CONSULTANTS EXPERIENCE OF REQUIREMENTS ELICITATION CONVERSATIONS – AN EMPIRICAL MODEL

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Abstract

Research continues to show that poor requirements elicitation leads to costly information systems failure. We also know that the most Information can be obtained by a consultant conducting conversations with clients. Research was conducted into consultants' experience of these conversations. Twenty professionals involved in these conversations were interviewed and Phenomenographic analysis of all of the quotes within transcripts from these interviews was undertaken. The analysis resulted in a list of five distinctly different ways in which these conversations can be experienced by consultants. These are given the labels: domination, manipulation, problem resolution, negotiation and partnership. The labels are attached to a range of attributes where differences were found in the data. These well defined categories of description allow us to structure professional development and to clarify future research efforts.

1 INTRODUCTION

In this paper we report research into the conversations between information systems (IS) consultants and clients that are part of requirements elicitation (RE). The research investigated the consultants' experiences of the conversations. We intend the term "consultant" to be synonymous with "business analyst", "analyst programmer" or "senior analyst", among others. We use the term "conversation" where others might use "interview" to avoid confusion between the discussions between consultants and clients as part of RE, and the research interviews.

An early stage of developing an information system is requirements elicitation (RE). There is evidence to suggest that accurate requirements elicitation is difficult and that failure to elicit accurate requirements can cause considerable problems. Davis, Fuller, Tremblay, & Berndt (2006) found "accurately capturing system requirements is the major factor in the failure of 90% of large software projects" echoing earlier work by Lindquist (2005) who concluded "poor requirements management can be attributed to 71 percent of software projects that fail; greater than bad technology, missed deadlines, and change management issues." The cost of this failure is enormous. One study found that failed or abandoned systems cost $100 Billion in the USA alone in 2000. (Browne & Rogich, 2001) Not only does a failed system cost money, but fixing mistakes made at the requirements elicitation stage accounts for 75% of all error removal costs (Urquhart, 1999).

What is the nature of the communication between humans that occurs during requirements elicitation? We are indebted to Davis, Dieste, Hickey, Juristo, & Moreno (2006) for a fairly comprehensive review of the research into requirements elicitation techniques. Some findings were:

- Interviewing is cited as the most popular requirements elicitation method
- Structured interviews gather more information than unstructured interviews
- Unstructured interviews gather more information than sorting and ranking techniques

As structured interviewing appears to be the most common RE technique, an important step in avoiding IS development failure would seem to be conducting effective, structured conversations between consultants and clients.

Significant research has been put into improving RE conversation performance. One area of research starts with theories of cognition. Cognitive science tells us that communication between people is hampered by the limitations of human cognition and by problems that arise when communication needs to be conducted by language (Bolloju, 2004, Kim & Peterson, 2001, Siau & Tan, 2005, Gaines, 2003, Hudlicka, 1996)

Several researchers have taken these theories and tried to find techniques for overcoming the cognitive difficulties. The most recent of these was research (Pitts & Browne 2007, Browne & Rogich 2001) which found that using procedural prompting strategies designed to overcome cognitive difficulties produced more meaningful requirements than other prompting techniques. Cognitive science has been used to investigate stopping behaviour. That is, the elicitation of requirements must eventually be called to a halt. Some work has been done by Pitts & Browne (2004) in determining what factors lead to a best choice of when to stop.

The process of requirements elicitation is often seen as a process of mutual education of consultant and client. Some researchers have taken current educational theory and applied it to improving elicitation. Efforts include applying collaborative elaboration – from education theory (Majchrzak, Beath, Lim, & Chin, 2005), mental imagery (Zmud, Anthony, & Stair, 1993), collaborative requirements negotiation (EasyWinWin) and group communication theory (Grünbacher & Briggs, 2001).

