

Functional Group Conflict in Information Systems Development

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Abstract

This paper discusses how interpersonal conflict between IS developers and clients can disrupt IS projects. It is suggested how potential problems can be avoided by getting the 'soft' factors right which can lead to improvements in information systems development (ISD) processes. However little is being done in most organisations to review success from this perspective. Measurement of ISD quality tends to favour the product rather than the human drivers that influence the development of the product. Several ideas are put forward that can be used to resolve conflict and to better involve stakeholders in the ISD process.

Keywords

AA10 [Behavioural Science] Conflict Resolution, BD01 [Social Environment] Social Issues, FD01 [IS Implementation] User/Analyst Differences

INTRODUCTION

According to a 1998 study, only 26% of IS projects are delivered on time, on budget, and with the promised functionality (Keil and Robey, 2001). Many of these system failures have been blamed on failures of technology, failures in the requirements gathering process, or failures in system design but little attention has been paid to interpersonal conflict between IS developers and clients as a potential source of difficulties.

Barki and Hartwick first addressed the issue of conflict in IS development in a 2001 study. They obtained survey data from 265 IS staff and 272 users who worked on 162 IS projects. Barki and Hartwick found that for conflict to occur, three dimensions of difficulties, which they called disagreements, interference and negative emotion, must be present. Barki and Hartwick used their data to design a model to represent interpersonal conflict in IS development and attempted to show how organisations can identify and manage conflict better.

An important aspect of functional-group conflict is the social context of the organisation. This includes the organisation's structure, environment, objectives and technical configuration (Robey and Newman, 1996, Yeh and Tsai, 2001). The social context is significant to interpersonal conflict because it can directly influence conflict and conflict resolution.

DEFINING CONFLICT

The literature on interpersonal conflict lacks a generally accepted definition (Barki and Hartwick, 2002; Wall and Callister, 1995) but two main approaches have been used to describe conflict:

- First, there are those approaches that give a broad definition of conflict, which although technically correct, are not all that useful in understanding what conflict is or why it occurs.
- Second, there are those descriptions that give conflict a more precise definition, which although not fitting every conflict situation perfectly, are more useful in understanding the workings of conflict.

For the purposes of this study, we use the Barki and Hartwick definition of interpersonal conflict which describes this type of conflict as:

- "a dynamic process that occurs between interdependent parties as they experience negative emotional reactions to perceived disagreements and interference with the attainment of the [IS projects] goals".

Functional group conflict can be described as conflict that occurs between various departments or groups. For instance, conflicts that occur between management groups and developers, or conflicts that occur between developers and the client.

The advantage of using standardised definitions is to be able to compare different studies against one another and to discuss common issues. This cannot be done if there are different conceptualisations of conflict or conflict management.

WHY IS CONFLICT PREVALENT?

Many of the problems associated with IS development are due to the stress and anxiety that accompanies ISD projects (Wastell, 1999). Nevertheless, Smith and McKeen (1992) suggest several other reasons why conflict is prominent in ISD specifically between IS and business management. These reasons include:

- Communication gaps
- Misalignment of goals
- Credibility problems
- Poor system design

In addition to these issues, ISD environments often experience rapid change, perhaps through new technology, resulting in individuals becoming apprehensive about change. After the implementation of technical change, a period of conflict and upheaval may occur as individuals and groups struggle to come to terms with the changes (Smith and McKeen, 1992, Wastell, 1999, Kwahk and Kim, 1998). Organisations also need to constantly review their business paradigm (concerning goals, processes and roles) after a technological change has occurred (Wastell, 1999). Smith and McKeen (1992) cite many studies that conclude that even minor changes can have major impacts on the beliefs, values, and social relationships within an organisation.

MANAGING CONFLICT

Once conflict has been identified, appropriate measures need to be put in place to attempt to solve or reduce the conflict. Conflict management styles vary and can be used for different situations. Wall and Callister (1995) observe five styles of managing conflict. The styles include:

- Asserting
- Accommodating
- Compromising
- Problem-solving
- Avoiding

Asserting typically produces a win-lose situation, where one party loses at the expense of another (Barki and Hartwick, 2001, Dwyer, 1999). Alternative names for this style include competition, domination, and forcing (Barki and Hartwick, 2001). Asserting occurs when one party negotiates to maximise their results at the expense of the other party's needs. Asserting can be used to counter attack another person who uses this style.

