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E-Consulting in Virtual Negotiations

Abstract

In the e-world where many of us live and work, virtual work arrangements will become increasingly commonplace. This paper reports on an exploratory study into the way in which consultants can ply their trade virtually with clients whom they never meet. US-located e-consultants provided advice to Hong Kong-located web site developers on the interface and content aspects of a website that was being developed for an international audience. Extensive analyses of the communication between the consultants and developers is undertaken, in parallel with an analysis of survey data obtained from the two sets of stakeholders. Lessons are drawn for future research and practice.

Keywords

Virtual teams; Negotiating; Consulting; Hong Kong; USA

1. Introduction

In the e-world in which many of us live and work, we increasingly encounter examples of situations where one or more parties are not physically collocated. The people working in these environments are often referred to as being members of Global Virtual Teams (GVTs) (Davison and Vreede, 2001; Dubé and Paré, 2001). Previous research into GVTs has examined a wide variety of contexts that cross national and cultural boundaries, e.g.: education (Alavi et al., 1997; Jarvenpaa and Leidner, 1999; Massey et al., 2003), software inspections (Mashayekhi et al., 1993), project management (Evaristo, 2001), and strategic planning (Qureshi and Zigurs, 2001). Research in these contexts is essential if we are to understand the dynamics of the communication and collaboration environment more effectively, and so learn how to improve the participants' quality of life, as well as the quality

of the results that are produced. Consequently, the potential benefits of such research are considerable, with impacts for practitioners who actively use (or are considering use of) distributed teams in their work, and for researchers interested in further advances in the area.

While early work in computer-supported negotiation (see e.g. Jarke et al., 1987; Jelassi and Foroughi, 1989) was undertaken with face-to-face participants in mind, it shares many of the same characteristics as negotiation in distributed contexts. This virtual team-based negotiation is dependent upon a variety of factors, including goal agreement, communication effectiveness, and the use of communications technology, among others. This research explores the relationship between a consultant and a remote development team, specifically examining how both parties negotiate a mutually beneficial systems development outcome. Previous research has not attempted to investigate how consulting services can be provided in this distributed mode, though we believe that it is entirely practical for consultants to be able to offer their services remotely. This should be particularly true for web-related projects, where the system can be created in one location but easily viewed from a different location.

This research involves a feasibility analysis of such a project, where consultants and developers are located in different countries. In this article, we describe how BBA students in Hong Kong (the developers) received e-consultancy services from MBA students located in the US (the consultants) during the course of a six-week long website development project. The consultants had to advise the developers on the suitability of their website for an international audience. The developers were charged with evaluating the advice given and making appropriate changes in their website design. The consultants did not wield any legitimate authority over their developers; thus they could not simply make demands of the development team. Instead, through their expertise (both as cultural representatives and as experienced web users), the consultants needed to influence the development effort in less

direct ways. In other words, consultants and developers were in a situation where system features had to be negotiated, rather than dictated (cf. Griffith et al., 2002). Both developers and consultants depended on each other for a component of their assessment: 15% of their marks, as a measure of the quality of the advice offered (by the consultant), and the quality of responsiveness demonstrated (by the developer). In this manner, both consultants and developers had a vested interest in the outcome of the negotiations. The nature of the communication between developer and consultant can be characterised as one of e-negotiation with the goal of reaching a mutually beneficial outcome.

Following this introduction, we briefly review the literature on global virtual teams, minority influence, and negotiations. We then describe the layout of the study, the forms of data collected and the nature of the web development projects that were undertaken. It is important to note that this is an exploratory study that relies on both qualitative and quantitative data. The analysis undertaken is primarily interpretivist in nature, i.e. there is no testing of hypotheses or propositions. Finally, we offer a discussion, a limitations section, and our conclusions.

2. Conceptual Foundations

2.1 Virtual Environment

21st century organisational contexts increasingly involve interaction between teams of people who are not collocated (cf. Townsend et al., 1998). These teams may be distributed within a single country or across two or more countries. Associated with this distribution is the issue of culture, since culture varies not only between organisations, but also between countries at the societal level (cf. Hofstede, 2001). For a variety of reasons, it is not always expeditious for individual members of teams to travel to remote locations in order to participate in meetings or to work on remote projects. These reasons relate, in part, to the inaccessibility of

critical, informational resources, the financial and emotional costs of travel, the inconvenience of not being at home or in the office, and the time lost through travelling and recovering from travelling.