Despite this knowledge of possible improvements in RE conversations, they continue to fail. If we accept that the consultants are those who must perform better then we must conduct studies of the way consultants relate to RE conversations. An understanding of this relationship will enable us to

influence these conversations. One powerful way of approaching variation in experience is the method of phenomenography. This method has been used to examine the way in which students experience computing concepts (Bruce et al., 2004; C. Cope, 2002; C. Cope, 2006; Stoodley, Christie, & Bruce, 2004), the way in which teachers experience teaching computing, (C. Cope & Ward, 2001; Kinnunen, McCartney, Murphy, & Thomas, 2007; Levy & Ben-Ari, 2007; Lund & Baker, 1999) in experience of professional management skills (Chen & Partington, 2006) in experience of nursing (Falk, Wahn, & Lidell, 2007; Frank, Asp, & Dahlberg, 2009; Johansson, Swahn, & Strömberg, 2007; Jormfeldt, Svedberg, Fridlund, & Arvidsson, 2007) physiotherapy (Larsson & Gard, 2006) patients families (Schröder, Larsson, & Ahlström, 2007; Widang, Fridlund, & Martensson, 2007) and doctors and sick listing (Swartling, Peterson, & Wahlström, 2007). A consistent finding of phenomenographic research is that a phenomenon can be experienced in a limited number of qualitatively distinct ways. These distinctly different ways of experiencing a phenomenon are described as an outcome space of a number of categories of description. These categories give us a viewpoint of the relationship between a person and a phenomenon that has been shown to be useful in making decisions about affecting that relationship

2 RESEARH APPROACH

The aim of this research is to uncover the relationship between consultants and RE conversations. To do this we ask the question "What variation exists in the way that consultants experience RE conversations?" An understanding of this variation will help us understand how to influence conversations.

2.1 Participants

In qualitative research based on interviews sample populations are normally drawn until no more variation exists in data being obtained. In phenomenography this is often taken to be about 20 to 25 interviews. Twenty consultants with professional experience in RE conversat5ions were interviewed. All the initial interviewees were involved in dealing with clients in various stages of implementing systems after the signing of a contract between the consultancy company and a client company. To broaden the scope further targeted people were approached. This included analysts offering information system services within a company, those involved in a range of industries including manufacturing, financial services, government services and retail services. The stages of interaction between consultant and client addressed specifically avoided sales conversations and those situations where a product was being implemented with no concern for the specific requirements of the client. Äkerlind (2005 p103) advises demographic variation so as to maximise the chances of variation of experience of the phenomenon as possible. The selected population showed variation in the attributes: place educated, country of residence, age, years of experience (0 to 30 years), current job, scope of projects (company internal to consultancy), company type, industry (NGO, government, retail, banking, manufacturing, insurance) and gender. It must be emphasized that the method does not cross match outcomes from interviews with these demographic variables.

2.2 Interviews

The phenomenographic approach seeks to control the extent to which the interviewer imposes a view on the interview (Bowden & Green, 2005). Interviews were semi structured and started with an introduction that was consistent and defined RE conversations. A closed question "describe your last RE conversation" was asked and followed by open questions. Analysis of these interviews examines transcripts for meaning rather than textual content, so open questions are designed to explicitly reveal the meaning within initial statements of the interviewees, using only words they had introduced. Interviews ran for between 45 and 90 minutes. Each interview was then transcribed.

2.3 Data Analysis

The data gathering and analysis was conducted using a phenomenograhic approach as described by Marton (Marton, F. 1981, Marton, F., & Booth, S. 1997) and detailed in Bowden & Green (2005). The result of this analysis should be a description of the variation of experience of the phenomenon expressed as a set of related categories of description of the phenomenon. Each transcript was entered into a specially written database program. The transcripts were examined for every statement that contained some meaning and these quotes were separated from the transcript with a link maintained to the original text. The links allowed quick checks of each quote in context to ensure that meaning was not mistaken due to fragmenting the transcript. Quotes were organised according to any aspects of the phenomenon they addressed. Variations in meaning and structure were allowed to emerge from the quotes through an iterative process comparing quotes, possible dimensions of the phenomenon showing variation and the original transcripts. Multiple iterations of this process were conducted as recommended by Bowden and Green (2005). In each iteration candidate categories are postulated and then checked against the data to see if each candidate category sensibly reflects meaning found in the data. A sensible set of categories is also one where some structure exists that is supported by quotes. A useful category would describe a range of aspects where the quotes indicate that a view of one aspect is related to a view of another aspect, or where there is a simple logical connection between aspects. It is important when constructing categories to ensure that they come from meaning within the data rather than the researcher finding quotes to support a previously determined structure. Candidate categories were compared with the data as a whole to ensure that significant ideas in the transcripts were represented in the categories. Categories were continually checked against whole transcripts to make sure no important sections were not represented in the outcome and that the categories truly reflect things said by the participants without leading from the researcher. When this check was done it was found that each respondent had several views of the phenomenon. The categories reflect variations in views rather than variation between respondents.

