (Newton, 2005).

The mobile phone is a tool which allows information to be transferred instantly regardless of location. It is generally accepted that information is a prerequisite before a decision can be made therefore it may be considered that this instant availability may be useful. However, Dixon indicates that there is a link between the quality of the decision and the information communicated (2003) and the accuracy or quality of the information communicated by mobile may be questionable.

Mehrabian's theories (quoted in Clarke, 2005) suggest that a communicated message is broken down into three elements. These elements are not equally weighted with respect to their contribution to the understanding of the communicated massage. Visual communication contributes to 55% of understanding and voice tone contributes 38% towards the meaning, which leaves only 7% of meaning associated with the words themselves. So there may be more than 50% risk in misunderstanding if, whilst communicating, visual recognition and interpretation of the communication is removed. If visual communication is not present, then it is possible that either of the two other elements can be exaggerated to assist understanding. Bernstein (1971) illustrated this when he identified two forms of communication code; restricted and elaborated. The use of restricted code is normally practiced when the audience is familiar with the discussion topic or terminology being used. Whereas, elaborated code is used in a more general environment and employs simpler expressions. As project managers spend more than 90% of their time communicating (Kerzner 2003) we can question whether the use of the mobile phone has altered the balance of project communication. The authors of this paper perceived and investigated a situation, where the instant nature of mobile phone communication, the lack of a visual dimension and the likely increase of elaborated code might see Professional communication [more formal and organised where high levels of understanding are generated and issues are clarified if necessary] replaced by Unprofessional communication [a more relaxed approach where understanding is not fully generated and issues are not fully clarified]. It was considered that there was a potential impact of using such devices on both personnel and project efficiency related to how the

technology might influence the planning and decision making which contribute to project execution and success.

The authors reviewed literature about communication theory and communication in construction projects. It became clear that there is little if any literature which deals in detail with the use of mobile phones on construction projects. However, they identified three important theoretical issues relevant to the study from more general communication literature. These were:

- The relationship between verbal, vocal and visual communication (Mehrabian in Clarke 2005).
- The use of restricted and elaborated codes as described by Bernstein (1971), where restricted codes are used when the audience is familiar with the topic or terminology and elaborated code is used in a more general environment and employs simpler expressions.
- That there are rules of communication (Wood 1999).

To understand the usefulness of the mobile phone as a medium for communication, it was necessary to explore and review literature on the importance and make-up of communication in projects. This revealed many important issues with respect to communication within projects. The authors identified many criteria which can impact on the overall effectiveness of communication. The impacts vary.

Criteria considered to have a positive impact:
- Communication is a key skill required by a project manager
- Communication has a central role within projects
- Communication is a dominant discipline within project management
- Communication generates a healthy environment
- Communication is bidirectional

Criteria considered to have a negative impact:
- Technology can have a negative impact
- Total communication is considered to be a face to face issue
- Communication is unidirectional

Criteria considered to have a neutral impact:
- Communication changes with project structures
- Communication has rules
  - Regulative and Constitutive
- Communication has codes
  - Restricted and Elaborated
- Communication has three basic formats
  - Visual
  - Verbal
  - Vocal
- Communication has a profile
  - Official or Unofficial
- Communication is recorded
  - Officially or Unofficially
- Communication has an impact on projects
  - Success or Failure
- Communication is about persuasion
- Communication can be improved with training

This research sought to discover where and how the mobile phone, as a medium of communication, impacts upon these variables.

RESEARCH METHODS

Primary data were collected using questionnaire surveys. A three stage approach was employed. A pilot was structured simply with yes/no answers to investigate whether the rationale behind the research question was substantial enough to proceed with the research. Direct phone calls were made and paper questionnaires were distributed in a project office to a small sample of project managers. For this and all the subsequent questionnaires the responses were collected, coded and entered into SPSS software. Simple descriptive analysis of frequencies was performed. The results suggested that a typical approach from many respondents was that the mobile is an extremely useful tool, but training is not required and it is not important to make records of the decisions taken during a phone call. Additionally a majority of people stated that such a simple device could not be complicated and that they had never thought about communication issues when using a mobile phone. This relaxed approach to the use of the mobile phone in projects suggested that the rationale behind the research question was correct and the full research program should proceed.

