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FACTORS IN ANALYST - CLIENT COMMUNICATION IN REQUIREMENTS DEFINITION

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There is substantial evidence, both in research literature and in anecdotal form, to support the contention that communication skills of systems analysts have a significant impact on successful and complete problem definition of information systems. Further, ineffective communication between client and analyst at any stage is held to be negatively correlated with the success of a project.

This paper examines the process of client-analyst interaction and the factors that may be at work in such an interaction, with a view to evaluating communication concepts that may be relevant in this particular domain. It perceives the requirements definition phase as a complex social process with many factors at work, and argues that a multi layered model of communication is appropriate. Finally, a number of research issues are identified that stem from the complexities of user- analyst communication.

1. Introduction

The problem definition stage is critical to the success of a information system project as a whole, as initial specifications and many assumptions about the project flow from this stage. Good communication between client and developer is essential at · this stage to correctly capture requirements, and there is evidence that communication skills of systems analysts have a significant bearing of the success of the problem definition (Guinan 1988).

2. Communication in the context of the situation between analyst and client

The characterisation of analyst - client communication can be achieved by examining key features of the process, key features of analysts and clients, previous major studies on analyst-client interaction, and outcomes that can be reasonably be expected from the process.

2.1 Key features of the *process* of analyst - client interaction

Generally, the process will be task based focusing around the transfer of information from client to analyst. The *task* may be of initial requirements definition, or subsequent amendments to requirements. There is usually an initial phase where the client will generally set out a problem which requires some solution This *problem framing* becomes a joint activity as the problem is successively defined through information elicitation by the analyst. The analyst will generally be called upon to *interpret* the information that the client is providing. Similarly, the client will interpret any information that the analyst provides. Here are many opportunities for misinterpretation. The interaction typically culminates in an agreed definition of the problem. Sometimes by the proffering of solutions it becomes clear that in fact the problem is being defined differently by analyst and client. This tends to cause a return to the problem framing and interpretation stages. The interaction usually concludes with final agreement about future action on the problem that has been defined.

From this account of the process of analyst-client interaction it can be seen that problem definition, interpretation and solution are characteristics that distinguish this type of interaction from an ordinary social interaction. While this can be applied to many work scenarios and is not exclusive to analysts and their clients, the degree of shared understanding is of critical importance.

2.2 Key features of clients and analysts

Clients and analysts form two very distinct groups and as such this may form a barrier to effective communication. Scharer (1981) identified seven areas around requirements definition where the aims of clients and analysts may be in potential conflict. Analysts have been characterised as conservative rather than innovative and divisions may be caused by the technical orientation of the analysts education. There are general differences in personality between the two groups (Barrett & Davis 1986,

White 1988) that may also affect communication.

Also of interest are the very different knowledge domains the client and user operate in. A client's mode of problem solving may encompass consideration of the personalities involved and the art of the possible, especially in those professions concerned with people as the focus. By contrast, the area of computing can offer neatly bounded solutions and may be that this is how the majority of problems are perceived by the analyst.

2.3 Key factors in previous studies identified as affecting communication between analysts and clients

Previous landmark studies have identified a number of factors of interest in analyst client interaction. Tan (1989) in a study of 28 analyst- client pairs identified the following as factors in the process of information elicitation - mutual understanding, rapport, client communication skills, analyst performance skills, task complexity, goal achievement, client orientation, and communication satisfaction. Guinan (1988) cited rapport, satisfaction, shared meaning, communication competence and behaviours, job performance ratings, and frame flexibility as factors.

2.4 Possible Outcomes of Client - Analyst Interaction

Given the task based nature of client analyst communication, possibly the most important outcome is whether both parties feel that the task has been achieved. What would also be of interest is to discover whether an interaction identified as socially effective in terms of rapport by both parties was effective in terms of task achievement and problem definition, as results from previous studies are contradictory in this area.

3. A Multi Layered Model of Factors Affecting Analyst–Client Interaction

By examining what characterises interactions between analysts and clients, and previous literature, a four category model of factors is proposed, comprising of definitional factors, communication process factors, individual factors, and environmental factors.

3.1 Definitional Factors
Definitional factors can be perceived as those that affect shared perception of the problem, and as such are related to problem framing, use of language, and cognitive style (Dervin, Jacobson & Nilan 1982). Perceptual correspondence can be reached by problem framing and reframing. Reframing has been described as changing the conceptual viewpoint in relation to which a situation is experienced. The meaning attributed to the situation is changed, but not its concrete facts (Watzlawick et al 1974) The use of unfamiliar language that is domain specific on both the part of the analyst and the user can create a barrier to communication. This can be likened to problems in cross cultural communication, where the lack of shared linguistic systems can result in miscommunication.

3.2 Communication Process Factors
Communication process factors relate to the communication behaviours that may facilitate task achievement, and include rapport, non verbal cues, communication skills, and the existence of a prior relationship between analyst and client.

3.3 Individual Factors

Individual factors are those which each person brings to the interaction and may considerably influence it, for instance their perception of the interaction and roles within it. The concept of 'conversational sensitivity' (Daly, Vangelisti, & Daughton 1987) suggests that individuals vary in their sensitivity to interactions. Some people pick up hidden meanings, and are more nonverbally sensitive than others. They may remember better than most what is said and be able to pick up deeper meanings. It is positively related to self monitoring, self esteem, assertiveness, empathy and social skills. It is a useful concept for analyst-client interaction as it demonstrates clearly that communication skills are very much linked to a person's internal state and the particular situation they find themselves in at that time.

3.4 Environmental Factors
Environmental factors are those extrinsic factors which may influence the project

interaction, providing an overall context for the project situation. These include the culture of the organisation as whole, project specific factors, and the history of previous relationships between analysts and clients in the organisation.

4. Research Issues

A number of research issues are raised by consideration of the wealth of communication literature and previous landmark studies in analyst user communication (Guinan 1988, Tan 1989).

1. To what extent does rapport influence shared definition? In previous studies, results have been contradictory. However this may stem from the fact that it is difficult to assess how much agreement there is on final definition.
2. Does the frequency of domain specific language use, and how it is explained and interpreted by the analyst and user, have an influence on shared definition? Presumably this would be closely related to not only the extent of framing but the *content* of that framing.
3. Does the predisposition of an individual to be conversationally sensitive, in terms of being orientated to and interested in conversations, have any influence on shared definition?
4. What influence do non verbal behaviours have on task achievement, given that they can either support or detract from a verbal message. Similarly, paralanguage (eg tone of voice) may play a large part in encouraging information elicitation and rapport. Tan (1989) found that a positive relationship between non verbal signals and rapport was only partially supported.
5. To what extent do environmental factors such as organisational culture and project specific factors impact on problem definition? Halliday's (1979) work in socio linguistics talks of the situation as a predictor of its linguistic features; the field of discourse (eg institutional setting), style or tenor of discourse (eg emotional tone) and the mode of discourse (channel of communication) are the components put forward.

5. Conclusion

Communication between analysts and clients, like any communication between people, is undeniably complex and there are many factors at work. Individual characteristics, communication competence, and language used all interact in a highly related manner. Previous studies have tended to concentrate on measuring communication behaviours and individual assessments of the interaction rather than attempting to trace the evolution of shared perception throughout an interaction. Of interest also is how the use of language influences shared perception, and how individual differences influence interactions.. These issues can perhaps be more adequately addressed by qualitative research methods than quantitative methods.

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