Links between the categories were analysed and presented in the results. An indication that a candidate category be preferred was the existence of several quotes directly supporting the category and quotes explicitly relating dimensions within a category.

3 RESULTS

As a result of analysis of the data five distinct categories of description of experience of RE conversations emerged. These categories are a way in which the researcher seeks to create a logical structure from the variation found in the data. Many concepts were described in the transcripts, each exemplified by multiple statements showing a range of meanings. For convenience of reporting these have been summarised through three dimensions:

- **aspects of the requirements** –what is their nature, how are they seen in terms of the aim of the conversation, where they come from.
- **aspects of the people** - how the consultant sees themselves, how the clients are seen and the relationships between them such as power and personal relationship.
- **aspects of the dynamics** of the conversation are experienced in a range of ways. Concepts such as behaviours that are noticed, strategies that are employed and how progress is experienced. This aspect has been called ‘The act of the conversation’

Each category reported here includes a single transcript quote, chosen from several available, that helps show the distinction between the name of a category and the meaning within the data. The categories are reported in order. The categories range from a collection of many of the simple ideas to a collection of the complex. There is no intention to imply any other order. It should be noted that

categories arise from all the quotes, not from particular people. A phenomenon can be experienced by the same person in different ways at different times. This was clear in the data.

3.1 Category 1: Domination

In this category a requirements elicitation conversation is experienced as a conflict in which the consultant understands the client's requirements, predetermines a set of requirements, and the conversation is needed to have the client sign off on those requirements. Increasing power is a significant aim of the conversation. The consultant has an understanding, possibly from previous projects, of the business and what an envisaged information system could do for the business. The conversation is required since the client is required to sign off the requirements, even though they probably will not understand them or their significance.

- *'Because [person in the consulting company] had come to a certain conclusion about the 'right' way forwards with this, which was effectively one based around conflict. It was based around 'let's set up an us against them trial, and see who wins'*

The requirements are seen as an absolute, determined by the logic and experience of the consultant. *Quote 104 "So we'll tend to chair it, which does give us the power to direct the conversation in ways we want"* Is typical of data showing that the consultant goes into a requirements conversation with a clearly defined idea of what the outcome should be.

The people are seen as clients, who are a potential nuisance that need to supply a sign off on a document so that the project can proceed, and consultants with a clear idea of the whole project and a need to get started. Examples that illustrate this include the quote *"this person [the client] had very, very limited knowledge on information technology, how it works, what sort of benefit it can bring to an organization"* This typical quote shows that the consultant sees the client as not being capable of expressing any opinion of the requirements of the system. This is indicative of the external horizon where the consultant sees their company as having exclusive knowledge of what is 'good for the client.'

The dynamics are seen as presenting to or teaching the client what it is that the client needs. Data often showed that the consultant had a metaphor with other professions where the knowledge of the professional was the source of progress in the conversation. For example Quote *61 "you know, your doctor can prescribe you a medicine, and you're comfortable to take it without knowing exactly how it works. And so, ah, yeah it's usually around getting, getting the client comfortable that they've, that you've got a solution that they're happy with."*

3.2 Category 2: Manipulation

In this category a requirements elicitation conversation is experienced as a manipulation of the client so that the client agrees to the requirements that the consultant wants to fulfil. A conversation is experienced as convincing the client that our requirements are what they need. The client need not understand the requirements, but must be convinced that they are desirable

- *So that they [the clients] can get a feel of, they [the clients] obviously don't understand but the fact that they are asking a question like that, they don't understand what our [processes of the consulting company] processes are, and so we explain a bit about our processes so that hopefully they [the clients] both, get the answer to their questions and feel happy, but also have a better understanding of what we [the consulting company] do*

The requirements are seen as an absolute, determined by the consultant, that the client must be taught enough about to make them happy to sign off. Quote *112 "I [the consultant] think another important*

way of explaining something like that is trying to distinguish between the important technical bits that someone is trying to understand and the technical bits that if you don't understand you still get enough out of it. I guess that relates back to breaking things down into pieces and treating the bits that aren't that important as a black box" shows that the outcome of a conversation can be experienced as a client that understands the requirements to some extent. The object is to make the client feel happy and considered, rather than bullied into signing off.