Over the last fifteen years, considerable work has been undertaken in an extended investigation of the role of technology-based solutions such as Group Support Systems (GSS) in group effectiveness (cf. Nunamaker et al., 1997). More recently, research has focused on a specific organisational structure, known as the virtual team. Such teams are comprised of many individuals who are not collocated, yet who do function as a cohesive unit. This research has developed out of earlier areas of work including GSS, technology supported learning and of course studies of the effectiveness of teams themselves. With the development of the literature, there has been some confusion over the use of terms, which we clarify here. Lipnack and Stamps (1997) authoritatively define a virtual team as a "group of people who interact through interdependent tasks guided by common purpose ... across space, time and organizational boundaries with links strengthened by webs of communication technologies". Some other authors refer to virtual teams as comprising members who never meet face-to-face at all (e.g. Jarvenpaa et al., 1998), though most authors accept that team interactions are primarily mediated by technology, with some face-to-face interaction (cf. Geber, 1995).

We also encounter the term 'global virtual teams', referring to virtual teams that cross national boundaries, with both cultural and geographical diversity evident in their make-up (Jarvenpaa and Leidner, 1999; Maznevski and Chudoba, 2000; Massey et al., 2003). The authoritative definition here comes from Maznevski and Chudoba (2000) who note that "global virtual teams are groups that (a) are identified by their organization(s) and members as a team; (b) are responsible for making and/or implementing decisions important to the

organization's global strategy; (c) use technology-supported communication substantially more than face-to-face communication; and (d) work and live in different countries".

Much of the previous work on virtual teams has involved contexts where there is an identifiable project leader, as well as a number of other participants, each of whom has identifiable obligations. In such situations, the leader, or someone else with legitimate authority over the group, may dictate the desired outcomes and processes for achieving those outcomes. Not all groups, however, operate in this manner. Self-directed work teams, for example, are defined as groups working toward a common purpose or goal without a typical managerial supervision arrangement. Optimal group size is often considered to be between five and nine, and the team is relatively permanent (SEB, 2002). The ability of a self-directed work team to negotiate group processes and outcomes utilizing information technology is critical to such a team's success.

Both Thompson and Nadler (2002) and Moore et al. (1999) report findings associated with the use of information technology for communication within the context of negotiations. In the Thompson and Nadler study, face-to-face negotiations were compared with negotiations conducted using information technology, where the negotiations using information technology were virtual in nature, as defined by Lipnack and Stamps (1997). Thompson and Nadler (2002) found that email negotiation success factors do indeed differ from success factors associated with face-to-face negotiations. The Moore et al. (1999) study investigated the relationship between in-group and out-group members where subjects in the out-group condition communicated by email with subjects at a competitor university. In the Moore et al. (1999) study, the findings revealed that in the email supported out-group condition those teams who shared personal information were more successful than those teams who did not, an indication of the importance of social communications in a virtual team context.

Overall, research into global virtual teams is progressing in line with heightened organisational adoption of this form of work arrangement. Clear guidelines on best practice in global virtual teams have yet to emerge, however, given the variety of contexts and protocols studied.

2.2 Sources and Forms of Influence

The literature usefully differentiates between normative and informational influence. Normative influence derives from norms (e.g. social, cultural or organisational) and entails conformance with the expectations of others (Kaplan and Miller, 1987). Informational influence derives from information, and involves "the acceptance of information from others as evidence about reality" (Kaplan and Miller, 1987, p.306). A person who has information or knowledge *may* be able to use it to wield influence. The consultants, in our context, can be expected to possess information not available to the developers, about the intended customer population, and as a result have a measure of informational influence over the developers, though the fact that the consultants lack normative authority over the developers may mitigate the efficacy of this influence. Influence, whether normative or informational, is commonly experienced either as majority influence or as minority influence.

Mugny and Pérez (1991, p.4), note that "majority influence ... takes on the form of compliance: individuals *tend* ... to outwardly accept what the majority advocates, whenever the majority is present or psychologically salient. Yet as soon as the majority leaves, or is no longer psychologically salient, its influence disappears". In this way, the influence exerted by the majority can be considered to be dependent on its *presence*. Minority influence, on the other hand, functions most effectively by performing what is conventionally known as a *conversion* (Moscovici, 1980). A minority initially maintains its stance in the face of opposition, exhibiting commitment and consistency. Although the impact of the minority may not be immediately evident, the effects are likely to be long lasting (Nemeth, 1986).

While consistency is a key characteristic of effective minority influence (Nemeth et al., 1974; Nemeth and Wachtler, 1974), there are other attributes of significance such as rigidity, fairness, expertise, perceived competence, and so knowledge and power (Mausner, 1954).

Nemeth (1986) found that opposing minority views stimulate the reappraisal of a situation by all group members, leading to the generation of a number of possible innovative solutions. Nemeth and Wachtler (1983) explain that where majority influence is concerned, one is often forced to choose between two alternatives, hence the pressure to conform is relatively high. Where minority influence is concerned, there is less pressure, but there are more opportunities to reassess, re-evaluate and reconsider both the minority's proposed solution(s) and one's own existing ideas. Therefore, the chance that other solutions will be found is increased.

