

Participation Problems and Communication Difficulties in Architectural Design Practice

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Abstract: unsatisfactory design solutions can arise from ineffective communication between the client and the architect. Design and communication problems are not just technical in nature but also social, and both issues should be considered to have successful design and communication process as well as design outcomes. This study aimed to identify the issues, which affect the design and communication process in architectural design practice particularly with focus to architect-client relationship within this context and to introduce the framework of unsatisfactory issues to address researchers and practitioners key factors of successful design approach. To achieve the aim, this study reviewed the literature, which were discussed about structuring design problems and communication difficulties in architectural design practice as follows: Architect-client Interaction and communication activities in design, Design supportive tools and Techniques, Architect and client Participation in design process and Process communication and design problem. Findings of this study show that empowering the client by involving them during design procedure and using appropriate design supportive tools improves the participation and communication of them in design process and establishes mechanisms to implement effective management.

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1 Design Communication and communication design problem

Architecture is primarily about communication. Generally the achievements and experiences of architect in the built environment shape the ideas and theories, which help the architect to establish the concept of building and communicate with the client more efficiently (Sasada, 1995). Architects mostly have communicated with clients face-to-face (FTF) and later, in the form of verbal and graphical and design representations, visualization, Communication are changing with recent developments in information and communication technologies. Especially in the developing countries, the most architects are challenging with the clients to introduce and establish the new design approach with support of computer mediated tools to overcome the increasing complexity in design and with the increasing need of efficient communication with clients to reach synergy in the design process.

To accomplish the goal of the architect and client in terms of architectural design, it is vital to consider the nature and current circumstances of their relationship. Communication plays as a pivotal role to establish and continue this relationship in parallel with all stages of design. In this case, the way of communicating and using communication instruments into architectural design process define the integrated approach as a communication-based design process. Vast developments in information

and communication technology enhance the capability of architect and client to convey more accurate information in a proper manner. As a result, the participation of two parties in the design process will increase as well as design quality. However, by studying the architects and clients' experience and feedback in house design help to recognize the limitations and potential to achieve the desired goal.

Inadequate and inaccurate communication defines the miscommunication; moreover, Frustration and confusion cause the miscommunication. Inefficiency of communication in architect-client relationship defects the architectural design practice (Kitchens & Shiratuddin, 2007). The main obstacle to increase the design quality as well as client's satisfaction is the lack of architectural domain knowledge of the client.

To avoid miscommunication, the role of architect and client should be identified in view of communication process, and in the architectural design context as the communication environment. Moreover, the design information as a message of communication model should be clearly transmits. Choosing the right tools as a channel the main important components of communication is the major focus of designer in order to improve the communication and design quality. On the other hand there are some external barriers, which cause to miscommunication. First Physical Barrier, which is the main hurdle in effective communication at

workplace and the whole environmental circumstances, should be mentioned in it. Second, Linguistic Barrier that Language is vague in nature and its words are symbols, so if understood by communicator in their own way, and then it can result in misinterpretation (Roxburgh, 2003). Third, Cultural Barrier that arises when two people belong to different culture, like age, thinking behavior, social position, economic status, ethics, motives and priorities (Anolli, L., Ciceri, R., Riva, n.d.).

Confusion in language is dangerous indeed, as misunderstandings fuel mistrust and undermine communication. The issue of communication needs to be addressed most urgently if society is to benefit from a more rounded vision of the built environment (Cole-Colander, 2003). In exploring the ways in which clients and designers use their insider/outsider knowledge during negotiations, (Fleming, 1996) is more concerned with how the gap between designer and client cultures is constituted (Roxburgh, 2003).

Unsatisfactory design solutions can arise from ineffective communication between the client and the design team (Higgin, 1965). Humanistic issues are the all-common problems contributing to poor project performance (Kruglianskas & Thamhain, 2000) (Xie, Thorpe, & Baldwin, 2000). The semantic gap between strange parties will be narrower if the communicative efforts increase (Bostrom, 1989). The nature of design development, which is very much behavioral process, causes the most existence of communication problems. In the case of that the human, environment and their relationship elements should be considered in the design context. Thus, more socio-technical approach should be employed to address the humanistic issues of design in order to overcome the communication problems (Coughlan & Macredie, 2002).