A second pilot questionnaire was developed and contained both qualitative and quantitative style questions and was sent to 12 project managers from the process construction industry by email [7 were returned]. These respondents were asked to make constructive criticism on the style, quality, contents and length of the questionnaire. The final questionnaire included adjustments arising from the previous questionnaires and contained 89 questions.

As a tool for the project manager, the mobile phone has been readily available for around 8 to 14 years. For this research the targeted population was split into four age groups of project managers, construction managers or project engineers. These were 21–30, 31–40, 41–50 and 51+, which are considered to span populations who have come the tools as a new device through to those to whom where they are a natural tool which had always been available to them.

The final questionnaire was prepared and delivered by email and post to 17 members of the APM (Association for Project Management) North East branch and 83 project managers or project engineers from a number of industries. A 54% return rate was achieved.

RESULTS

Communication and the mobile phone

The data suggest that, in accordance with the theoretical background, one of the most import responsibilities of a project manager is that of communication although the single most important measure for the client, as perceived by the respondents, is project delivery [with regular communication a long way behind in second place.

It is significant that across the age groups of 21-30, 31-40 and 41-50 there is a recurring agreement that project communication is the most important skill for a project manager. This agreement is supported by 59 – 66 % of persons across those age groups. The result across all age groups of 51.9% is lower because the participants in the age group of 51 + showed a strong bias towards people management and planning rather than communication. Within this age group, only 26.7% of respondents support project communication as the primary skill.

With regard to channelling and sharing information it appears that individuals still prefer team meetings, one-to-one meetings and written communication rather than telephone conversations. However, this preference also seems to be age related.

Commencing with the oldest age group [51 +], only 6.7% of this group support the telephone as a preferred channel of communication. As the age groups become younger the support for the telephone increases. The 41-50 age group gives 15.4% support towards the telephone, age group 31-40 gives 27.3% support and the final age group of 21-30 gives 33.3% support towards the telephone.

The trend is reversed regarding support for personal face to face meetings. The indication is that as age groups become younger, with the resultant lack of project experience, the recognition of communication skills seems to become a little more relaxed. Alternatively, these results support Lei and Skitmore (2004) in suggesting that as experience increases the appreciation of formal face to face communication is also increased.

Formal and Informal communication

The use of mobile phones for ad-hoc and informal communication is supported by 48.2% of respondents, whereas this percentage drops down to only 11.3% of respondents who support the use of the mobile phone when the communication is official and formal.

The data suggest that in practice the use of mobile phone is taken for granted and no rules apply to their use. The question enquiring whether the mobile phone is now an inherent project tool produced a very positive response of 77.8% in the agree or slightly agree category. Additionally 88.8% of respondents believe that the mobile phone promotes better communication while 81.4% of respondents thought that mobile phones gave access to information. What is of concern from the data is that even though the results point towards the mobile phone being considered useful the majority of respondents claim that training in the use of the device is not required. Only 11.5% percent of respondents agreed that training was a requirement.

Visual Communication, message distortion and understanding

One of the important issues to consider from the literature review was how accurately information is understood? Without the availability of body language the message may not be interpreted correctly. The use of the mobile phone totally eliminates the element of visual communication which Mehrabian (2006) suggests has an affect on the quality of communication. It is a project tool which is normally used in isolation, therefore it could be suggested that without an audience it is possible to manipulate the meaning of individual phone conversations. Two questions explored whether in practice the use of the mobile phone either distorts or raises difficulties in understanding. The results show that 75.9% of respondents positively associate the use of the mobile phone with message distortion and 82.5% believe that the mobile phone can introduce difficulties in understanding. The data also indicate that 73.6% of project managers understand how this relates to mobile phone communication and the importance of face to face communication when the message content is critical.

Mobile phone communication, meetings and networking

Questions were asked to clarify whether face to face type activities e.g. managing by walking about or project meetings, were being replaced with the remote use of mobile phones. 72.2% of respondents do not believe that managing (or networking) by

walking about remains a recognisable tool within the project manager's basket. Other questions show high support for project review meetings. There is evidence here that individuals still wish to deal with people but it may be that the more informal methods of face to face contact are being replaced by use of mobile phone conversations. An additional 4 questions investigated the perception of the respondents as to whether the mobile phone is a useful tool for project networking.

