The Exploration of Conflict Handling Style and Intra-Group Conflict as Effects in the Lucas Model of User Behavior

The Exploration of Conflict Handling Style and Intra-Group Conflict as Effects in the Lucas Model of User Behavior

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

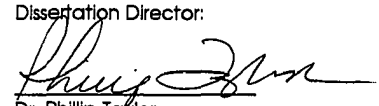
By

Douglas E. White, B.S., M.B.A
University of Tennessee, 1986
Western Kentucky University, 1988

May 1995
University of Arkansas

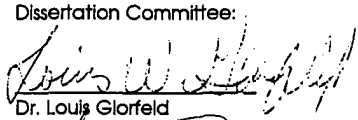
This dissertation is approved for
recommendation to the
Graduate Council

Dissertation Director:

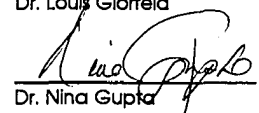


Dr. Phillip Taylor

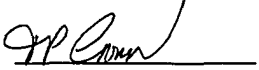
Dissertation Committee:



Dr. Louis Glorfeld



Dr. Nina Gupta



Dr. Paul Cronan

Acknowledgments

Of the great many individuals who have in some manner contributed to my completion of this work, I would like to thank a few specific persons whose direct efforts resulted in the completion of this project.

I would like to thank Dr. Phillip Taylor, the chairman of this endeavor. Dr. Taylor has always been my friend and mentor from the first step of this long journey until the very last. He has always provided exceptional effort and wise counsel to me in this undertaking. Thanks Phil, I couldn't have done it without you.

I would like to thank my friend, Dr. Louis Glorfeld. Dr. Glorfeld has always kept me on the path to a "finished" product and taught me even the worst mistakes can always be undone and repaired.

I would like to thank Dr. Paul Cronan. Dr. Cronan has always provided input to and suggestion for a great many projects I have been involved in at the University of Arkansas. Dr. Cronan agreed to serve on my committee despite his busy schedule and has always found time and energy to devote to those in need.

I would like to thank Dr. Nina Gupta who provided great insight and assistance to me as this project was developed. Dr. Gupta has always provided insight for the managerial perspective of my work and has been an valuable resource in the completion of this project. While it is often difficult to assist with inter-disciplinary research, Dr. Gupta has always been willing to assist.

The remaining persons were not on the committee, but put forth their own efforts in helping me along the way. I would not want to neglect thanking them for their assistance.

I want to thank my wife, Vicki Phillips, who spent three years helping me to survive the world of graduate school. Vicki read and edited this esoteric document more times than anyone alive. Reading it once is an arduous process. Reading it numerous times and correcting my endless grammatical, continuity, etc., errors is a great

accomplishment in and of itself. In addition to her assistance with a long project, Vicki has always understood the difficulties of life in graduate school and been willing to put up with long hours, lack of capital, no vacations, etc. Thanks Vicki.

I want to thank my parents, Gene and Lottie White, who always believed I could finish this, even if I wavered. Their assistance and encouragement were worth more than words could say.

I want to thank my friends Gabe Buntzman and Roger McHaney who always listened to my complaints about life, the universe, and everything; sometimes they even found a project in all of the chatter that was worth doing.

In addition, my friends Indu and Anju Chhachhi deserve thanks for always hosting my annual visits and provided much great food and friendship to a downtrodden graduate student.

My special thanks to Dr. Afzal Rahim who offered advice and allowed me to use the portions of the ROCI-II and ROCI-I instruments. Without this, there wouldn't have been much of a study. Dr. Rahim has always provided suggestions and support for my research into conflict and MIS. It is always encouraging to have such support from such a great writer and researcher.

Finally, I want to dedicate this project to Lena McKee, my grandmother. She has always been my inspiration to learn, create, and observe. Her life has always been my motivation to overcome adversity and a reminder that the greatest accomplishments are often unrecognized, perhaps even unnoticed.

Doug White, 1995

TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

As Information Systems (IS) technology has developed, and the needs and desires of the end-users[1] of the IS technology have emerged, the need for research and understanding of these issues has developed concurrently . A great deal of attention is focused on "user satisfaction" (Lawrence and Low, 1993; Melone, 1990; Baroudi and Orlikowski, 1988; Ives, Olson and Baroudi, 1983; Bailey and Pearson, 1983; Joshi, 1990; Doll and Torkzadeh, 1988; Baroudi, Olson, and Ives, 1986; Rushinek and Rushinek, 1986). Other researchers have addressed the issue of computer "usefulness" (Davis, 1989; King and Rodriguez, 1978; Amoroso and Cheney, 1991; Adams, *et. al.*, 1992), and "user attitudes" (Robey, 1979; Srinivasan, 1985).

This research stems from the need for a better understanding of the behavior of the end-users of computer information systems and the effect of interaction with other users on the model of information systems usage. Continual increases in the level of computing and reliance on the computing resources within the organization has situated technology as a major factor affecting organizations and the organizational environment (Weiss and Birnbaum, 1989; Rivard and Huff, 1984). This underscores the need for accurate and reliable means by which success or failure of the system may be determined (Jarvenpaa, *et. al.*, 1985). Robey (1979) indicated, "MIS can and does fail where user psychological reactions and organizational factors are ignored by system designers". In addition, Lucas (1975a) stated, "...the major reason most information systems have failed is that we have ignored organizational behavior problems in the design and operation of computer based information systems". These two statements further support the need for a better understanding of the organizational environmental

[1] Note the terms user, users, end-user, and end-users are all synonymous for users of computing systems within an organizational or work-group context.

factors contributing to behavior of the users and the subsequent usage of an information system.