Minority influence has also been studied within the negotiations literature. Thompson et al. (1996) studied negotiations in terms of solo versus group negotiations, where the solo negotiator was obviously in a position of minority influence. Findings from this study revealed that teams did not have a relative advantage over the solo negotiators, i.e. minorities can wield their influence just as effectively as majorities, if they employ appropriate techniques.

2.3 Negotiation and Negotiation Success Factors

There are many definitions of negotiations that have been reported in the literature. Some studies report negotiations in terms of a finite set of resources or a fixed pie perception (i.e. win-lose) of negotiations (Bazerman & Neale, 1983). Other studies report negotiations as being integrative in nature allowing participants to find mutually beneficial (i.e. win-win) agreements (Griffith et al., 2002). In the current study, the interest lies more in the negotiation of a mutually agreed upon outcome, specifically, a completed web development project. Therefore we follow Rinehart and Closs's (1991) definition:

Negotiation is the process leading to a mutually acceptable agreement between two or more parties on some course of action.

A number of different negotiation success factors have been suggested in the literature, including: goal agreement, communication and its various components such as communication tone, communication frequency, communication quality and social communication, and information technology. These issues are explored in the following paragraphs.

2.3.1 Goal Agreement

The importance of agreement on stated goals has previously been reported in the negotiations literature (Eden and Huxham, 2001; Rinehart and Closs, 1991; Robinson and Volkov, 1998; Siegel and Fouraker, 1960; Thompson, 1990). Thompson (1990) posits that a gap in negotiations research may exist due to the lack of studies done in the absence of performance constraints imposed by researchers concerning goal agreement. In other words, many previous negotiations studies have directly manipulated the goals of the negotiators rather than allowing them to establish and reach consensus on these goals on their own. While the current research certainly established the objective that teams were expected to pursue (the development of a web-based system), stakeholders were free to decide on the characteristics of the system and so had to shoulder much of the responsibility for reaching goal agreement. As a result, we believe that this research helps bridge the gap identified by Thompson (1990).

The establishment of process goals such as ground rules early in the project has also been reported in the virtual teams literature as an important aspect of successful team projects (Platt, 1999). Platt describes a contract procedure, which consists of establishing virtual team members' expectations early on in the project, as crucial to the establishment of trust, and ultimately the success, of a virtual team project. Spector (2000, p.1684) takes this line of

reasoning further in his study of negotiations consulting when he states: “However, empirical analysis of negotiation processes indicates that if bargaining parties share a common vision of the outcome, debate on the details can begin within a framework of mutual understanding, thereby improving the chances of a convergence of interests”.

2.3.2 Communication

Previous virtual team literature has established that in order for virtual teams to be successful “team members must be able to communicate effectively” (Joinson, p.70). The importance of communication has also been examined in research on leadership in virtual teams (Kayworth and Leidner, 2002). In their study of virtual teams, Kayworth and Leidner (2002) report that a frequent complaint among participants was the vagueness of the communications from the project leader. Effective communication has been reported to consist of tone, frequency, quality and social communications (Kayworth and Leidner, 2002; Moore et al., 1999; Thompson et al., 1995; Thompson and Nadler, 2002).

2.3.2.1 Communication Tone

Rapport, defined as harmonious interpersonal relations, has previously been shown to mediate negotiations (Moore et al., 1999; Thompson and Nadler, 2002). Thompson and Nadler (2002), in their study of students participating in both virtual and face-to-face negotiations, found that negotiators who attempt to build rapport engender trust and positive emotion more than those who do not. Previous research has reported on the inclusion of positivity (friendliness among group members) as a component of rapport, and further, that rapport may be engendered using communications media in a virtual setting (Moore et al., 1999). Informality, characterised by casual relations and an absence of ceremony, has also been shown to mediate the negotiations process (Spector, 2000). In summary, rapport, positivity, and informality (all aspects of communication tone) have been shown to help

facilitate successful negotiation outcomes, and thus are likely to play an important role in virtual team negotiation processes and outcomes as well.

2.3.2.2 Communication Frequency

Communication frequency is also believed to influence virtual team project success (Joinson, 2002). As an example, Kayworth and Leidner (2002) found that in a global virtual team setting, effective leaders were extremely efficient at providing regular, detailed, and prompt communication. Within the negotiations literature, Thompson et al. (1996) found that the sharing of information by negotiating teams was a key factor in integrative agreement. Thompson and Nadler (2002) further report that negotiations are often resolved more quickly when participants are in close proximity, due mainly to their ability to interact more frequently, an indication that the frequency of communications plays an important role in the success of negotiations.