The people are clients, seen as having power but no worth and consultants with technological expertise who are responsible for getting client "buy in" on the requirements.. *Quote 14 "what I'll [the consultant] normally do is I'll prepare presentations, and what I'll generally do is I'll target, um, I'll try and target it at their [the clients] level."* This type of data shows that consultants can see the elicitation conversation as one way. It also demonstrates a view of the conversation as a "presentation" of the predefined requirements. Clients are seen as students of the requirements, needing to be talked to at a level that enables them to understand.

The dynamics are seen as using feedback from the questions asked by the client to both create an understanding of the requirements and convince them that they are valuable. *Quote 6 "The problem that we had was that he kept trying to sort of ah, cut us off*" indicates that the consultant sees it frustrating if the client attempts to make input into the conversation. The conversation actions are seen as directed by the consultant driving towards an acceptance of the requirements.

How does this differ from domination

This category sees the conversations as two way exchange. The client expresses lack of knowledge and the consultant gives that knowledge of the requirements in a teaching like situation. Much of the data talks about how the consultant learned from their own teachers as how to explain and react when people demonstrate lack of understanding. Although, as in Domination, the requirements are brought to the conversation, in this category it is seen as important that the client understand them rather than take on faith that they are good for the business.

3.3 Category 3: Problem Resolution

In this category a requirements elicitation conversation is experienced as the exchange of information. The conversation is aimed at both finding the things the client needs to implement their part of requirements and the things the consultant needs to know about the business that make this implementation different from previous examples. Conversations are needed to provide each party with the information needed to put known solutions into a new situation

- *"since everybody in the meeting have, know each other really well, so we shoot straight into the problems that we were facing last couple of weeks. And pretty we are pretty much just brainstorming ways of solving those problems"*

The requirements are seen as a problem that must be solved. Requirements are mutable but easily satisfied by finding an answer. The main problem is understanding what the client really means. This is often done by starting with a solution (consultant provides a set of requirements) and finding ways in which the client is confused by or is happy with that solution. *Quote 72 "There are some audiences that are, don't like taking your suggestion or solution. Ah, and so for those audiences you might just state your understanding of the problem and not state the suggested solution. You still should think about what that suggested solution is so that it still makes sense as you discuss the problem, and perhaps where you lead the discussion."* Much of the data actually uses the word "problem" when describing why a RE conversation was initiated. In early interviews the subject was asked 'are you sure this was a requirements interview?' which they affirmed. It seems common, especially where agile methods are being used, that requirements are seen to arise from inspecting initial models. While agile methods do not presume this approach to requirements, some views of the process see no distinction between a problem resolution session and requirements gathering.

The people are seen as having power through their understanding of how the business operates but an ignorance of technology. The client often has a confused idea of what they want. This is often expressed as a problem with a prototype, or a problem with the expression of the requirements.

The dynamics are seen as determining the problem and ensuring that the solution presented solves the problem. *Quote 305 "What the purpose of it is, how they imagine using it and I don't know, what data or whatever they imagine supplying to it and sometimes they don't understand all the pieces so we need to talk abut what those pieces actually are and trying to join that up to something we can actually develop on the software side if it's a software issue"* Data of this type indicates that requirements arise when the client starts to try to answer questions such as 'can you give me the data that the system needs for input?' or 'what should the report look like?' Again a clear picture of what the system should be has been brought by the consultant, but the RE interviews are seen as allowing the client to make changes based on things they find wrong with the initially proposed solution.

How does this differ from Manipulation: If Manipulation involves a set of requirements that must be communicated then Problem Resolution sees RE as a process of refining requirements as clients encounter problems.

3.4 Category 4: Negotiation

In this category a requirements elicitation conversation is experienced as a type of negotiation. Outcomes are seen as dynamic and power is used but not created. The data shows sets that can be described as "Negotiation." This category is defined as "a negotiation where the client attempts to specify as much as possible for the needs of the company and the consultant tries to narrow this to things that can be done with the skill set available and within the price for the project." The consultant is focussing on finding a way of dealing with each request of the client in a way that fits within the needs of the consultant. The conversation consists of finding requirements in the context of "some things we can effectively charge the client for, and some things we can't effectively charge the client for."