Even the earliest researchers in the information and computer science arena realized the need for better understanding of the actions of end-users of the computer information systems (Ackoff, 1967). Turing (1950) indicated, "...the idea behind digital computers may be explained by saying that these machines are intended to carry out any operations which could be done by a human computer". Likewise, Mason and Mitroff (1973) stated "...an information system consists of at least one person of a certain psychological type who faces a problem within some organizational context for which he needs evidence to arrive at a solution (i.e. to select some course of action) and that the evidence is made available to him through some mode of presentation". Thus, one may consider the problem of how users behave and why. It is important to understand this behavior as it may affect the nature and usage of a system being implemented for end-users within the organization and subsequently the decisions made by the organization. If, as Robey indicated, the user behavior and psychology affect the satisfaction/success of the system, it is vital an understanding of this behavior of end-users be obtained.

Allison (1969) indicated, "What each analyst sees and judges to be important is a function not only of the evidence about what happened but also of the "conceptual lenses" through which he looks at the evidence". He also suggests the focus of research in the end-user area may be too narrow and "micro" oriented. A broadening of observation may further develop the models and frameworks in existence to include external and personal factors affecting the end-users of the IS systems (e.g. *the conceptual lenses*) being considered. Ideally, a model of computer usage containing all relevant factors, latent variables, *etc.*, might be found, but as has been illustrated in many other disciplines involving socio-economic models and socio-economic systems, it is very difficult to fully specify these models with any degree of reliability.

In order to pursue a more complete model of information systems, this study builds upon past research in user behavior and includes additional concepts found to be critical in managerial frameworks of behavior which may be affecting outcomes measured by previous studies. Essentially, the development of an understanding of the nature of the system, not merely the quality or lack of quality of the physical system, but further understanding of the entire socio-economic system which exists in the IS/organizational environment, is important to the understanding of behavior of information systems and users of information systems.

The key area of interest in this study is the framework developed by Lucas (1973). Lucas's model provides a basis for the study of other forces which may affect the constructs found within Lucas's model of information systems. Each of these constructs (and a number of others) are considered by Lucas as components of an overall general model of information systems. Lucas himself indicated the model was not as strong as it should be and would need further research into the relationships existent in the systems before a full model might be specified. In addition, Lucas indicated other factors might be affecting the constructs in the model which were not considered in the original research.

This study addresses specific issues involved in the modeling of user behavior and the effects this user behavior (including attitudinal measures) may have on information system usage and end-user behavior. Through the review of the roles played by various components of the user behavior, further insight into the Lucas model may be obtained and verified through empirical testing. Thus may a new, more complete model be described founded in the conceptual framework of Lucas's model of information systems.

The specific arena of interest in terms of user behavior is the development of an understanding of the role played by the styles of conflict measures (Blake and Mouton, 1964; Lawrence and Lorsch, 1967; Thomas and Kilmann, 1974; Thomas, 1976; and Rahim,

1983) in the model of information systems developed by Lucas. Certainly, there are many arenas of user behavior which might be studied, but conflict handling style is an established and important component of individual behavior (Rahim, 1992) as well as being a function of a variety of organizational traits (Lucas, 1976; Lucas, 1975a; Lucas 1982). Through observation of the nature of conflict, an additional component of the puzzle of information systems and user behavior may be understood.

OBJECTIVES OF THE STUDY

The overall objective of this research is to develop an understanding of the effect of end-user conflict handling style (and the subsequent effect of conflict) within the behavioral model of information systems usage (Lucas, 1973). Specifically, what impact does the conflict handling style of the users have on the model of information systems usage? This behavioral insight helps to further specify the model of information systems usage as well as clarifying definitional vagaries in the IS paradigm such as Mason and Mitroff's (1973) "...certain psychological type".

The inclusion of conflict handling style in the information systems model assists researchers and practitioners of information systems in understanding the psychological/behavioral perspective of the end-users behavior. This understanding is considered to be a key element in the development of successful systems projects (Robey, 1979; Lucas, 1975b) as well as a component of the complete model of information systems. Through empirical analysis of data gathered from systems users in the business world, it is possible to obtain information regarding the nature of these relationships and provide insight into the future direction of end-user behavior research.

RESEARCH QUESTIONS

The study of a model of user behavior involves the development of the research questions:

- What relationship, if any, exists between Lucas's (1973) constructs and the measures of conflict handling style?
- Where, if at all, should conflict handling style (and subsequent conflict) reside in the model of information systems developed by Lucas (1973)?

Each of the research questions posited above involve a number of constructs and will result in a large number of statistical hypotheses which may be tested empirically to determine their validity to the overall model proposed. These research questions result in the development of a general research hypothesis for consideration in this study.

The general research hypothesis of this model is (stated in the null form):

H_0: There is no relationship between conflict handling style and the constructs in Lucas' model.

The research hypothesis is general in nature and is used in the development of hypotheses specific to the conflict handling style and information systems models they involve. Each of the research hypotheses will result in a number of situation specific hypotheses to be tested. The specific hypotheses will be presented in Chapter III.

JUSTIFICATION AND PURPOSE OF THE RESEARCH

Computer scientists and later computer information systems (CIS)[2] researchers have always maintained interest in the success[3] and subsequent sales of the products software developers offer to the marketplace. The development of technology provides a means for greater productivity in the workplace and more accurate and timely information provided to decision makers within the organizational context. Dickson (1981) indicated, "MIS deals with all information and decision-making activity associated

[2] Computer information systems (CIS) and management information systems (MIS) are used synonomously in this text.
[3] Success and failure may be measure either in terms of *utilization* (Cheney, Mann, and Amoroso, 1986) or in terms of satisfaction (Doll and Torkzadeh, 1988) of the users of the system.

with operating an organization". As activities are centered around this IS system of decision making, productivity hinges on the success or failure of the system. Unfortunately, user acceptance, satisfaction, and usage are all critical to the success of a given system (Bowen, 1986; Young, 1984) and a failure to accommodate the users will certainly result in the failure of a given system (Henderson and Treacy, 1986). Thus, efforts to accommodate the end-users of the system are vital to the development or purchase of successful IS systems within the organization.