2.3.2.3 Communication Quality

Another aspect of communication likely to affect group performance is the quality of the interactions. Kayworth and Leidner (2002) report that a frequent complaint among virtual team participants is the vagueness of the communications from the project leader. Jarvenpaa and Leidner (1999, p.808) found that “unequitable, irregular, and unpredictable communication” hindered the development of trust in their virtual team setting. In their study of team negotiations, Thompson et al. (1996) found that although the exchange of information between negotiators was important, unless the information that was exchanged was accurate, the information would have little influence on negotiation outcomes. Quality of communication clearly plays a role in group performance.

2.3.2.4 Social Communication

Social communication is also believed to play a large role in team performance. Social communications include interactions which focus on the person, or their context, rather than

the task at hand. As an example, social communication could be focused on inquiries about the state of well-being of another team member, the sharing of personal information with a team-mate, or ideas or plans involving non-work related activities. These types of social communications can be useful in gathering informal information about social context cues, which might include issues like a person's social status, personality, values, or expertise (Kayworth & Leidner, 2002), information that may be important as team members seek to form relationships.

The ability to the group to convey social communications may be influenced by the type of media used by the team for communication. Jarvenpaa and Leidner (1999) cite face-to-face communication as a potentially important precedent to establishing trust among team members. Similarly, Moore et al. (1999, p.24) report that face-to-face negotiators “are more likely to reveal truthful information” and “are more likely to engage in mutual revelation of interests when communicating”. Both of these beliefs seem to be based on the idea that different types of media may be more effective in conveying social communication, something that may be necessary quality negotiations and overall group performance. In contrast, when face-to-face communication is impossible due to geographic location, Joinson (2002) reports that social communication may be conducted through the use of media such as teleconferences, emails, or instant messages. As mentioned earlier, in a global virtual team, the effect of media on in-group vs. out-group social communications may also be an important factor in negotiation success (Moore et al. 1999).

2.3.3 Information Technology

The importance of matching technology to a given task has previously been established within the IS literature (Goodhue and Thompson, 1995), as has the matching of technology with the level of equivocality of the task (Daft and Lengel, 1986; Daft et al., 1987). Within the negotiations literature, the effect of communications technology on negotiations success

has previously been researched as well (Moore et al., 1999; Thompson and Nadler, 2002). The importance of technology in a negotiation/virtual team setting is of obvious importance as any negotiations would be impossible without the use of some type of communications technology. The richness of the technology used for communications during negotiations is important since the participants' ability to share the critical social cues necessary for negotiations success is evidently critical (Thompson and Nadler, 2002). Moore and his colleagues (1999) report that the use of information technology may result in more negative and strained communications than would be experienced in a face-to-face environment, further establishing the importance of the appropriate communication technology during electronic negotiations.

3 Research Design

The developers (n=161) were BBA students taking a 2nd or 3rd (final) year course in Fundamentals of E-Commerce at the City University of Hong Kong. The vast majority of the developers were Hong Kong Chinese, though there were also three exchange students from China. As a compulsory component of this course, they needed to work in teams to develop a website for an e-business that would be targeting an international audience. Most teams consisted of 4 members, although some had 3 or 5 members. Groups of this size have previously been studied in the virtual team literature (Jarvenpaa and Leidner, 1999). Thirty-eight self-selected project teams were formed by the developers. Each project team was randomly allocated a consultant, although one team had two consultants. The consultants (n=39) were MBA students taking an Information Technology Management course at Washington State University in the USA. The consultants were both local to the Washington State area and international – from China, Korea and Norway.

The developer teams were given a free hand in deciding the type of e-business for which they would develop a website. The range of e-business proposals that they developed was considerable, with almost no overlap between topic areas. Examples of business types, to illustrate the nature of the websites, are: Chinese embroidery; Business logo design; Wigs; Film souvenirs; Coca-Cola paraphernalia and collectibles; Baby products; Interior design services; Blood products, etc. In addition, one team suggested an e-business involving the sale of sex toys, which, although commercially viable, was believed to be a potentially problematic topic for the universities involved due to legal restrictions.

The developers and consultants communicated with each other through a mix of email, chat technologies such as ICQ, and a purposely provided web-based groupware product – Blackboard – hosted on a server at the City University of Hong Kong. They were essentially free to use any and every technology to facilitate their communication.