The results show that project managers agree with the literature review that networking is a key to successful project management. A significant proportion (89.7%) of project managers positively support the mobile phone as a communication tool and a similar percentage (84.2%) support the mobile phone as a method to practice the skill of project networking, particularly when travelling (92.3%). It appears that there may be a direct relationship between the availability of the mobile phone and the skill of networking.

Mobile Phones and Decision making

Other questions investigated the relationship between frequency of decision making, when minimal information is available and risk and cost associated with the decision varies. The results show that as the risk and cost increases the frequency of decision making decreases. Not only does the regularity of decision making decrease with increased risk and cost, but the probability of decisions being made also decreases.

The questionnaire used options of 'always', 'frequently', 'occasionally' and 'never' relative to level of risk. At the highest and medium risk and cost no respondents said they always made decisions. At the highest risk and cost category no-one also frequently made decisions.

There was no conclusive evidence which suggested that any age group is different to another in this area.

Links can be made to other answers to show that in practice the use of the mobile phone also decreases when risk and cost increases. There is a significant decrease from 59.4% down to 9.4% when the risk and cost increases from low to high.

It was also possible to clarify whether the main driver in decision making, when minimal information is available was either risk or cost. From the results it is possible to conclude that project costs are dominant over risk. This may be linked to the theory that what is measurable is acted upon and costs are perceived to be less amorphous than risk. The data suggest that there is a tendency to avoid high cost decisions when minimum information is available. However, when a decision is necessary then this may be where a mobile phone is useful.

We were able to consider this and from the results in it can be stated that the mobile phone is useful as 42.6% of respondents frequently use the mobile phone to seek further information to verify a decision. In fact 75.5% of respondents agree or slightly agree that the mobile phone assists decision making.

Other questions also indicated a positive approach and show that mobile phones prompt decisions (81.4%) and greatly assist the access to information (81.4%), respectively.

Professional practice – planning and documenting calls

Four questions investigated the amount of planning associated with the making of mobile phone calls. The results indicate that many calls are made and received in an

ad hoc manner without an associated plan or fixed agenda. Other answers show that a significant number of respondents do not record the decisions and conclusions associated with up to 50% of all mobile phone calls they make and receive. Only 18.5% of respondents frequently (>50% of the time) record the contents, decisions and conclusions of the calls they make and 21.2% of the calls they receive.

It can be concluded that the use of the mobile phone must be judged carefully when important issues are to be communicated, therefore suggesting that there is a balance of usefulness concerning the technology.

Another element of professional practice is considered to be the practice of documenting important issues and decisions. A significant number of respondents do not record the decisions and conclusions associated with up to 50% of all phone calls they make and receive. Only 18.5% of respondents frequently (>50% of the time) record the contents, decisions and conclusions of the phone call they make. This percentage rises to 21.2% of respondents who record the content, decision and conclusions of phones calls they receive. This is an alarming situation and can be compared to the comments made in the literature review where unofficial and non documented communication is frequently practiced in project management.

The data gathered also demonstrate that in practice the use of mobile phone is taken for granted and that no rules apply to the use of mobiles. Only 11.5% of the respondents feel that training is required in the use of mobile phones and their used is virtually ignored in Project management literature. This suggests a relaxed approach to the use of the mobile phone which does not seem to correlate with the belief in face to face communication and the need for more information to support high risk decisions.

Respondents written comments

Each questionnaire offered the respondent the opportunity to give personal and specific remarks to support the questionnaire. Some form of additional comment was made by a third of the respondents. The majority of personal comments concentrated on five main topics. These topics are

- The mobile phone is a project tool
- The mobile phone gives instant communication
- The mobile phone creates conflict
- Documentation is being missed
- Face to face meetings are a project requirement

Many of the personal comments followed the same structure. Each comment commenced with the positive aspects of the mobile phone i.e. a vital tool which gives instant communication. This was followed by the voicing of their concerns i.e. lack of documentation and the creation of conflict. One respondent made a very valid comment - "Properly used the mobile phone is a useful tool to clarify specifications. However, emergencies are partially created in my experience in technical projects due to improperly documented and communicated ad hoc mobile phone conversations.". He goes onto say that when emergencies occur the most useful tool is the mobile phone.