Traditionally, the focus of the success or failure measure has been in the direction of "usage" of the system being considered. In this manner, the sheer volume of the usage has been considered as a determinant of the system's value or quality within the organization. Ginzberg (1978, 1981) believed the link between systems usage and decision quality to be weak and supported perceived effectiveness as a means of determining quality. With this in mind, it is possible user's perceptions about the system are at least as important as the actual quality of the system at hand. It is also possible the users' perceptions may be affected by the environment in which they reside. Robey (1979) argues, "MIS can and does fail where user psychological reactions and organizational factors are ignored by system designers". Essentially, if a better understanding of the behavior of users is to be developed, an understanding of the environmental factors and the psychological make-up of the users should also be developed. Models which consider only hardware, software, etc. are incomplete and may result in erroneous conclusions.

Davis (1989) states, "Aside from their theoretical value, better measures for predicting and explaining system use would have great practical value, both for vendors who would like to assess user demand for new design ideas, and for information systems mangers within user organizations who would like to evaluate these vendor offerings". This call, coupled with the model developed by Lucas (1973), indicates a

need for greater understanding of the nature of the systems and dynamics at work within the organization and particularly the end-users within the organization.

Conflict is recognized as a component of the organizational environment and conflict affects these organizations in all the various configurations the organizational may assume (Miller, 1984; Chandler, 1962). These organizations succeed or fail[4] with varying levels of conflict and dynamic organizational cultures, among other factors affecting the organization. It is believed these differing styles or cultures may play a role in the causal relationship of culture and performance (Hoskisson and Hitt, 1990). Obviously further research into the nature of the relationship between the end-user, the computer, and other end-users is warranted, but why should study be focused on conflict handling style as a component of user perception and a general model of user behavior? Buntzman and White (1993) state, "Contemporary thinking about conflict is good for organization effectiveness". Quinn (1985) indicates, "Too little conflict may signal an apathetic or non-creative environment", and high levels of conflict may lead to reduction in organizational performance (Rahim, 1986; Dess and Origer, 1987). Lucas leads us to believe there are factors beyond the indications of Lucas's[5] model in both his statements and testing of the model. In the environment[6] surrounding Lucas's internal model is a realm containing many factors regarding not only the personal belief systems of the individuals within the organizational culture (e.g. ethical relativism), but the organizational culture itself.

The purpose of this research is to assist the organizational decision maker to better understand the effect of conflict on the decision making process (*vis a* vis Simon's model (1960)) with respect to the information systems used in the process. If a greater

[4] In this case success and failure are denoted by *survival* in the industry, particularly with regard to high rates of growth and rates of return (Hall, 1980).
[5] Lucas only measured a limited set of personal characteristics.
[6] Where environment is the that area outside the bounds of the user environment (much as the organization has an external environment affecting it (Athos and Coffee, 1968).

understanding of the role of conflict handling style is developed, with respect to end users of information systems, decision makers may be able to better interpret the role conflict handling style and the resultant conflict episodes have in the systems development process.

No one particular style or "culture" will result in the highest levels of performance from industry to industry, but these cultures play a key role in the internal workings of the organization. As MIS planners have found, the understanding of user behavior is a difficult and convoluted task. The development of a better understanding of the latent variables found in end-user behavior and the end-user group cultures will result in better informed decision makers particularly at the chief information officer (CIO) level of the organization.

If a reliable means by which these cultural factors may be measured is established, the decision makers may measure these conditions in their users before attempting to evaluate a particular decision making tool. In this regard, the behavior of the users of the IS, and the effect on usage caused by conflict handling style, will allow a true assessment of the quality of the delivered goods as opposed to a system failure which may result in a costly replacement or revision to a reasonable system (Davis, 1989).

Because of these indications, a greater emphasis should be placed on the understanding of the user and the organizational environment of the user before further development of the usage models is pursued. The models of behavior may prove to be vital to the understanding of system success, user involvement, satisfaction, usage, and frameworks for system design.

As end-user computing continues to play a growing role in the organizational environment, the numbers of end-users and subsequent problems encountered by the designers and implementors of computing systems will grow in a like fashion. Because of

this relationship, it is vital to continually study the nature of user behavior and the role user behavior plays within the organizational and end-user context of organizational culture, individual behavioral patterns, and end-user perceptions of systems.

LIMITATIONS OF THE STUDY

With any research involving a model, particularly socio-economic models of behavior, it is best to review the results and conclusions with care. It is virtually impossible to encompass all possible variables, factors, *etc.*, influencing user behavior. In addition, it is difficult to include all possible configurations of organizations. Because of these limitation, results may be difficult to interpret in real-world settings. Likewise, users may vary in behavioral patterns over time, and consequently, the temporal results obtained may vary. In light of these problems the generalizability of the research may be limited, but it is hoped the essence of the findings will be useful to mangers of information systems and other decision makers within the organization and provide a starting point for continued research into the conflict/MIS arena.

ORGANIZATION OF THIS DOCUMENT

This chapter has addressed the nature of the research being conducted, the objectives of the research, and the purpose of the research. Chapter II contains a review of the relevant literature. Chapter III develops the proposed theoretical model and the means for measurement of the latent variables developed through the use of the instruments of measurement. Chapter IV presents the results of the empirical research and the indications of the results. Chapter V provides a summary of the findings, conclusions, and suggestions for future research in this area.

CHAPTER I REFERENCES

Ackoff, R. L. 1967. "Management misinformation systems," *Management Science*, (14:4), pp. B147-B156.

Adams, D. A., R. R. Nelson, and P. A. Todd. 1992. "Perceived usefulness, ease of use, and usage of information technology: a replication," *MIS Quarterly*, (16:2), pp. 227-247.

Allison, G. T. 1969. "Conceptual models and the Cuban missile crisis," *The American Political Science Review*, in *The Strategy Process: Concepts, Contexts, and Cases*, ed. J.B. Quinn, H. Mintzberg, and R. M. James, Prentice Hall, Englewood Cliffs, NJ, pp. 314-323.