- *"they know that most of the things that I [the consultant] suggest to them [the client] are to the best of their interest, as long as they are not conflicting with [the consulting companies'] interest."*

The requirements are seen as an outcome to be negotiated within the general conditions of a contract or memorandum of understanding. This shows in data that clearly indicates a view of the conversation as a bargaining based on expressed wants against cost. For example *Quote 101 "trying to detail where we've put on some limitations or where we think some thing is not realistically possible or and in some cases and this is something we have been dealing with recently actually um giving some different options and different if its something we are going to charge for separately then you know different options and different levels of cost for each option"*

The people are seen as clients with business needs and consultants with a set amount of resources allocated to the project. Quote 330 indicates the existence of a distinct category of experience *"they know that most of the things that I suggest to them are to the best of their interest, as long as they are not conflicting with [the consultant's company] interest."* This quote shows that the consultant sees, within a conversation, two 'sides' with separate interests. The conversation, then, includes finding things for the project that will have a good business outcome for the client without compromising the interests of the consultant.

The dynamics are seen as conducting a give and take type of negotiation until a "fair" outcome is reached. Quote 269 paints this starkly *"just because the client asks for it doesn't mean a) they should want it and, b) that we want to do it. Um, because the, the starting point of most people in the industry is 'I should please the client'. And I guess, one level of thought of what that means - if the client asks for something I should say 'we can do it, and we will do it'. Um, and so that's the largest most common mistake, that staff make. Um, some of that's completely selfish, there is nothing about um providing the, what the client actually needs. It's about some things, some things we can effectively*

charge the client for, and some things we can't effectively charge the client for. Our staff aren't doing us a good service if they're doing a lot of things for clients that we can't charge the clients for."

This piece of data contains a host of rich detail:

"*just because the client asks for it"* indicates that the client is seen to have expectations and requirements that the consultant is not aware of in advance.*"just because the client asks for it"* also indicates that the consultant see the conversation as a two way communication where the client can and will ask for requirements. *"doesn't mean a) they should want it"* shows a view of the conversation as a place where the client can ask for things and the consultant use their expertise to comment on the business sense of the proposal. *"doesn't mean a) they should want it and, b) that we want to do it"* shows that the consultant is aware of a 'position' that he/she is to hold during the conversation that 'represents' the interests of the consulting company (or group), as opposed to purely technical considerations.

In explaining this in detail with *"some of that's completely selfish, there is nothing about um providing the, what the client actually needs. It's about some things, some things we can effectively charge the client for, and some things we can't effectively charge the client for. Our staff aren't doing us a good service if they're doing a lot of things for clients that we can't charge the clients for."* The consultant is suggesting that the principal focus of the conversation is negotiating a set of requirements within the commercial boundaries of the contract. This is very distinct from a view where the needs of the business system are central. This can be seen as an example of the difference between a logical and physical design problem.

How does this differ from Problem Resolution: In problem Resolution the consultant is still the originator of the requirements. In Negotiation the two parties are committed to a project through a contract, memorandum of understanding or other instrument, but the project is not tightly defined except in business terms. The requirements are specified through the RE process. The consultant knows what they are capable of and the client knows what the business needs. The conversation then becomes a negotiation where the client attempts to specify as much as possible for the needs of the company and the consultant tries to narrow this to things that can be done with the skill set available and within the price for the project.

3.5 Category 5: Partnership

In this category a requirements elicitation conversation is experienced as partnership. Mutually respected parties attempt to determine requirements that will create a greater whole. A conversation is experienced as a step towards finding the real needs of the business and the possible ways in which the consultant can help the business meet those needs. For example the technology and previous implementations are not seen as a constraint. Many of the quotes supporting this category talk about the project as being a small step in an ongoing relationship between the parties.

- *"that means they [the client] understand it so deeply, that they can understand where to apply it in a way that you haven't told them."*
- *"what the purpose of meeting them [the client] right now is and um what we are going to be looking to do with them in the future and so what sort of things we should be talking to about when we are meeting them"*

The requirements are seen as a short term goal of several discussions. The project is seen as the next step in a developing an ongoing relationship to benefit both parties. *Quote 85 "Um try to learn a bit of background about the clients business and um what their specialties are, what their ah focus is and um what their objectives in business"*

The people are seen as equals with developing relationship and knowledge of each others needs and abilities. *Quote 270 "if something seems a bit crazy, don't say, don't just silently say 'yeah sure, we'll do that', say 'I'm having trouble understanding why you want X, can you give me some more*

information about what's motivating X'. Or if can, if you think you understand what's motivating it, suggest an alternative solution that achieves what they want and isn't crazy. Um, and repeat that process until either you understand why they want the thing that didn't make any sense to you, or, they, together you're asking for something different that does seem to make sense."