Each team was required to produce a project proposal at the start of the project, two interim reports and a final report. The interim reports were designed to track project progress, with the teams identifying problems that they had encountered and solutions that they had developed. In addition, at the end of the project, the HK teams provided an overall qualitative and quantitative (mark out of 10) assessment of the consultant's performance and the consultants were required to submit a Project Evaluation Form. This form was designed to gather additional data from the consultant's perspective. Five open-ended questions were used to elicit information about issues ranging from the nature of the project experience to the consultants' perceptions of their influence on the final project outcome. Each team also needed to make a presentation covering the development of the website and a demonstration of its functionality. The precise nature of the e-consultation was left in the hands of the developers and the consultants. The consultants were informed that they were required to

provide feedback on various aspects of the e-business related to interface design, functionality, use of graphics, international norms, etc.

The unit of analysis used in this study, although at the project team level, also takes into consideration the individual perceptions of the consultants (given that in most instances there was only one consultant per team). The combination of the developer team reports and the individual consultant reports form the cases discussed below. These cases were analysed in a manner consistent with that applied by Jarvenpaa and Leidner (1999). Also, consistent with the Jarvenpaa and Leidner (1999) study, was the reliance on a broad research question as the baseline for the study without any established a-priori constructs. Unlike the Jarvenpaa and Leidner study, however, data was not collected from email archives, but rather from self-reported qualitative data. Finally, in keeping with the methodology used by Jarvenpaa and Leidner (1999), one page summaries of the developer and consultant reports formed individual cases, the ultimate unit of analysis. The use of this methodology was driven by both the absence of prior research designed to study virtual consultant relationships and the qualitative nature of the data.

4 Results and Analysis

Out of the 38 teams, 18 (43%) provided a complete picture of their negotiations through the various reports. The remaining 20 groups all lacked at least one component and hence are excluded from the analysis. Given the exploratory nature of this study, it is inappropriate to make generalisations on the basis of single cases. However, Tables 1 and 2 below aggregate the key indicators from these 18 cases. In order to further facilitate interpretation of the e-

Table 1: Goal Agreement, Technology, Project and Performance Issues in Negotiation Success

Team ¹	Was goal agreement established? E=Explicit; I=Implicit	Was satisfaction with the Technology achieved? (E=Email; B=Blackboard)		Was the consultant satisfied with the project and the website?		Consultant influence on overall project	Consultant score of developer	Developer score of consultant
		Developer	Consultant	Project	Website			
19	Yes E	Yes		Satisfied		Positive influence	13	13
29	Yes I	Yes		Satisfied		Medium influence	13	12
37	Yes I	Yes		Satisfied		Medium influence	11	14
30	No	Yes		Satisfied	Dissatisfied	Little influence	9	14
3	No	E-Yes; B-No		Satisfied	Dissatisfied	Little influence	9	11
7	No	No comment		Satisfied		No influence	12	6
13	No	No comment		Satisfied	Limited satisfaction	Little influence	10	12
16	No	Yes		Satisfied		Medium influence	12	9
21	Yes I	No Comment	No	Very dissatisfied	Satisfied	Little influence	9	12
33	No	Yes	No	Satisfied		Little influence	13	8
34	No	No		Dissatisfied	Satisfied	Medium influence	11	10
38	No	Yes		Satisfied		No influence	9	11
5	No	No		Satisfied		Medium influence	13	8
9	No	Yes		Satisfied		Medium influence	12	8
17	Yes E	No		Dissatisfied	Limited satisfaction	Medium influence	8	7
18	No	Yes		Dissatisfied	Satisfied	No influence	8	5
22	No	Yes		Satisfied	Mixed satisfaction	Medium influence	9	8
23	No	No	Yes	Dissatisfied		Little influence	7	6

¹ The team number is the original number from the set of 38 teams.

Table 2: Communication Issues in Negotiation Success

Team	Evaluation of Communication tone		Satisfaction with Frequency of Communication		Satisfaction with Quality of Communication		Satisfaction with Social Communication	
	Developer	Consultant	Developer	Consultant	Developer	Consultant	Developer	Consultant
19	Positive		Satisfied		Satisfied		No comment	
29	Positive		Satisfied		Satisfied		Satisfied	
37	Positive		Satisfied		Satisfied		No comment	
30	Positive		Satisfied	Dissatisfied	Initially dissatisfied, satisfied by project end	Dissatisfied	Satisfied	No comment
3	No comment		Initially dissatisfied, satisfied by project end		Initially dissatisfied, satisfied by project end		No comment	
7	Positive		Dissatisfied		Dissatisfied		No comment	
13	Positive		Dissatisfied		Dissatisfied		No comment	
16	Positive		Dissatisfied	Satisfied	Dissatisfied	Satisfied	No comment	
21	Positive		Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	No comment
33	Positive		Initially dissatisfied, satisfied by project end		Initially dissatisfied, satisfied by project end		No comment	
34	No comment		Dissatisfied		Satisfied		No comment	
38	Positive		Dissatisfied		No comment		No comment	
5	Positive		Satisfied		Satisfied		No comment	
9	Positive		Dissatisfied		Dissatisfied	Satisfied	No comment	
17	No comment		Dissatisfied		Satisfied		No comment	
18	No comment		Dissatisfied		Dissatisfied		No comment	
22	Positive		Dissatisfied		Dissatisfied		No comment	
23	Positive		Dissatisfied		No comment		No comment	

negotiations, we illustrate our subsequent discussion with quotations from the developer and consultant reports.