Amoroso, D. L. and P. H. Cheney. 1991. "Testing a casual model of end-user application effectiveness," *Journal of Management Information Systems*, (8:1), pp. 63-89.

Athos, A. G. and R. E. Coffey. 1968. *Behavior in Organizations: A Multidimensional View*, Englewood Cliffs, NJ: Prentice-Hall, Inc.

Bailey, J. E. and S. W. Pearson. 1983. "Development of a tool for measuring and analyzing computer user satisfaction," *Management Science*, (29:5), pp. 530-545.

Baroudi, J. J. and W. J. Orlikowski. 1988. "A short-form measure of user information satisfaction: a psychometric evaluation and notes on use," *Journal of Management Information Systems*, (4:4), pp. 44-59.

Baroudi, J. J., M. H. Olson, and B. Ives. 1986. "An empirical study of the impact of user involvement on system usage and information satisfaction," *Communications of the ACM*, (29:3), pp. 232-238.

Blake, R. R., and J. S. Mouton. 1964. *Managerial Grid*, Houston, TX:Gulf Publishing.

Bowen, W. 1986. "The puny payoff from office computers," *Fortune*, May 26, pp. 20-24.

Buntzman, G. F., and D. White. 1993. "Ethical relativism, conflict, and performance in a strategic management setting," *Journal of Social Behavior and Personality*, (8:4), pp. 567-586.

Chandler, A. D. 1962. *Strategy and Structure: Chapters in the History of the Industrial Enterprise*, Cambridge, MA: M.I.T. Press.

Cheney, P. H., R. I. Mann, and D. L. Amoroso. 1986. "Organizational factors affecting the success of end-user computing," *Journal of Management Information Systems*, (3:1), pp. 65-80.

Davis, F. D. 1989. "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quarterly*, (13:3), pp. 319-340.

Dess, G.G., and N. K. Origer. 1987. "Environment structure, and consensus in strategy formulation: a conceptual integration," *Academy of Management Review*, (12), pp. 313-330.

Dickson, G. W. 1981. "Management information systems: evaluation and status," *Advances in Computers*, (20), pp. 1-37.

Doll, W. J. and G. Torkzadeh. 1988. "The measurement of end-user computing satisfaction," *MIS Quarterly*, (35:10), pp. 259-274.

Ginzberg, M.J. 1981. "Early Diagnosis of MIS implementation failure: promising results and unanswered questions," *Management Science*, (27:4), pp. 459-478.

Ginzberg, M.J. 1978. "Finding an adequate measure of OR/MS effectiveness," *Interfaces*, (8:4), pp. 59-62.

Hall, J. 1969. *Conflict Management Survey: A Survey on One's Characteristic Reaction to and Handling Conflicts Between Himself and Others*, Canoe, TX: Teleometrics International.

Hall, W. K. 1980. "Survival Strategies in a Hostile Environment," in *The Strategy Process*, eds. J. B. Quinn, H. Mintzberg, and R. M. James, Englewood Cliffs, NJ: Prentice-Hall, Inc. pp. 569-576.

Henderson, J. C., and M. E. Treacy. 1986. "Managing end-user computing for competitive advantage," *Sloan Management Review*, (27:2), pp. 3-14.

Hoskisson, R. E., and M. A. Hitt. 1990. "Antecedents and performance outcomes of diversification: a review and critique of theoretical perspectives," *Journal of Management*, (16), pp. 461-509.

Ives, B., M. H. Olson, and J. J. Baroudi. 1983. "The measurement of user information satisfaction," *Communications of the ACM*, (28:10), pp. 785-793.

Jarvenpaa, S.L., G. W. Dickson, and G. DeSanctis. 1985. "Methodological issues in experimental IS research: experiences and recommendations," *MIS Quarterly* (9:2), pp. 141-156.

Joshi, K. 1990. "An investigation of equity as a determinant of user information satisfaction," *Decision Sciences*, (21:2), pp. 786-807.

King, W. R. and J. I. Rodriguez. 1978. "Evaluating management information systems," *MIS Quarterly*, (2:3), pp. 43-51.

Kohlberg, L. 1969. "Stage and sequence: the cognitive-developmental approach to socialization," in *Handbook of Theory and Research*, D. Goslin (ed.), Chicago, IL: Rand McNally and Co.

Lawrence, M. and G. Low. 1993. "Exploring user satisfaction within user-led development," *MIS Quarterly*, pp. 195-208.

Lawrence, P. R., and J. W. Lorsch. 1967. *Organization and Environment.* Homewood, IL: Irwin-Dorsey.

Lucas, H. C. 1982. *Information systems concepts for management.* New York, NY: McGraw-Hill Book Company.

Lucas, H. C. 1976. *The analysis, design, and implementation of information systems.* New York, NY: McGraw-Hill Book Company.

Lucas, H. C. 1975a. *Why information systems fail,* New York, NY: Columbia University Press.

Lucas, H. C. 1975b. "Performance and the use of an information system," *Management Science,* (21:8), pp. 908-919.

Lucas, H. C. 1973. "A descriptive model of information systems in the context of the organization," *Database,* (5:2), pp. 27-36.

Mason, R. O., and I. I. Mitroff. 1973. "A program for research on management information systems," *Management Science,* (19:5), pp. 475-487.

Melone, N.P. 1990. "A theoretical assessment of the user-satisfaction construct in information systems research," *Management Science,* (16:1), pp. 76-91.

Miller, D. 1984. *Organizations: A Quantum View,* Englewood Cliffs, NJ: Prentice-Hall.

Quinn, J. B. 1985. "Strategic goals: process and politics," *Sloan Management Review,* (19), pp. 21-37.

Rahim, M. A. 1992. *Managing conflict in organizations, second edition.* Westport, CT: Praeger.

Rahim, M. A. 1986. *Managing Conflict in Organizations,* New York, NY:Praeger.

Rahim, M. A. 1983. "A measure of styles of handling interpersonal conflict," *Academy of Management Journal,* (26:2), pp. 368-376.