Accommodating is also a win-lose situation (Barki and Hartwick, 2001, Dwyer, 1999). Alternative labels for this style include cooperating, obliging, yielding, and sacrificing (Barki and Hartwick, 2001). Those who are accommodating are willing to oblige or adapt to meet the needs of the other party.

Compromising can produce both win-win or win-lose situations (Dwyer, 1999, Barki and Hartwick, 2001). Dwyer (1999, p.101) states "Compromise is the settlement of differences through concessions by one or both parties." Barki and Hartwick (2001) observed that compromising styles of conflict management often occur between IS staff and users in ISD environments.

Problem-solving aims at producing a win-win solution to a conflict (Dwyer, 1999, Barki and Hartwick, 2001, Gross and Guerrero, 2001). Alternative labels for this style include integrating, cooperating, and collaborating (Barki and Hartwick, 2001). These terms are compatible with Dwyer's (1999, p.101) explanation of problem solving which states that it "results when people cooperate to produce a solution satisfactory to both...permanent solutions and commitment to these solutions result."

Avoiding usually produces a lose-lose result (Dwyer, 1999, Barki and Hartwick, 2001). Alternative labels for this style include "withdrawing, evading, escaping, and apathy (Barki and Hartwick, 2001). This supports Dwyer (1999, p. 102) who states avoidance "means one party retracts its point of view or backs away from the situation." In ISD environments, introverted team members may not give their opinion and alternatively resist through passive/aggressive behaviour (Barki and Hartwick, 2001).

RESEARCH OBJECTIVES

The aim of this study was to investigate the use of a modified version of the Barki and Hartwick (2001) model to investigate perceptions of functional-group conflict within an ISD focus organisation. The modification involved converting the original Barki and Hartwick quantitative questionnaire into a qualitative design which could be used to gain new interpretations on conflict management processes.

The primary aim of the research was to ask:

Can the concepts and structure inherent in the Barki and Hartwick model be adapted to undertake a qualitative study into functional-group conflict in an Australian ISD organisation?

A secondary purpose of the study was to provide some practical recommendations that the focus organisation could follow in future projects, in order to reduce or resolve conflicts more easily.

RESEARCH METHODOLOGY

To satisfy the research proposition, a focussed interview process was developed from a modified version of the Barki and Hartwick (2001) questionnaire. The interviews were semi-structured and contained a combination of open and closed questions. The goal of the study was to develop a richer understanding of functional-group conflict through the experiences of individuals working on an ISD project.

Although quantitative results from previous studies have been successfully used to show casual relationships between variables, many of these studies lacked a true description of what motivated, caused and resolved conflicts. On the other hand, qualitative data takes a descriptive and subjective approach, which can provide answers to many of these questions. Functional-group conflict is typically seen as a social phenomenon and using statistics to represent it 'dehumanises' the issue. Using a quantitative approach conveys large amounts of statistical information but it may also allow social problems and other interesting findings to be hidden. In qualitative studies, these social issues are much harder to hide.

Qualitative researchers argue that the search for casual relationships between variables (which is common in quantitative studies) is epistemologically misguided and obscures the complex, dynamic nature of reality (Brydon-Miller and Tolman, 2001). Functional-group conflict is a prime example of this dilemma. The issue deals with complex human interactions, which cannot be reflected using a few variables and statistics. A qualitative study using open-ended interview questions allows for richer data to be collected. Data such as people's opinions, experiences, thoughts and feelings can be captured in much richer detail using a qualitative study.

Measurement Instrument

The interview design was based on the questionnaire that was used in the Barki and Hartwick study. This original questionnaire used seventy-five questions, covering eighteen concepts of interpersonal conflict. It was decided that it was not appropriate to conduct a qualitative study using so many static questions. It would have been time consuming and not very useful in understanding the nature of functional group conflict. To overcome this, the interviews were structured so that each concept was addressed with one main closed question and then probed with several follow up open-ended questions. The result was an interview design that kept the original structure and concepts from the Barki and Hartwick questionnaire, but allowed for greater detail to be extracted from each interview.