4.1 Goal Agreement

When discussing goal agreement, it is important to distinguish explicit goal agreement from implicit goal agreement. As Table 1 indicates, only two of the eighteen teams achieved explicit agreement on the goals of the project. By this we mean that both developers and consultants engaged in a process of discussion that led to consensus on the goals. However, in the three most successful teams (19, 29 & 37), either explicit or implicit goal agreement was achieved. In cases where *explicit* agreement was not reached, the developers proposed a set of goals (essentially the proposed e-business plan) to which the consultants did not object, criticise or otherwise indicate disagreement, thus reaching a level of *implicit* goal agreement. Finally, in thirteen teams, no such agreement was achieved and the developers simply developed the e-business of their choice, disregarding the advice of the consultants altogether. In no cases did the developers implement an e-business that was solely preferred by the consultants. The two teams that did achieve explicit goal agreement – 17 and 19 - provide a clear idea of how this was established, with team members evidently willing to ask for, provide, listen to and act upon feedback, viz.:

Team 19

Consultant: *The HK Team presented me with two ideas, either an escort service or an online Asian food store. I told them that the food store was a better idea and would go over better with the American people. The HK Team valued my opinion and made efforts to follow my recommendations.*

Developer: *Our consultant gave us many valuable advices. For example, at the very beginning of the project topic, so we asked for his comment and advice. In*

the consultants reply he analyzed the feasibility of each idea and gave us facts in USA and told us his choice. We found his advice very useful to us and we chose to listen to his advice.

Team 17

Consultant: The business plan in my opinion was impossible to initiate. I gave them some advice, and they responded back, and agreed to the suggestions.

Developer: At the beginning, our business is about selling sport shoes with customization. However, our consultant commented it was not feasible. Therefore we gave up the ideas of customization, but promoted limited editions of shoes to attract our customers.

4.2 Information Technology

Where information technology is concerned, the majority of developers and consultants expressed agreement that they were satisfied. Email was the primary communication technology used, though a few teams made more extensive use of Blackboard. Team 29's consultant observed that "Blackboard would have been more efficient, but it was too complicated to use". Team 3's consultant made similar comments, observing "the software was not as simple to use as email, therefore email was the choice of communication". The use of email was not always seen as positive, however. Team 34's developers noted that while the consultant possessed valuable technical skills related to SSL security and website development, he was unable to contribute these effectively with only email at his disposal, and given the developers' own inability to understand the technical details that he was communicating. Members of team 23 developed a bifurcated communication process, with developer-consultant communications being handled through email and developer-developer communications being handled through Blackboard.

4.3 Influence

The extent to which consultants were able to influence the website development process varied considerably. In a few cases, consultants felt that much of the website material had been modelled on existing websites with little or no modification or changes in functionality. In these instances the consultants may have had reduced opportunities for influencing the website's design. In other cases, consultants felt that developers had not responded sufficiently to their recommendations, in effect reducing the value of their consulting advice. Overall, while eight consultants felt that they had exerted some influence, six ranked their influence as 'little' and three as 'none'. It is notable that only in team 19 did the consultant feel that he/she had exerted a significant influence over the project.

4.4 Communication

4.4.1 Communication Tone

For communication tone, the vast majority rated the tone as being positive, however four teams failed to comment on this particular aspect of the group process. Interestingly, in all cases the developers and consultants each shared the same opinion regarding communication tone, i.e. if the consultants believed it was positive so did the developers. It is possible that communication tone works in a reciprocal fashion, where the tone used by one subgroup intern influences the tone of the other subgroup.

4.4.2 Communication Frequency

Where frequency of communication is concerned, only four teams share a common sense of satisfaction. Nine groups expressed dissatisfaction, though another two groups indicated that while they were dissatisfied at the start of the project, the situation improved with time. The developers in team 3 provide more details in this regard:

With regard to the frequency and responding time of our consultant, it was not that ideal in the early stages of our communication, but became acceptable near the end of the project.

For the dissatisfied teams, Teams 13, 16 and 18 provide typical comments:

Team 13

Consultant: the communication between my group and me was not frequent, but consisted of 6-7 relatively long emails, usually in the context of them asking me for ideas or advice on specific issues.

Team 16

Developer: Sometimes I think the consultant is not a valuable resource. Although she has given us some opinions about our progress, she seldom gave us suggestions, so I do not have much confidence in her. Sometimes I think she is not a responsible person as we sent her a few emails before but we haven't received any reply from her for more than a week.