Rivard, S. and S. L. Huff. 1984. "User developed applications: evaluations of success from the DP department perspective," *MIS Quarterly,* (8:3), pp. 39-50.

Robey, D. 1979. "User attitudes and management information systems use," *Academy of Management Journal,* (22:3), pp. 527-538.

Rushinek, A. and S. F. Rushinek. 1986. "What makes users happy?," *Communications of the ACM,* (29:7), pp. 594-598.

Srinivasan, A. 1985. "Alternative measures of system effectiveness: associations and implications," *MIS Quarterly,* (9:3), pp. 243-253.

Thomas, K. W. 1976. "Conflict and conflict management," in M.D. Dunnette (Ed.), *Handbook of Industrial and Organizational Psychology,* Chicago, IL:Rand McNally, pp. 889-935.

Thomas, K. W. and R. H. Kilmann. 1978. "Comparisons of four instruments measuring conflict behavior," *Psychological Reports*, (42:3), pp. 1139-1145.

Weiss, A. R., and P. H. Birnbaum. 1989. "Technological infrastructure and the implementation of technological strategies," *Management Science*, (35:8), pp. 1014-1026.

Young, T. R. 1984. "The lonely micro," *Datamation*, (30:4), pp. 100-114.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter provides a review of the literature relevant to the areas of human behavior concerning end-user conflict as well as an overview of literature relevant to the arena of user perceptions regarding systems success. In particular the focus of the review is on the relationship between organizational conflict and the role of the information system in the organization. This chapter discusses the development of theory on conflict and the development of the model of information systems developed by Lucas (1975b).

Early Developments in Conflict Theory

As long as humans have interacted with other humans, animals, groups of humans, or engaged in any sort of inter-entity activity, conflict has emerged as a by-product of communications (and of course miscommunications), business, government, etc. Bernard (1957), Singer (1949a, 1949b), and Sorokin (1927, 1947, 1966) discussed these early systems of conflict in terms of socio-economic, religious, ethical, political, and philosophical systems. The basis for these philosophical systems was developed in the research of such writers as Freud, Heraclitus, Hegal, Hobbs, Locke, Machiavelli, Mill, and others. These philosophical systems of conflict are also addressed in the writings of Karl Marx and proponents of Social Darwinism. From the philosophical roots, general theories of social conflict were developed in the sociological research arena. A great deal of early sociological research involved the nature of conflict in social groups as discussed by numerous writers (Carver 1908, 1915; Chase, 1951; Cooley, 1918; Coser, 1956; Lasswell, 1931; Lawner, 1954; Lewin, 1948; Lundberg,1939; Maciver,1937; Park and Burgess,1924; Ross,1930; Simmel, 1903; Simpson, 1937; Singer, 1949b; Sorokin,1947; Von Weise and Becker,1932). These

researchers developed the foundations of the study of conflict which allow the later discussion of a general theory of conflict. With this development, it is possible to utilize this framework as an extension into even greater generality. Fink (1968) indicates the need for not only a general framework for conflict study, and also the need for a multi-disciplined approach to the study of this social phenomenon.

Development of a General Theory of Conflict

In order to develop a discussion of conflict, it is important to establish first the ability to transpose ideas developed in other disciplines into the area of management information systems. The ideas of conflict within and among group members are much researched in other disciplines, but rarely considered in the MIS arena. The conflict discussion in this chapter will first present a discussion of the generalizability of the conflict literature to the MIS arena, then present a number of models of conflict behavior found in organizational and group environments identified in the literature. In this manner it is possible to understand the development of the models to be used in this study.

Webster's New Collegiate Dictionary defines conflict as "...a competitive or opposing action of incompatibles: antagonistic state of action (as of divergent ideas, interests, or persons)". A second definition of conflict indicates *a mental struggle resulting from incompatible or opposing needs, drives, wishes, or external or internal demands.* But despite these overt manifestations, conflict may also be a subtle occurrence. Thomas (1976) indicates *social scientists are coming to realize—and to demonstrate—that conflict itself is no evil, but rather a phenomenon which can have constructive or destructive effects depending upon its management.*

Fink (1968) approached the study of conflict from a generalistic perspective; that is, as an interdisciplinary study as opposed to a phenomena unique to a

particular discipline or science. This approach to conflict theory is considered the foundation of the idiographic philosophy of conflict.

The idiographic school of thought implies "...true knowledge is a knowledge of particulars" (Singer, 1949). Idiographic proponents oppose a general theory of social development on grounds a given situation contains unique or fundamental peculiarities and can not be generalized (Hager *et. al.*, 1956; Williams, 1947; Janowitz, 1957). With this in mind, Fink (1968) questions the desirability of a general theory of conflict on the idiographic grounds that such a theory will never be relevant nor useful in the attempt to understand sociological phenomena.

Despite the idiographic objection to generality, Merton (1957) called for "theories of the middle range" and the empirical testing of these theories as a cornerstone of sociological research. Merton's ideas are based on the inductive views of scientific progress. Essentially, proponents of inductive research call for specifics as a foundation leading gradually to more general levels through empirical testing and theoretical development. Inductive reasoning reviews specific facts to draw a general conclusion from those facts (Turban, 1990). Turban (1990) also warns of difficulty in reaching a conclusion using the inductive method. Yet, despite these difficulties a general theory solidly founded on specific developments may offer sounding boards for further development in the arena being considered. Merton (1967) indicated sociological theory development in terms of generality should proceed using interconnected planes. This development involves the evolution of special theories which result in empirically testable hypotheses (the idiographic perspective), and secondly, the evolutionary emergence of progressively more general concepts through consolidation of the empirically tested hypotheses from the special theories (the inductive perspective).

Thus, as in the development of a framework for the consideration of research such as that developed by Nolan and Wetherbe (1980) in the MIS area, it is

important to establish a framework for the consideration of conflict and its effects on the organization. As with Nolan and Wetherbe's model, it is then possible to place specific research efforts in the conflict area into the overall (general) framework of sociological-conflict research.