The interviews invoked discussion on the main areas addressed by the Barki and Hartwick study including:

- Interpersonal conflict
- Interpersonal conflict criteria
- Conflict management styles

Research Site

The research site was an Australian IT organisation which is a specialist supplier of networking technology and services. The company competes on a global scale and operates in over thirty countries on six continents. The company holds important strategic partnerships with high profile vendors such as Cisco and Microsoft. The division of the organisation under investigation will be referred to as "Division X". There was approximately 65 staff in Division X, including 25 designers, 25 developers and 15 engineers.

The research site recently completed an ISD project that involved users and IS staff from Division X. IS staff and users were involved, and a degree of conflict was present. This is in keeping with previous studies which also focussed on IS staff and user conflicts such as Robey, Farrow et al. (1989) and Barki and Hartwick (2001). To

fulfil the requirements of the interview, the ISD project also needed to be implemented and in use for at least a period of time.

The ISD project studied was a long-term endeavour spanning two years, which is longer than most modern ISD projects. It was also revolutionary using technology and functionality that hasn't been used on this scale before. A large number of human resources, including specialists in niche areas were also brought together specifically for the project. Over the past two years, this project was the largest and highest priority project for Division X of the focus company.

RESULTS

Interpersonal Conflict Items

Interdependence

This project focussed heavily on the end-user interface and used state-of-the-art technology. According to the participants, this created a conflict prone environment because the client did not fully understand the technology and the developers failed to fully understand the end-users requirements and the business needs. This lack of understanding had the potential to cause, and in the case of this project did cause conflicts. The task of requirements gathering, in which the developers and the client collaborated intensely, was a task in which both parties were highly dependent on each other.

The Barki and Hartwick (2001) quantitative study showed that 'interdependence' must exist in order for conflict to occur. Therefore, it is an indicator to whether there is potential for conflict. If interdependence is not present, then according to Barki and Hartwick, conflict will not exist. The findings from this study showed that 'interdependence' was very evident with the focus project in terms of the client and developer relying on each other to achieve their goals.

Disagreement

The participants believed that most significant disagreements occurred because of the design of the end-user interface and the technology being used. The clients were motivated to argue these issues because they believed they understood their customers better than the developers. Due to the lack of understanding from both parties, disagreements escalated into other issues. The problems were resolved over time by developing a better relationship and both sides increasing their understanding of each other. It took about a year for the client to understand the specifics of the end-user interface. Once the developers had a good prototype, it was not so hard for the client to get a good understanding of what was being built and what was being explained to them in terms of the nuances of the interface.

Interference

The client held considerable power over the developers because they were paying for the project. If the client did not sign-off for a particular development to be done, it would not be done. They had control. One developer commented, "The clients had strong opinions about how things should be done early in the piece, but we gave them the lead and then came back and said 'this is not optimal in performance, what we can do here is make some changes.' Sometimes the IS developers were forced to implement aspects, which we didn't recommend. But in the end, they are the customers so they are right." As the level of trust increased further into the project, levels of conflict resolution improved. People became more comfortable in raising an issue that they normally would not have raised earlier on in the project. However, as new people started work, the trust had to be regained again.

Negative emotion

According to the participants, the two main areas that caused the most negative emotion were the unrealistic time lines that the client created and the internal politics that interfered with the development. Political decisions by client management were made which were detrimental to the development project. Costs were cut and parts of the project were 'shelved' for no reason apparent to the developers. These factors caused negative emotion among the developers, as they became angry and frustrated. The developers attempted to work more closely with the client on a regular basis so they were clear on all the small points along the way, rather than have major issues at the end of a phase.

Functional Group Conflicts

The developers took a conscious effort to avoid conflicts if possible. This was to keep the client contented as they were funding the project and had a great deal of control. The participants also explained that they often made compromises to keep the clients on side. However, some participants suggested that ignoring conflicts and glossing over conflicts was a potentially costly and dangerous practice. If a conflict was present, it typically

was a sign that there is a legitimate issue with the design of the system that warranted further attention. According to the participants, avoiding conflicts is not a recommended conflict management style when dealing with ISD projects. To avoid conflicts, the developers had to make sure that the requirements were specific and clearly defined. This was to eliminate confusion, which could directly lead to conflict.

Conflict Management Style

Problem Solving

During the beginning stages of the project, problem-solving techniques were not being used to their potential. Both the client and the developers had strong viewpoints and did not see each other's point of view. According to the participants, they were too often trying to assert themselves as experts. Within their own business they were in fact experts, but this project required a collaborative effort from both parties sharing their knowledge. To aid problem solving, meetings were organised, lines of communication kept open and decisions were documented. Meetings were facilitated by a project manager or lead business analyst.