The dynamics are seen as developing and deepening the relationship between the individuals and their organizations. *Quote 167 "Well, if we tell them what they need, um, so in other words, if we thought something was a stupid thing for them to need, we don't do that, we do the thing we thought they should do. If they're right that they did need that, they don't get 'it'. Um, if we're right, and they did need it, um, then at the very least someone's ego has been dented at the client, that we said 'no, that's not what you need, this is what you need'. Whereas if we ask them questions until they ask us for something different, they asked us for 'something'. And so it's still, you know it, you know that, I mean they're not dumb. They don't, they don't think oh yeah that way was my idea, this way it was still my idea."*

How does this differ from negotiation: Negotiation sees requirements in the context of a single concrete project. Partnership envisages a continuing relationship between the two companies or groups. Conversations seen as partnership do not drive towards an outcome, nor are they seen as failures if a set of requirements does not arise as a clear document. RE is seen as a genuine attempt to find business solutions rather than software specifications. It was found that partnership is an experience of RE across all the types of companies involved in the data collection.

4 DISCUSSION

The aim of this research was to understand variation in the way a consultant can experience an RE conversation. The researcher found that five categories of description of ways of experiencing RE conversations could be constructed. These have been given the labels domination, manipulation, problem resolution, negotiation and partnership. The labels have meaning only to the extent that they reflect a general meaning from the variation in attributes. The categories can be given an 'order' based on complexity of meaning in the many quotes that relate to each category. Let us consider each category and look at what correspondence there might be between the category, commercial reality and the literature.

Domination, in terms of the variation in description is the simplest of the categories. That is, the view of the client, the view of the requirements and the impact that the conversation might have on them, is very limited. In a commercial context, however, it could be seen as the quickest way of concluding the RE phase of a project. If clients are seen as having no possibility of contributing to the project, then wasting time on interviewing them is silly. Requirements must be signed off at the start of a project so that project completion can be proven later. Urquhart (2001) found evidence of similar domination in one case where the client saw the consultant as "hiding behind a veil of expertise."

Manipulation also sees requirements as something simple that are a product of the experienced and professional consultant and hence the process of carrying on a conversation is only complicated by the problem of convincing someone of what seems an obvious given. Again, in a commercial context, it could be motivated by the belief that people not committed to a project can make trouble later if they feel no involvement.

Problem Resolution may seem a different type of approach, but still starts with a consultant supplied project specification. It recognises that new clients can have different ways of doing things that we did not anticipate, that circumstances can change and that the requirements of a perfect solution may need to adapt to circumstances.

Negotiation is a label that should not be confused with the generally accepted meaning. Negotiation has been defined as "an interpersonal decision-making process by which two or more people agree how to allocate scarce resources" (Thompson, 2000). Adair & Brett (2005) found empirical evidence

of a four stage model of negotiation relational positioning, problem identification, solution generation and finding agreement. Our data does not reflect this process oriented view of negotiation, but does reflect the responses one would expect when two people are concentrating on the issue of allocating scarce resources.

Our negotiations are about two parties coming to the table with a set of wants on one side and a set of skills on the other. The conversation tries to find ways of meeting as much of the wants as possible within a set price. It seems to arise from the commercial imperative. The client has signed off to pay for a generally described service, which has been identified in enough detail to form the basis of a contract. The consultant comes to the requirements phase with a general project brief including a contract price and a general description that must be fulfilled. The consultant knows that the system to be specified in the requirements must be built within the price agreed. The consultant also knows that the client must be satisfied with the final system in order for there to be continued business. These constraints on the conversation are consistent with a focus on the conversation as a bargaining or negotiation where these two positions must be traded off in a result5ant requirements document.

Partnership does not recognise the boundaries of a project as being impermeable. RE conversations are seen as being in a much larger picture where new projects arising may be as important as finishing the current project.

5 IMPLICATIONS FOR THE PROFESSIONAL DEVELOPMENT AND FURTHER RESEARCH.

As indicated in the literature section above, much of the research into conducting RE conversations has been directed at the conversations, that is directly focussed on the phenomenon. An examination of the ways that a consultant can experience conversations allows us to gain insight into how consultants can be influenced to improve conversations. This has great implications for the IS development profession as consultants may be experiencing conversations in a way not likely to lead to accurate requirements. Future research will be needed to describe different approaches to **conducting** interviews. It should now be possible to relate different approaches to different quality of RE outcomes and to relate different approaches to different experiences of RE conversations. If we can analyse the experiences that are likely to lead to higher quality outcomes this would inform our professional development efforts.

