Chapter 14

Communication in Construction Design Teams: Moving into the Virtual World

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ABSTRACT

Construction design involves communication and interaction between individuals and groups in complex social settings. Therefore, the social character of design activity cannot be separated from the technical results (Minneman, 1991). The challenge of collaborating within design teams has been intensified by increased globalization and the trend towards virtual teamwork, using information and communication technology. Although these virtual teams have resulted in increased client satisfaction, specific communication skills may be needed for team members to function efficiently and effectively in these environments. Using two analyses, derived from Systemic Functional Linguistics (Halliday & Matthiessen, 2004), communication in design teams operating in three environments was examined. Tensions between the efficient exchange of information and effective collaboration between team members were highlighted by these analyses; using these findings, specific strategies which facilitate communication and collaboration in these differing environments may be developed.

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Communication in Construction Design Teams

INTRODUCTION

Building design has traditionally existed in an environment where people interact face-to-face using diagrams, plans and sketches. Two recent inter-related trends have contributed to a move to more virtual interactions. Firstly, technology has evolved at a rapid rate. Email, the internet and, to a lesser extent, videoconferencing have all impacted on this domain. Of more importance to the design process are recent developments in networked three-dimensional virtual worlds and high bandwidth communication technologies. These developments in information and communication technology (ICT) have altered the expectations of designers and the boundaries of their interactions. Introducing ICT into industry and business has allowed activities to occur at a distance, providing opportunities for globalisation and expansion across international boundaries.

Secondly, the increase in globalisation has affected business activities. It is not uncommon for international and multi-national companies to have a head office in one country and other offices worldwide. In fact, eighty-five percent of international managers conduct more than half their work in global teams (Maznevski & Athanassiou, 2006). Industry is becoming evermore globalised as organisations endeavour to streamline and optimise their operations. It is debatable whether an organisation would resource a specific process internally if it were economically advantageous to outsource it. Also, only when ideas are shared and worked on may delays be avoided and superior products eventually be created (Maher, Simoff, & Gabriel, 2000). However moves to alliancing and partnering (emerging novel contractual arrangements for procuring buildings) have resource implications, particularly in terms of time and money. These arrangements necessitate close liaison between designers, contractors and sub-contractors which contrast with more traditional procurement arrangements. The costs associated with convening a co-located team meeting in such circumstances include travel and accommodation.

These two trends have set the scene for research into the nature of collaboration in professional design teams in these new virtual worlds.

The research reported in this chapter was part of a larger project led by the University of Sydney, Australia, and conducted in collaboration with several industry partners. It was funded by the Australian Government-funded Cooperative Research Centre on Construction Innovation (CRC CI) and investigated the effect of new technologies on design collaboration in working environments. The focus of our part of the project was the examination of the ways in which people contribute to the effectiveness of virtual teams. It investigated the skills needed for different forms of collaboration in virtual environments and determined the knowledge and skills that team members need to participate effectively in virtual environments. A critical aspect of team collaboration is obviously communication and this is true regardless of whether interactions occur face-to-face or in virtual environments. Communication in design teams is the prime focus for this chapter.

Design Teams

The construction industry is acknowledged as being a people/team industry. Teams are described as a cluster of two or more people usually occupying different roles and skill levels that interact ‘...adaptively, interdependently, and dynamically towards a common and valued goal’ (Salas, Burke, & Cannon-Bowers, 2000, p. 341). Such teams provide the vehicle for the process of collaboration (Beyerlein, Freedman, McGee, & Moran, 2003). The use of teams with a diverse mix of professionals (i.e. designers, engineers, surveyors, contractors etc.) with a range of backgrounds and experiences has long been recognised as requiring good management and facilitation to achieve successful outcomes. As
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