Stakeholder management was identified by the participants as being a vital ingredient to achieve successful outcomes from formal meetings. This refers to only inviting the decision-makers and the people that are key to the issue being discussed.

Asserting

Several of the participants noted that sometimes, using an asserting technique is necessary, especially if you are very knowledgeable on a certain issue and have valid concerns that it must be produced a certain way. These participants also noted that you have to be careful and pick the moments you are going to use an asserting technique. You must have the expertise to explain fully why your way is the best way. If the client still does not go along with your suggestion, it is absolutely imperative that you document your concerns to help cover you in case of a dispute at a later date.

Avoiding

The participants stated that there was a fear of getting the clients offside, particularly during the early stages of the project. It was not that some issues were not worth turning into major issues, they just didn't want to have major disputes early in the piece that would affect later phases. Some of the participants explained that it was possible to get around most conflicts using techniques other than avoiding. The approach they recommended was to do some research and put together a presentation (whether it be a formal slideshow, a simple email or verbally) with documented evidence about why a particular method is better than the alternatives. The participants explained that this type of technique was accepted more and more as the project progressed.

One developer spoke about avoiding this way, "Our project team had very strong and well-informed opinions and they weren't shy of expressing those opinions. We told the customer how it was and they accepted that and valued our expertise. They expected us to bring our expertise in and give them the benefit of it. We didn't try to avoid confrontation, but at the same time if we reached a non-decision point, we would let them have their way – at the end of the day, they are still the customer."

In the final analysis, you should carefully pick the moments when to assert and when to avoid issues. It is the way in which you raise issues that is important. In practice, this requires skilful presentation of ideas.

Compromising

When situations arose where both parties disagreed and a compromise had to be made, meetings and workshops were commonly found to be the best means for uncovering solutions. Some of the participants explained that face-to-face encounters were the best method of discussing an issue, opposed to email or electronic means. There is a notion that compromising means that both sides must give and take a little and the end result will be not exactly what you would have liked. However, compromising forces people to think laterally and usually produces a better solution than the one suggested by either party.

Accommodating

You have to accommodate to some of the client's idiosyncrasies because they are paying for the project and they must be satisfied with the outcomes. It is common to feel stronger and more passionate over design issues that are close to you area of expertise, rather than team design issues. This is because when disagreements occur over your ideas, it is essentially a question of your professional opinion. It is therefore necessary to attempt to accommodate for different people and their areas of expertise.

DISCUSSION ON PRACTICAL APPROACHES TO REDUCE CONFLICT

The focus project produced some simple conflict management ideas that organisations can follow. These approaches were derived from common statements made by study participants.

IS developers should work on site

If possible, it is recommended that the IS developers and clients be within a close vicinity to each other, preferably at the same site. All stakeholders agreed that face-to-face meetings were the best form of communication, particularly when dealing with conflicts. If the client and developer have the capacity to discuss issues face-to-face, then they will both benefit. Working on-site provides more opportunity to develop a strong relationship between the parties, which leads to fewer conflicts and better outcomes.

Don't let small problems become big problems

Issues that are put off until a later time can result in a snowball effect. A conscious effort has to be made to make sure that people who need to work together have access to each other and are able to easily communicate with each other. In other words, the issue could escalate and become a much larger problem if it is not dealt with early.

Discuss cultural differences at the start

If the developers are working at the client's site, it is important that both parties discuss their expectations at the beginning of the project. This is necessary to reduce confusion about what is allowed and what is not allowed at the work site. For instance, a discussion on a simple issue such as whether it is appropriate for staff to eat at their desks could become an issue. If everyone knows where they stand, they can develop workarounds to avoid conflict in these situations.

Hold regular meetings, both formal and informal

The focus organisation and the client held regular formal meetings to discuss work related issues. These meetings helped share knowledge from various positions within the company. As well as formal meetings, informal social gatherings were also seen as a help in developing a strong working relationship. Social outings help develop trust and understanding between both parties, which translates to a better overall working relationship.

Seek defined results

It is all very well to organise meetings, but the important element is getting a desired outcome that all parties are satisfied with. Encourage discussion and seek input from all stakeholders at a meeting. Listen to arguments and seek win-win solutions.