Many facets of conflict have been considered in a variety of disciplines. In Table 2.1, Chase provides an early classification of the various levels of conflict he believed to be found in the socio-economic system as a whole. Chase finds conflict to exist in all roles and segments of society. In fact, in this paradigm for conflict virtually all parts of society should be in conflict a great deal of the time. Chase indicates this is a large number of items to be considered but still does not believe this an exhaustive list of special problem domains in conflict. Despite the specificity of this model, the development of surrogates (e.g. Religious Conflict) begins to move the idea of the study of conflict from the concrete to the abstract.

In addition to Chase's conflict classification, an additional means of classification of conflict was developed by Levine (1961). Levine has attempted even further generalization of the conflict models and developed a set of four types of conflict to be considered. Table 2.2 contains Levine's set of conflict types.

As in the discussion of inductive reasoning, Levine's model moves from the specialized "micro" focus of research (as in Chase's model) to the more general. With this move into the realm of abstraction, it becomes more difficult to empirically test the model, but it also becomes easier to determine how a particular situation fits into a model found in the literature. With this generality also comes the ability to place conflict in general into models found in other disciplines (such as management or psychology).

Table 2.1 (Chase, 1951)

	Type of Conflict	Example
1	Personal quarrels	Husband vs. Wife
2	Family vs. Family	
3	Feuds	Clan vs. Clan
4	Community Quarrels	town vs. town
5	Sectional Quarrels	South vs. North
6	Workers against Managers	union vs. management
7	Political Parties	two or more competing in elections
8	Conflicts between races	white vs. black
9	Religious Conflict	Protestant vs. Catholic
10	Anti-Semitism	worldwide compound of racial, religious, and cultural antagonisms
11	Ideological Quarrels	communism vs. capitalism
12	Occupational Conflicts	farmer vs. industrial worker
13	Competition between industries	trucks vs. freight cars
14	National Rivalries	nation vs. nation
15	Conflicts between Cultures	in-group vs. outgroup
16	Cold War	Russia and her satellites vs. the democracies
17	East vs. West	
18	Competition within a given industry	denunciation of chislers and price cutters

Table 2.2 (Levine, 1961)

	Type of Conflict	Description
1	Intrafamily	Interpersonal conflict between family members
2	Intracommunity	Interpersonal conflict between members of different families within the small local community, and intergroup conflicts.
3	Intercommunity	All levels above the single local community but within a single ethnolinguistic entity, the number and identity of levels being extremely variable across cultures.
4	Intercultural	Conflicts between groups belonging to different ethnolinguistic entities, or between such entities acting as units.

As additional researchers entered the arena of conflict research more elaborate extensions of these basic ideas emerged. A more elaborate extension of the earlier lists and a precursor to modern theories of conflict interaction is the model posited by Dahrendorf (1958). Dahrendorf began approaching the problem of a general model applicable to society as a whole, as opposed to the specific models developed earlier. The basic conclusions of this model are found in Table 2.3.

In Dahrendorf's work the first development of a model greater than the single dimensional ones presented by Chase and Levine is presented. This multi-dimensional approach to conflict allows for greater generality. With this greater generality in the conflict model Angell (1965) and Fink (1968) developed a more elaborate model of conflict from Dahrendorf's base model. Table 2.4 illustrates Fink's modification to the model.

Fink (1968) attempted to expound upon Dahrendorf's model of conflict.[7] As the model began to develop, multiple dimensions of conflict began to form but the connection to the specific case model was still evident (e.g. father vs. children). Yet, despite its strong connection to the micro-models of the past, the evolution of a more generalized model of conflict analysis was evident. The consideration of the more generic groupings (e.g. equal vs. equal) allowed for the movement towards a purely theoretical general model of conflict analysis.

Boulding (1962) considered the general conflict model in a somewhat different fashion by using alternative structural dimensions for the grouping of conflict levels into special micro-focus groups. Table 2.5 illustrates Boulding's conflict model.

Boulding primarily considered three entities in the general model, 1) individuals, 2) groups of individuals, and 3) groups of groups (i.e., organizations). This particular approach indicated a small number of special theories of conflict was

[7] It should be noted Fink added minor changes to Angell's (1965) modifications to Dahrendorf's (1961) original model.

Table 2.3 (Dahrendorf, 1958)

1. In every imperatively coordinated group, the carriers of positive and negative dominance roles determine two quasi-groups with opposite latent interests. We call them "quasi-groups" because we have to do here with mere aggregates, not organized units; we speak of "latent interests," because the opposition of outlook need not be conscious on this level; it may exist only in the form of expectations associated with certain positions. The opposition of interests has here a quite formal meaning, namely, the expectation that no interest in the preservation of the status quo is associated with the positive dominance roles and an interest in the change of the status quo is associated with the negative dominance roles.
2. The bearers of positive and negative dominance roles, that is, the members of the opposing quasi-groups, organize themselves into groups with manifest interests, unless certain empirically variable conditions (the condition of organization) intervene. Interest groups, in contrast to quasi-groups, are organized entities, such as parties, trade unions; the manifest interests are formulated programs and ideologies.
3. Interest groups which originate in this manner are in constant conflict concerned with the preservation or change in the status quo. The form and the intensity of the conflict are determined by empirically variable conditions (the conditions of conflict).
4. The conflict among interest groups in the sense of this model leads to changes in the structure of the social relations in question through changes in the dominance relations. The kind, the speed, and the depth of this development depend on empirically variable conditions (the conditions of structural change).