(Kamara, Anumba, & Evbuomwan, 2002) investigated the problems relating to clients were identified as follows:

- Inadequate consideration of the client's perspective;
- Inadequate communication among participants involved in briefing;
- Inadequate change management of requirements (Shen, 2011).

(Yu, Shen, & Chan, 2005) summarized the problems the following client related problems.

- Clients frequently change their requirements;
- Needs of end-users are not clearly stated;
- Lack of review and feedback to the client brief (Shen, 2011).

2 Structuring design Problems and Communication Difficulties

Design and communication problems are not just technical in nature but also social, and more socially oriented approaches attempt to address. A Framework The management and minimization of these communication problems require that any methodological approach to design will enable a shared understanding of the user and the context of the participation and steps to support the user at every stage of the design process in the elicitation of design requirements. In light of this, a proposal is made for a framework on four dimensions (Coughlan & Macredie, 2002) as follows:

User involvement and design participation, architect-client interaction and communication activities, design supportive tools and techniques, and process communication and design process, which each dimension explained comprehensively in the following sections.

3 Architect-client Interaction and communication activities in design

Socially oriented approaches to elicitation force a collaborative role-play that elevates the user to an equal footing with the designer so that joint decision making is possible as well as the satisfaction of both parties (Coughlan & Macredie, 2002). Successful architect-client relationship necessitates cooperation in order to share knowledge or learning of importance for requirements gathering. Communication in the design requirements arena particularly, means that developing a shared understanding of an ambiguous situation is of utmost importance. The root of the requirements problems lies in the common ground between the client and architect, which can only be discovered through communication activities that facilitate a sharing of information (Coughlan & Macredie, 2002). Indeed, (Hartwick & Barki, 2001) identify 'communication activity' as an important dimension of user participation in the development process. The basic and most productive behaviors of a communication activity program revolve around knowledge acquisition, sharing and integration activities (Walz, Elam, & Curtis, 1993) and the coordination of the efforts involved (Kraut & Streeter, 1995). The main behaviors as part of a communication activity, then, are:

Knowledge acquisition: There are links that need to be made between the client and architect's realms of knowledge and experience and of the technological options, so as to achieve a shared understanding and common vision of a future design.

Knowledge sharing: Requirements need to be negotiated as part of an iterative process, which helps to define the requirements through a thorough understanding of each other's (user and designer) perspective.

3.1 Communication and architectural design

The main key element that underlines the importance of communication in architectural design process is the Changing of its nature, which has moved away from a focus on end-user to user-centered design process and clients more encouraged participating in design process to collaborate with architect in design. Therefore, the study of relationship between the role of architect, client and their expectation in both architectural and communication process helps us to determine the criteria of successful design process as well as outcomes. But the association between design process and communication is hardly ever explicated in depth and the arguments that surround intention and interpretation have often escaped critical analysis. Prior to establish the concept of communication in architectural design process, we must try to shape the coherent understanding of what communication is and what it involves. Communication is the “process of exchange of information between sender and receiver to equalize information on both sides” (A. F. den Otter & Prins, 2002) this definition is consistent with “sharing of Meaning to reach a mutual understanding” (A. Den Otter & Emmitt, 2008), and as a “cognitive and social Process by which messages are transmitted and meaning is generated” (Maier et al., 2008). The process of communication includes five components: communicator, audience, message itself, channel and cultural context, which establish the Communication model.

The most common communication models basically have been presented to, first, “the linear model views communication as a one-way process that speaker and listener just listen or speak” (Weaver, 1949). Second, Interactive model, “both the speaker and the listener take turns to speak and listen to each other” (Schramm, 1955). Third, Transactional model, “Each person in the communication act is both as a speaker and a listener, and can be simultaneously sending and receiving messages” (Barnlund, 2009). A variety of means and models of communication has evolved over the long period from written to computer-mediated communication such as phone, fax, email, and videoconference. Also, looking back at these historical developments in the field of architecture, the culture of architect and client has improved as well as the form of relationship, From Verbal communication to architectural technical drawings with Computer. Computer and digital technology came into the field of architecture and put into practice, to produce a 2d drawing, 3d volumetric, a simulation, an animation, or virtualization in different stages of architectural design. Computer not only mediated in communication (CMC) but also try to be applicable

in architectural design process (Gabriel & Maher, 2002).