CONCLUSIONS

Overview

Currently insufficient evidence or experience exists to state how useful or troublesome the mobile phone can be. This paper hopes to add new information to what currently exists on how mobile phones are used in project management. To do this we can initially consider the issue of the use of mobile phones as a pendulum which swings between approaches which are classified as professional [more formal and organised where high levels of understanding are generated and issues are clarified if necessary] and unprofessional [a more relaxed approach where understanding is not fully generated and issues are not fully clarified].

Research findings

From the data there is strong evidence that on a general and superficial level the importance of communication in projects is well understood. This ranges from the benefits of traditional and supportive methods of face to face project review meetings to the flexibility and availability of people when modern communication aids are introduced. However, there is evidence that the balance between professional and unprofessional communication in projects is changing.

This change seems to be related to the introduction of new technologies and in particular, a relaxed approach and uncontrolled usage of the mobile phone.

The mobile phone is now firmly reported and accepted as a project tool. But, unlike many other project tools or disciplines it does not benefit from a professional approach when related to the introduction and use of the tool. There is good evidence that the majority of mobile phone users believe that training in the use of the tool is not a requirement and that the usage of the tool is not explained upon project commencement. Here the pendulum seems to favour the unprofessional.

Conversely, there is good evidence that the mobile phone greatly contributes towards project networking, prompts speedy decisions and generally improves project communication. Here the pendulum seems to be towards good practice.

It is also reported, primarily by the older age groups, that the mobile phone cannot replace face to face meetings and manage by walkabout. This is an indication that within the project environment there is an understanding of the balance needed between remote and face to face communication. However, there is some volatility in this balance as it seems to be age related and the pendulum may be considered unfixed.

One of the major shortfalls associated with the use of the mobile phone is the lack of official documentation. The evidence shows that only a small percentage of individuals' document decisions made during phone calls. As the use of the mobile phone is escalating then it can only be assumed that without any intervention the amount of non-documented decisions will also escalate. This is a situation which may eventually become unacceptable and troublesome. Here the pendulum is again indicating unprofessionalism.

Referring to the personal comments made by many of the respondents, the usefulness of the mobile phone cannot be questioned. But it must be remembered that these same respondents detailed their concerns on the lack of supporting documentation and conflict which the mobile phone introduces into projects. One respondent pointed out

that the same mobile phone which creates problems is used to solve those same problems. This is where the pendulum swings in both directions.

Another negative associated with the use of mobile phones is that there is evidence that the communicated message is frequently distorted and misunderstood by the recipient. There could be several reasons for this situation, but it is expected that the main reasons are as detailed by earlier researchers. Earlier research highlights clearly that there are rules and regulations, coding (elaborated and restricted) and channels of communication which are all a prerequisite for effective communication and understanding. Where these theories cannot be practiced or deployed in total, then difficulties in communication can only be expected. With a relaxed approach towards mobile phone communication the pendulum moves towards the unprofessional.

However, there is evidence that personal efficiency is greatly improved with the introduction and use of the mobile phone. Project dead time e.g. travelling time can be used, decisions can be changed quickly, hierarchal barriers can be overcome, specialist knowledge is readily available and general project momentum is maintained. This is where the pendulum swings back towards professional practice.

The important findings from the data are:

- Formal communications are considered by PM's as important and there is a preference for their use, in particular where important decisions are being made. However, there is some evidence of a reduction of this with the youngest age group and this seems an important topic for future investigation.
- The mobile phone is considered a useful tool for informal communications and it is replacing more traditional informal methods of networking.
- Message distortion is considered inherent in the use of mobiles
- Concerns exist about using mobile phones for important decisions but they are considered useful for providing back up information quickly for clarifying these decisions
- Planning and recording discipline for use of mobile phones is poor yet training is considered unnecessary.

In summary, there appears to be an understanding of how and why the mobile phone is being used and that it is being used both professionally and unprofessionally in project management but the authors' "pendulum" moves between the two points frequently and blurs the boundaries between what is considered professional and unprofessional practices.

There also seem to be age related divergences. If we assume that the professional use of the mobile phone is a requirement of good management then it would be of benefit to discover if the early education, training and experience encountered by managers in construction can compensate for their familiarity with the technology which comes with having been around these devices since childhood.

It is felt that the work has clarified some of the issues but that further research of a longitudinal nature is required to identify in depth the benefits and pitfalls of use of the mobile phone for Construction Managers. The boundaries of usefulness, professional practice and limitations need to be better identified.

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