Table 2.4 (Fink, 1968)

Social Units	Equal vs. Equal	Superordinate vs. Subordinate	Whole vs. Part
Roles	1 (family role vs. occupational role)	2 (occupational role vs. labor-union role)	3 (social personality vs. family role)
Groups	4 (boys vs. girls in school class)	5 (father vs. children)	6 (father vs. prodigal son)
Sectors	7 (air force vs. army)	8 (Manufacturers' association vs. unions)	9 (Episcopalian Church vs. "high church" group)
Societies	10 (Protestants vs. Catholics)	11 (free men vs. slaves)	12 (state vs. criminal gang)
Supersocial Relations	13 (Soviet bloc vs. Western bloc)	14 (Soviet Union vs. Hungary)	15 (Common Market vs. France)

Table 2.5 (Boulding, 1962)

	Social Conflict
1	Conflicts between or among persons
2	Boundary conflict between groups
3	Ecological conflict between groups
4	Homogeneous organization conflict
5	Heterogeneous organization conflict
6	Conflicts between a person and a group
7	Conflicts between a person and an organization
8	Conflicts between a group and an organization

needed to develop a general model of conflict in the inductive fashion. Boulding's model allowed for the exploration of the types of conflict existent in the general form.

Each of the models presented above provided further insight into the general model of conflict analysis. Essentially the ideas above were developments based on a number of researchers' ideas of conflict (Simmel, 1955; Coser, 1956; Mack and Snyder, 1957; Levinger, 1957; Boulding, 1957) and pulled the former specific approaches to conflict into a form used by Galtung (1965) in the development of a general theory. This exploration generalized to four basic types of conflict to be considered in a given situation. Table 2.6 presents Galtung's general model of conflict.

This system condenses the system developed by Boulding into four cells and allows a researcher interested in conflict to categorize virtually any situation found in the social or organizational arena into a category of conflict. No longer is it necessary to develop a specific archetype of conflict (e.g. Father vs. Son) as a means of conflict classification. Certainly some of the areas of Boulding's model are omitted, but the jump from specific to general becomes obvious in this much simplified model of conflict.

Early attempts to categorize conflict have also emerged from the early, "micro" models into a more general setting. Rapoport (1960) developed three stages of conflict emerging from a perspective of disagreements among individuals or entities. These three stages are called *fights, games, and debates.* In this manner Rapoport developed three models of conflict dynamics found in Table 2.7.

This type of classification of conflict between various groups is reflective of Bernard (1957). While Bernard used the classifications of *social-psychological,*

Table 2.6 (Galtung, 1965)

	Intrasystem Conflict	**Intersystem Conflict**
Individual Level	Intrapersonal	Interpersonal
Collective Level	Intranational	International

Table 2.7 (Rapoport, 1960)

	Fights	Games	Debates
1. Basis or starting point of the struggle	mutual fear or hostility between the parties	agreement between parties to strive for mutually incompatible goals within constraint of certain rules, but not where outcome can be predicted in advance	disagreement between the parties about "what is" (facts) or "what ought to be" (values): i.e., clashes of convictions or "outlooks"
2. Image of the opponent (held by each party)	mainly a nuisance; preferably, the opponent should disappear, or at least be reduced in size or importance	an essential partner, seen as a mirror image of the self; preferably, a strong opponent who will do his best to win; a rational being whose inner thought processes must be taken into account	mistaken or misguided; preferably, the opponent should become a convert to one's own outlook
3. Objective of each party	harm, destroy, subdue, or drive away the opponent	outwit the opponent	convince the opponent (or some bystander)
4. Mode of interaction	nonrational series of actions and reactions to the other's and one's own actions; use of thrusts, threats, violence, etc.; course does not depend on goals of the opponents	parties cooperate by following the rules and by doing their best to provide maximum challenge to the opponent; actions (stratagems) chosen on basis of probable outcomes; strategic logic; terminates when outcome is obvious to both sides	verbal interaction in which parties direct arguments at each other; use of various techniques of persuasion such as brainwashing, explaining away the opponent's beliefs, and removing threats associated in the opponent's mind with adopting one's own outlook

sociological, and semanticist for the column headings, the gist of the model is of a similar design and level of generality. Bernard's model is found in Table 2.8.

With these more general pictures of the role played by conflict between groups or individuals, the emerging model of conflict is one of a grid or cross-reference of items. In this manner, a single effect or motivation is not the sole source of conflict, but merely an interaction effect between a variety of situations. The earlier models of conflict were simply single dimensional approaches to the conflict occurrence in a specific situation. The later researchers realized the naiveté of the single-dimensional approach as an explanatory attempt for conflict. In addition, the early models of conflict represented an attempt to categorize a wider variety of occurrences of conflict in a broader spectrum of social situations.

Mack and Snyder (1957) listed a set of conflicts applied to all social situations. These conflicts further lead us towards a model of general conflict applicable to a wide variety of organizational situations. The items they considered are listed below in Table 2.9.

Based upon review of the literature of the day and consideration of the various arguments for both broad and narrow definitions of conflict, Fink (1968) culminated the early period of conflict research with a broad, general definition of conflict which would set the stage for the future research in this arena. The definition of social conflict is as follows:

> *Social conflict is any social situation or process in which two or more social entities are linked by at least one form of antagonistic psychological relation or at least one form of antagonistic interaction.*

Thus, while conflict is a long established study in the literature, the nature of conflict and what conflict implies within the organizational context is still emerging as a research topic. In this section, historical development of a general approach to

Table 2.8 (Bernard, 1957)

	Social-psychological	Sociological	Semanticist
1. Basis or starting point of conflict	tensions within the individual which result from accumulated frustrations and can be relieved only through aggression; essentially nonrational	incompatibility between the goals, aims, or values of the opposing systems (individuals or groups); often rational	verbal or conceptual misunderstanding between the parties; nonrational; goal or value incompatibility does not exist
2. Orientation toward the opponent	prejudice, hostility, hatred, stereotypes	hatred and hostility not necessarily present	hatred and hostility present
3. Modes of action or of resolution	scapegoating, aggression, fighting, quarreling, violence; efforts to change attitudes or motives	schism, secession, civil war, sect formation, splinter parties, resistance movements, revolutions, reform movements; strategic considerations	breakdown in communication; efforts at semantic classification

Table 2.9 (Mack and Snyder, 1957)

Item	Social Conflict
1	At least two parties (or analytically distinct units or entities) having some minimum degree of "contact" with and "visibility" to each other
2	Mutually exclusive and/or mutually incompatible values and opposed values, based on "resource scarcity" or on "position scarcity"
3	(a) Behaviors designed to destroy, injure, thwart, or otherwise control another party or parties, and (b) a relationship in which the parties can gain (relatively) only at each other's expense
4	Mutually opposed actions and counteractions
5	Attempts to acquire power (i.e., to gain control of scarce resources and positions) or to exercise power (i.e., to influence behavior in certain directions), or the actual acquisition or exercise of power

conflict within a social setting has been explored. In the next section, more recent research and further development of general models will be considered.