Team 18

Consultant: My group seemed to think they did not need my assistance to complete the project. The communication between the group and myself was almost non-existent. I finally received the website address after their project was due.

Developer: Another communication problem is the contact with our oversea consultant. We can only get response from him on 5 march 2002, which is the last day of our interim report 1. Since waiting make everyone annoy, I realize that our consultant get angry while waiting so long for our response. I can now

understand why the lecturer said trust building on the web is so important and so difficult to establish.

Frequency is likely a very important factor for maintaining good communication patterns between sub-teams (developers and consultants)— when the link breaks, either one or both of the sub-teams can become frustrated quickly, leading to a negative attitude towards the communication process in general.

4.4.3 Communication Quality

Where the quality of communications is concerned, responses varied. Some teams were satisfied, others dissatisfied, and as was the case with communication frequency some teams that were dissatisfied initially became more satisfied as the project progressed. The consultant in team 3 expresses a commonly heard complaint:

Consultant: At first the communications were very vague and did not provide much direction. However, after the team and I become comfortable with each other's level of expertise, we were able to use the other's strengths for the benefit of the project.

Differing expectations or misunderstandings between developers and consultants also contributed to problems with perceived communication quality. The developers in Team 9 wrote

We had sent him an email to ask about how to create "Trust" between customers and us. He answered us that buying a real domain and registering to some organizations were the good ways. We knew that those ways were good but the main point was that we didn't need to achieve the real selling, not to say earning a profit. What we needed was to build an online company store for the assignment but not for the commercial purpose. Buying a real domain and registering to

some organizations would be time-consuming and money consuming. Yet he always thought we really sold the goods online for making money.

4.4.4 Social Communication

Although social communication is considered important in team building and negotiations, from the reports of these teams it was largely invisible as most teams offer no comment on the social aspect at all. This is perhaps not so surprising, given the total absence of face-to-face communication and interaction opportunities, as well as the tendency for the team members to focus exclusively on the task, and to disregard the social side. Nevertheless, perhaps unsurprisingly, social communication was observed among the developers, who had the advantage of all being in the same location.

5 Discussion

Considering the results of this study, some findings closely parallel those predicted by the literature, while others differ. Certainly communication quality and frequency, as well as the availability of appropriate communication technologies, are critical to the success of virtual teams. Explicit goal agreement appears to be dependent on mutual respect between team members, each member being willing to ask for, provide, listen to and act on feedback in a constructive and responsible way. Such mutual respect is likely to be correlated with harmonious relations in more general terms, which is likely to have positive effects in other aspects of the team's interactions. Clearly explicit goal agreement is preferable, because it ensures that all teams members share their ideas, but implicit goal agreement is better than none at all as it suggests that the team does at least have a common purpose, even if this purpose has not been arrived at mutually. As illustrated by teams in this research, a complete absence of goal agreement, however, is hardly likely to engender productive team relations,

as the gulf between team member mindsets may well poison other aspects of their online relationship.

The three top-performing teams (19, 29 & 37) are all notable for the frequency and timeliness of communication between team members and generally positive attitude towards each other. As the consultant in team 29 reported: “Basically we contacted each other via email, trying to reply every email as soon as we could”. They all either achieved explicit or implicit goal agreement at the start of the project. The consultants in these three teams were awarded by their developers a score of 12 or above, and the developers received from their consultants a score of 11 or above. These three teams also demonstrated satisfaction on all other measures, while the influence of the consultant ranged from medium to strong (see Tables 1 & 2). These three teams appear to have succeeded in integrating their distributed resources with mutually beneficial outcomes. In all other teams, the extent to which mutual satisfaction was achieved varied, as did the extent to which the consultant was able to influence the project's progress. Disagreements about communication quality and frequency certainly contribute further to inter-team member ratings . From this, we suggest that it is critical that teams be encouraged to achieve goal agreement before they proceed with more detailed aspects of their project. Failure to achieve goal agreement at the outset is likely to have costly side-effects throughout the duration of the project, and may be impossible to fix subsequently without starting the project afresh.

When goal agreement has been achieved, teams can focus on their mutual expectations with regard to communication quality, frequency, etc. It is suggested that teams ground these expectations in a set of protocols that govern all their interactions, i.e. the establishment of group ground rules or protocols. Sample protocols could include: decide on which communication tools you intend to use (e.g. email, Blackboard, etc.) and ensure that you have regular access to these communication tools; check email at least every 12 hours;

send email at least every 24 hours; identify days when communication may not be possible (e.g. weekends, public holidays); be cognizant of time zone differences between team members, as well as variations such as daylight savings schemes (the consultants were 14 hours behind Hong Kong time in summer, but 15 in winter); always attempt to provide constructive feedback – if you disagree, then do so politely; be cognizant that there is a social basis for your communication and therefore treat your fellow team members as social beings, respecting their ‘face’ (cf. Davison, 2003; Redding and Ng, 1982). Although teams in this study did not report social communication issues between team members, we suggest that a positive social atmosphere is very much tied to communication tone and so is conducive to harmonious inter-team relations.