Communication and design activities provide a structure of architect-client relationship in the architectural design context, but they cannot be considered without relation to the techniques that can act as mediators for communication.

4 Design supportive tools and Techniques

The tools and techniques employed in the design process have an important role to facilitate communication between architect and client especially in the elicitation of design requirement in all design stages. This study discusses the direct and indirect communication of two parties, which direct communication, is defined as face-to-face (FTF) contact. FTF communication increases the social and physical cues that consequently enrich the communication quality and reduce the ambiguity, which is necessary for the requirements capture situation. Elicitation techniques in indirect communication can define the methods, which mediate the communication.

In dynamic and uncertain design processes, participants often need using informal channels, for example face-to-face discussion and telephone conversations, to solve contingent problems immediately. (Mead, 1999) further pointed out that anecdotal evidence shows informal transmissions are where real communication occurs during the course of a building design project. (Breu, Guggenbichler, & Wollmann, 2008). Concisely, the transmission of information on building design projects often follows two related tracks. Firstly, the formal channel. Secondly, the informal channel where individuals exchange and process information through undocumented conversations and face to face discussion in order to clarify the inherent ambiguity in the system. (Breu et al., 2008)

4.1 Virtuality, Virtualization and architecture

In the modern digital era, computer become powerful tool in architectural design practice. With the development of Web and widespread use of internet, computer has taken a significant role as new medium in design communication context for information processing, interactive visualization and communication (Sariyildiz, Stouffs, & Tunçer, 2000). (Griffith, Sawyer, & Neale, 2009) assert the idea that “misunderstanding happens because knowledge plays a tacit role during design”. Using high-tech mediums make such inherent information explicit. The most common utilized high-tech mediums in the field of architecture and communication are Computer Aided Design (CAD), Information Communication Technology (ICT) and Virtual reality (VR) technology. To compile the implicit knowledge to

explicit designer should employ the stronger visualization techniques, rich communication mediums and effective design representation tools that enhance the better design situation and collaborative design activity.

CAD is used for design drawing and modeling. It can strongly support better interaction and data transition among design participant and it can offer them better culture of communication. The possibility of a realistic reproduction of a real world environment, combined with the spatial experience dimension, can become a powerful future design tool. Such complexity of current CAD systems illustrates the concrete limit in freely expressing ideas characteristic in conceptual design. Therefore, such approach may hinder the efficiency of the design process and collaboration in it (Rahimian & Ibrahim, 2007).

The participants within the architectural design process acknowledge ICT as a medium to access, exchange and retrieve data design electronically in a digital form. It supports designers to establish and develop design ideas interactively (Lawson, 1997). Moreover, we advocated the utilization of advanced IT/ICT technologies within architectural design process that can provide collaborative work environments and providing virtual environment, which can fill in the gap between disperse architect and client within diverse locations and different time zones. Furthermore, we emphasized that to change communication artefacts we need to change communication culture within design societies (Ibrahim, Rahimian, & Baharudin, 2008).

Using VR technology as a system of design visualization, gives the participant better operational vision about the design solution during architectural design process (Frost & Warren, 2000). VR may be one of the most important technologies in our future, producing a great leap forward in communication, architectural design, and the relevant fields (Briggs C. J, 1996). Although, utilizing and generalizing these artifacts within architectural design procedure is still remaining the major problem. So, the significant changes are needed in the field of architecture and communication with respect to the cultural and technological aspects of communication and architectural design procedure, as a socio-technical process.