Limit attendance at meetings

If the number of people involved in a meeting is too large, arguments are more likely to be created and little, if anything gets resolved. Therefore it is vital that management understand who is required to make decisions on certain issues. It is management's responsibility to make sure that only the relevant stakeholders are invited.

Seek to understand the other parties position

All parties must make it clear about how they work. This can be done either formally (through training sessions) or informally (by sharing ideas and talking). Either way, it is very important for the sake of the client-developer relationship that everyone is able to communicate and understand the others position. This is particularly important during the early stages of development as the requirements and specifications are being produced. Mistakes at this stage can be very costly down the track.

Set achievable early goals

The client and developer should plan to roll out some initial phases (such as early prototypes) as soon as possible. This gives the users confidence that the developer know what they are doing and that what they are doing is on the right track. It also builds trust, which is beneficial as further phases are developed.

STUDY LIMITATIONS

One factor that made comparisons between the Barki and Hartwick (2001) study and this study difficult was the fact that every ISD project is unique. The ISD project that was investigated in this study lasted two years in duration. Over this time, both the client and developer went through many staffing, management and cultural changes. These variables had the potential to influence the participant's perceptions of what occurred.

Conflict is also a sensitive issue and the answers given by the participants may be distorted due to anxieties. Political pressures may also affect what people really think and say about certain issues.

The aim of qualitative research is to increase understanding of a particular situation. The raw data used here is the reporting by participants of their experiences. This reporting is necessarily coloured by their experiences and the outcomes of those experiences. A particular event may be reported differently by different participants. Because of this, we must be careful about making generalisations from the results of this study.

CONCLUSIONS

This project has shown that the concepts and structure of the Barki and Hartwick (2001) model can be usefully applied to an Australian ISD organisation in developing an understanding of functional-group conflict.

Conflict management research has come a long way since conflict was first perceived as being universally destructive. Barki and Hartwick (2001) some two decades later have shown that relationship conflict always produces negative outcomes, while task-oriented conflict should be encouraged. The belief that conflict can be a good thing is seen through recent studies by Robbins, who concluded that conflict can stimulate innovation if its managed at the right levels (Jehn and Mannix, 2001, Robbins, 1978, Barki and Hartwick, 2002, Kwahk and Kim, 1998).

In recent times, research from different disciplines is helping refine the interpersonal conflict and information systems literature. Love (2001) has provided new insight to the area of systems thinking involving people and brain research. He refers to this area of research as 'cognito-affective' and suggests it will address some weaknesses in systems theory. This is relevant to the area of conflict management as it suggests possible reasons why conflict has been an on-going problem for organisations and is unlikely to disappear. The conflict literature has centred on external observations about conflict, but Love's research suggests a field such as conflict management should look at the internal human cognitive factors to gain a further understanding of the area.

This research has found several important issues that affect conflict and conflict resolution that were not present in the Barki and Hartwick (2001) study. These issues include 'building trust between the client and developer', 'learning about each other' and 'the general relationship between the client and developer'.

At the beginning of the project, high levels of conflict were apparent between the clients and developers. Most of these issues were caused by a lack of trust between the parties. The development team had not yet produced any output, which the client could use to judge where the project was headed. The client did not really understand the technology and this made trusting the developer more difficult. However, after several phases were rolled out and the client was satisfied with the results, the level of trust increased. This led to fewer conflicts, as the client allowed the developer to do it the way they proposed.

Over the course of the project, the client's had to learn about processes and the technology, and the developers had to learn about the client's business. The developers were able to improve client satisfaction by conducting more formal presentations, and at other times, by assisting the client they would learn by experience. Either way, the increased level of IS developer/client interaction led to fewer conflicts as each group became more knowledgeable about the work of the other.

It was also apparent during the study that the relationship between the client and developer changed dramatically from the beginning of the project to the end. The level of conflict appeared to be directly influenced by the advancement of the client-developer relationship. Like all types of relationships, this one took a considerable amount of time (approximately twelve to eighteen months) before it was at an acceptable level.

By shaping users' needs and wants, IS developers have a high degree of influence and control over design and change processes. This influence carries with it a high degree of responsibility. By better understanding the causes of conflict and how conflict can be better managed, both IS developers and clients will be ideally placed to build successful teams and quality applications.

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