The literature on influence has a number of implications for this study. Numerically, the developers were always in a majority while the consultants were in a minority. It could be argued that the consultants had the potential to wield informational influence given their pre-identified role, but that this was only weakly supported by normative influence derived from their ‘position’ as MBA students. The literature on minority influence suggests that the consultants could be influential if they employed appropriate behaviour such as persistence, consistency, fairness, expertise and competence (cf. Nemeth et al., 1974; Nemeth and Wachtler, 1974; Mausner, 1954) and therefore convert the majority to their way of thinking (Moscovici, 1980).

However, for the most part in this study, the consultants do not appear to have been able to behave consistent with these guidelines, and so were unable to influence the majority. Rather, the majority (the developers) were more influential. They achieved this influence either by ignoring the consultants, or by taking advantage of the consultants’ failure to communicate and so going their own way. We suggest that it is hard to wield influence if the available communication channels are either insufficiently rich for the communication

context (cf. Daft and Lengel, 1986), or if the channels are inappropriately used by the various interlocutors. The richness of the communication channels and the way in which they are used is an issue which bears further investigation, since previous research has primarily investigated minority influence in face-to-face settings. While there is a body of research in the GSS literature that investigated influence behaviour in distributed groups, the purpose of this research was to see how use of a GSS might eliminate or neutralise the influence (see e.g. Tan et al., 1993) rather than enhance it or make it more effective.

Overall, as a feasibility study into the opportunities of deploying e-consultants in virtual teams for negotiation tasks, this research offers the promise of much fruitful work ahead. We have identified a number of problems that can occur in global virtual teams and made some suggestions for how these problems can be alleviated. It remains to be seen whether e-consultants can indeed work effectively in the virtual team context, but we are optimistic that future work will shed further light on the topic. It is critical that attention be paid to the various social, communication and technology components essential for informed negotiation and discussion. Outlined above is a preliminary set of protocols for virtual teams that may be developed further into a set of critical success factors – for successful teams and their consultants. Nevertheless, generalisation at the present time can only be tenuous given the exploratory nature of this study and the lack of empirical control.

6 Conclusions and Future Research

This study examined the roles of virtual consultants and development teams in the negotiation of a functional website. The virtual consultants were numerically in a minority but in general failed to exert minority influence on the developers whom they were advising. Instead, the developers (in the majority) were able to direct the course of the e-business project that they were working on, even though this arrangement was not one that enabled the

achievement of consensus by all team members. Communication difficulties between developers and consultants seem to be a key cause of this failure to achieve consensus, though we suggest that it is also necessary for team members to develop a healthy sense of mutual respect for one another.

This study has drawn on both qualitative and quantitative sources. Due to the informal and exploratory nature of the study, theoretical significance has not been established, but the groundwork for future research has been explored. The authors found that many of the success factors associated with both the virtual teams and negotiations literature were of concern to the study participants although clear indications of the salience of these success factors remains to be established.

The practical significance of research into virtual teams has been established by previous authors (Jarvenpaa and Leidner, 1999; Kayworth and Leidner, 2002; Sarker et al., 2001) as have the significance of negotiations (Moore et al., 1999; Peterson and Thompson, 1997; Robinson and Volkov, 1998; Thompson, 1996; Thompson and Nadler, 2002) consultant relationships (Spector, 2000), minority influence (Moscovici, 1980; Nemeth and Wachtler, 1983; Nemeth, 1986) and team based systems development (White and Leifer, 1986). The integration of these five research streams is salient to the practitioner community in that many development teams in the global economy may well be mediated or otherwise influenced by a remote consultant.

Many of the findings associated with the qualitative reports by the US consultants and HK Teams are supported by previous literature from the separate research streams listed above. Therefore, both theoretical and practical significance may come from research designed to identify precisely how systems development consultants may be able to negotiate with development teams. We suggest that particular attention be paid to the nature of influence in virtual teams in terms of the way it is wielded, the way it is received, the

channels available for communication (and so influencing) and the extent to which the different sub-teams (i.e. in this case developers and consultants) are mutually dependent. These issues could be studied experimentally in the lab (though careful attention must be paid to research designs so as to ensure that influence is operationalised appropriately) or interpretively in the field in real virtual teams that are subject to various forms of influence.

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