6 CONCLUSION

The data showed five distinct ways in which consultants can experience RE conversations: As Domination, Manipulation, Problem Resolution, Negotiation or Partnership. Each of these categories is a label standing for a complex set of variations in the way RE conversations are experienced.

On one level we have a hierarchy of categories of description. Ranging from Domination where the consultant is not even interested in the client understanding the requirements through to Partnership where the requirements are seen as part if an evolving relationship between the consultant and the client. In this case the hierarchy might be useful to a consultant, but different commercial environments make a particular view more relevant than others. Many of the participants in the research mentioned the problem of scope creep. In this phenomenon a price is decided for a project, but in what is supposed to be a process of refining requirements, new requests are introduced that gradually move the project well beyond what was originally quoted. Things a client can see as minor changes and improvements can eventually grow to be far more costly than the whole original project. Hence a Domination view of what requirements elicitation could be the most effective way of avoiding scope creep and could be seen as the most valuable and mature way of looking at requirements elicitation. Each category has its own value. The outcome space describes five different ways of seeing an RE conversation.

References

Adair, W. L., & Brett, J. M. (2005). The Negotiation Dance: Time, Culture, and Behavioral Sequences in Negotiation. Organization Science, 16(1), 33.

Åkerlind, G. S. (2005). Variation and commonality in phenomenographic research methods. Higher Education Research & Development, 24(4), 321-334.

Bolloju, N. (2004). Improving the Quality of Business Object Models Using Collaboration Patterns. Communications of the ACM, 47(7), 81-86.

Bowden, J. A., & Green, P. (Eds.). (2005). Doing Developmental Phenomenography. Melbourne: RMIT university press.

Browne, G. J., & Rogich, M. B. (2001). An empirical investigation of user requirements elicitation: Comparing the Effectiveness of Prompting Techniques. Journal of Management Information Systems, 17(4), 223.

Bruce, C., Buckingham, L., John Hynd, McMahon, C., Roggenkamp, M., & Stoodley, I. (2004). Ways of Experiencing the Act of Learning to Program: A Phenomenographic Study of Introductory Programming Students at University. Journal of Information Technology Education, 3.

Chen, P., & Partington, D. (2006). Three conceptual levels of construction project management work. International Journal of Project Management, 24, 412-421.

Cope, C. (2002). Educationally Critical Aspects of the Concept of an Information System. Informing Science, 5(2).

Cope, C. & Ward, P. (2001). Teachers' Perceptions of Learning Technologies: An Informing Issue in High School Education. Informing Science.

Cope, C. (2006). Beneath the Surface: The Experience of Learning about Information Systems. Santa Rosa CA: Informing Science Press.

Davis, A., Dieste, O., Hickey, A., Juristo, N., & Moreno, A. M. (2006). Effectiveness of Requirements Elicitation Techniques: Empirical Results Derived from a Systematic Review. Paper presented at the 14th IEEE International Requirements Engineering Conference (RE'06).

Davis, C. J., Fuller, R. M., Tremblay, M. C., & Berndt, D. J. (2006). Communication challenges in requirements elicitation and the use of the repertory grid technique. Journal of Computer Information Systems, 78.

Falk, S., Wahn, A.-K., & Lidell, E. (2007). Keeping the maintenance of daily life in spite of Chronic Heart Failure. A qualitative study. European Journal of Cardiovascular Nursing, 6, 192-199.

Frank, C., Asp, M., & Dahlberg, K. (2009). Patient participation in emergency care – A phenomenographic study based on patients' lived experience. International Emergency Nursing, 17, 15-22.

Gaines, G. (2003). Organisational Knowledge Acquisition. In C. Holsapple (Ed.), Handbook on Knowledge Management 1: Knowledge Matters (pp. 337-377). Berlin: Springer.

Grünbacher, P., & Briggs, R. O. (2001). Surfacing tacit knowledge in requirements negotiation: experiences using EasyWinWin. Proceedings of the 34th Hawaii Internation Conference on System Sciences, 1-8.