4.2 Utilization of computer mediated tools in architectural design process

The utilization of advanced technologies, information and communication technology and digital design tools and techniques in the architectural design context is the main hurdle of designer and practitioner. Architects usually employ tools in terms of architectural design based on individual

experiences in a variety of design, in the way of efficient use to meet the design objectives. To achieve the reliable assessment the subjective factors such as clients' feed back must be consider as criteria of selection tools, to consolidate the evaluation of best tools and successful decision. Utilization of architectural design tools into the architectural design process strongly depends on the communication culture and needs to investigate the current situation of this culture in the architectural design context. As a result, the criteria of tools selection and utilization significantly will be changed.

Not only traditional criteria such a technological features, cost, quality and network externalities, but also the architect's and client's ability to use and implement these tools should be considered for adopting and utilizing of design and communication tools in the architectural design context.

5 Architect and client Participation in design process

Many studies stressed various factors that rationalize the communication between architect and client and their participation within design process.

- There is a significant lack of information at the start of each design brief
- Frequently too many expectations required by clients in house design
- The architect is not the final decision maker in final house design.
- The scope of the design frequently expands as they progress.
- Architects and clients interpret the terms of definition are different.
- Architects do not make sufficient effort to keep clients in touch with the progress.
- Architects do not research the client's background record in sufficient depth.
- Design solutions are essentially based on subjective factors derived from clients need.

The main problems lie in identifying the 'client' and the difficulty the client has in articulating design requirements, that is, knowledge to the design. This knowledge can be tacit and explicit (Polanyi, 1966). The problem of eliciting tacit knowledge is two-pronged (Sutton, 2000): Firstly, Users have difficulty understanding their own requirements. Secondly, Specific techniques for elicitation have been favored where can enable communication in such a way as to enhance the cooperative nature of working between clients and architects and provide a form of representation that may render the client's effort more visible (Suchman, 1995).

As a result, the communication of architect and client would be essential from the start of architectural design process to the final design.

Participation of client in the design process is effective and positive when they explain their problems, needs and desires. Architect and client can have an appropriate relationship in design briefing and design problems, because of the fact that they are able to understand each other as a result of speaking in a same verbal structure.

The most challenging stage, which indeed affects, final building is designing process and the problem is lack of appropriate design language to engage the client in the design process. The ordinary drawings, images, and models that is not suitable for dialogue with non-expert client and need training and experiencing to perceive. In other words, client is neither able to understand drawings and models which are the words of this language, nor familiar with its structure. The studies show that when architect and user talk about desired building and try to make it verbally, the result is acceptable. Besides, client is really satisfied with participation in the design process, despite its outcome.

In this case, the characteristic of communication and its process should be studied in order to make it compatible with design process. The architect should identify of effective approach, which the client is integrated into the design project to establish the appropriate information and communication structure and conveying and chairing the meeting of clients at all stages.

6 Process communication and design problem

The term design stage mainly refers to the process from briefing to design construction. RIBA, 2007 defined the outline plan of work in a building project as consisting of five stages: preparation, design, pre-construction, construction and usage. In most cases, the design process is the interactive involvement of designers and clients in discussions of design requirements and solutions. The rapid development of science and technology changed the nature of traditional architectural processes as well as the flow of traditional design (Oxman, 2008). These days digital methodologies are enhancing distinct capacities to perform and generate processes that had not existed before in conventional, paper-based methods (Oxman, 2008). The prevailing tendency in the building sector is the inability to maintain pace with innovation in processes and technology, which is an important indication of the inefficiency of the design procedure (John Egan, 1998). Therefore, regardless of this tendency, by focusing on the process-tools, a creative approach can be developed which can facilitate communication and interaction of participants and improve the control and management of processes (Ang, Wyatt, & Hermans, 2001).

7 Conclusion

The findings of this study show that in order to improve the effectiveness and efficiency of design process, there are possible solutions as follows:

Empowering the client by involving them during design procedure at each stage of design. Involvement of the client help them to learn more about the design issues and make them aware about the decisions that to be made within or at the final design stage. Appropriate design supportive tools based on the nature of each design stage and understandable design visualization techniques improve the design quality and final design outcomes. Communication of architect and client improves the continuity and cohesion of their relationship, which consequently enable them to respond to changes in design procedure. Moreover participation and communication of them in design process gives them ability to balance conflicting demands and establish mechanisms to implement feedback and effective management.

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