Hudlicka, E. (1996). Requirements elicitation with indirect knowledge elicitation: Comparison of Three Methods. Proceedings of the Second International Conference on Requirements Engineering,, 4-11.

Johansson, I., Swahn, E., & Strömberg, A. (2007). Manageability, vulnerability and interaction: A qualitative analysis of acute myocardial infarction patients' conceptions of the event. European Journal of Cardiovascular Nursing, 6, 184-191.

Jormfeldt, H., Svedberg, P., Fridlund, B., & Arvidsson, B. (2007). Perceptions of the concept of health among nurses working in mental health services: A phenomenographic study. International Journal of Mental Health Nursing, 16, 50-56.

Kim, C., & Peterson, D. (2001). Developers Perceptions of Information Systems Success Factors. Journal of Computer Information Systems, 41(2), 30-38.

Kinnunen, P., McCartney, R., Murphy, L., & Thomas, L. (2007, September 15–16, 2007). Through the Eyes of Instructors: A Phenomenographic Investigation of Student Success. Paper presented at the ICER'07, Atlanta, Georgia, USA.

Larsson, I., & Gard, G. (2006). Conceptions of physiotherapy knowledge among Swedish physiotherapists: a phenomenographic study. Physiotherapy, 92, 110-115.

Levy, R. B.-B., & Ben-Ari, M. (2007). We Work So Hard and They Don't Use It: Acceptance of Software Tools by Teachers. Paper presented at the ITiCSE'07, Dundee, Scotland, United Kingdom.

Lindquist, C. (2005). Required: Fixing the Requirements Mess ; The requirements process, literally, deciding what should be included in software, is destroying projects in ways that arent evident until its too late. Some CIOs are stepping in to rewrite the rules. CIO, 19, 53-60.

Lund, K., & Baker, M. (1999). Teachers' collaborative interpretations of students' computer-mediated collaborative problem solving interactions. In S. P. Lajoie & M. Vivet (Eds.), Artificial Intelligence in Education, (pp. 147-154). Amsterdam: IOS Press.

Majchrzak, A., Beath, C. M., Lim, R. A., & Chin, W. W. (2005). Managing Client Dialogues During Information Systems Design To Facilitate Client Learning. MIS Quarterly, 29(4), 653.

Marton, F. (1981). Phenomenography—describing conceptions of the world around us. Instructional Science, 10, 177-200.

Marton, F., & Booth, S. (1997). Learning and awareness.: Mahwah, NJ: Erlbaum.

Pitts, M. G., & Browne, G. J. (2004). Stopping behavior of systems analysts during information requirements elicitation. Journal of Management Information Systems, 21, 213.

Pitts, M. G., & Browne, G. J. (2007). Improving requirements elicitation: an empirical investigation of procedural prompts. Information Systems Journal, 17, 89-110.

Schröder, A., Larsson, B. W., & Ahlström, G. (2007). Next of kin's conceptions of the quality of care in the psychiatric setting: A phenomenographic study. International Journal of Mental Health Nursing, 16, 307-317.

Siau, K., & Tan, X. (2005). Evaluation Criteria for Information Systems Development Methodologies. Communications of the AIS, 16, 856-872.

Stoodley, I., Christie, R., & Bruce, C. (2004). Masters Students' Experiences of Learning to Program: An Empirical Model. Paper presented at the QualIT2004: International Conference on Qualitative Research in IT & IT in Qualitative Research.

Swartling, M., Peterson, S., & Wahlström, R. (2007). Views on sick-listing practice among Swedish General Practitioners – a phenomenographic study. BMC Family Practice, 8(44), 9.

Thompson, L. (2000). The mind and heart of the negotiator (2nd ed.). Upper Sadde River, NJ: Prentice-Hall.

Urquhart, C. (1999). Themes in early requirements gathering The case of the analyst, the client and the student assistance scheme. Information Technology & People, 12(1), 44.

Urquhart, C. (2001). Analysts and Clients in Organizational Contexts: A Conversational Perspective. Journal of Strategic Information Systems(10), 243-262.

Widang, I., Fridlund, B., & Martensson, J. (2007). Women patients' conceptions of integrity within health care: a phenomenographic study. Advanced Nursing, 61(5), 540-548.

Zmud, R. W., Anthony, W. P., & Stair, R. M. (1993). The use of mental imagery to facilitate information identification in requirements analysis. Journal of Management Information Systems, 9, 175.