Conflict Schools of Thought

With the consideration of general conflict theory as a sociological phenomenon, three schools of thought on the subject of conflict emerged, the traditionalists, the behavioralists, and the interactionists (Keenan, 1984).

The traditionalist school of conflict focused on the elimination of conflict from the organization. As conflict was believed to be destructive to the overall organizational performance (Robbins, 1974), the elimination of all conflict was thought desirable. These classical theorists (Fayol, 1916, 1949; Gulick and Urwick, 1937; Taylor, 1911; Weber, 1929, 1947) believed conflict to be unmanageable and outside the "scientific" approach to management of organizations. The solution to the conflict dilemma, in the eyes of the traditionalists, was to impose strict hierarchies and rigid, authoritarian structures in an attempt to eliminate conflict from the workplace.

The behavioralist school of thought embraced the idea of organizational conflict and attempted to incorporate conflict into the organizational realm (Robbins, 1974). In this manner the behavioralists wish to better understand the nature of conflict and adapt the social environment of the organization to address the issues of conflict (Mayo, 1933). Through this adaptation, the levels of conflict between the workers may be minimized and the ultimate goal (shared by the traditionalists) of the elimination of conflict may be obtained.

The interactionist view focuses on the idea of conflict as both a positive and negative influence on the organization. Cartwright and Zander (1968) reported a higher level of productivity in small groups when a dissenting opinion was present. This positive/negative viewpoint results in an inverted-U shaped function as pictured

in Figure 2.1 (Rahim and Bonoma, 1979). The result of this research is an establishment of conflict as a potentially positive phenomenon which may actually benefit the organization if managed properly (Keenan, 1984).

It is from these viewpoints the modern view of conflict emerges as a means of determining the nature of conflict in an organization.

Modern Conflict Theory

Cyert and March (1963) discuss the March-Simon theory of conflict in the information sub-system of the organization as primarily being the result of difficulty in decision making. Pondy (1966) goes on to develop this model into a more elaborate consideration of inter-individual conflict. Essentially, Pondy describes a situation of conflict within the information sub-system as:

> *...individual A perceives intense disagreement with individual B when they are actually in disagreement over policies or issues of mutual concern, and when their interdependence makes them aware of these disagreements.*

This would lead to the idea of conflict in existence in a variety of sub-systems with any number of manifestations (types) of conflict appearing in the decision making process. Pondy (1967) proceeds to develop a model of conflict to aid in the description of conflict situations arising in sub-units. Pondy derived three models in the attempt to explain this behavior:

1) *Bargaining Model* - When groups vie for scarce resources competition among the groups may result in conflict between the groups.

2) *Bureaucratic Model* - When organizations attempt to control behavior (especially in a vertical fashion), conflict may result in the superior-subordinate relationship.

3) *Systems Model* - When individuals or groups interact in a functional relationship, lateral conflict between the entities involved in the functional relationship may result.

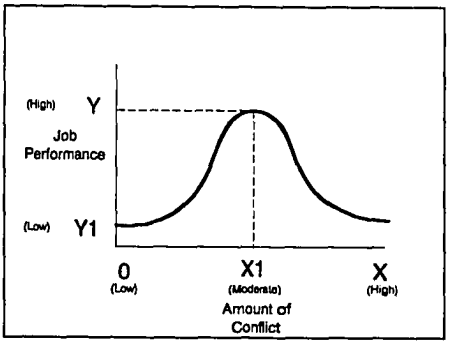
Pondy also identified a number of common factors (types of conflict) found in all the models. This identification is the first attempt to define the types of conflict in various stages of a conflict episode in the organizational environment and perhaps the underlying personality types existent in the same environment. Pondy identified five stages of conflict in a given conflict episode: 1) latent conflict (conditions), 2) perceived conflict (cognition), 3) felt conflict (affect), 4) manifest conflict (behavior), and 5) conflict aftermath (conditions).

Latent conflict is described by Pondy as having three manifestations: 1) competition for scarce resources, 2) drives for autonomy, and 3) divergence of sub-unit goals. When resources are scarce, competition drives the conflict model, but attempted control over another group (autonomy) or goal based conflict also exist in this portion of the model. Pondy indicates role conflict may also form a basis for the latent portion of the conflict model. Role conflict involves the development of confusion over the ambiguous "role" played by an individual within the organization. Role conflict is not a specific form of latent conflict, but may be an underlying factor in the determination of all three forms of latent conflict.

Perceived conflict may exist at any time and does not require nor precipitate the condition of latent conflict . Thus, it is possible for organizational members to believe conflict exists when no latent conflict is actually present. It is also possible for individuals to block out minor threats and simply be unaware of the conflict existing around them.

Felt conflict differs from perceived conflict in that felt conflict is a reaction to conflict and may take different forms with different individuals. Pondy offers the example, *individual A may be aware that B and A are in serious disagreement over some policy, but it may not make A tense or anxious, and it may have no effect whatsoever on A's affection towards B.*

Figure 2.1 (adapted from Rahim, 1992)



Manifest conflicts are action towards another often observed as violent or aggressive behavior. Although manifest conflict may take on more subtle forms and be merely action taken to frustrate or undermine the activities of another or even the indirect action which results in the frustration of another through no intent of the first party. Because of this manifest conflict is often a blatant response to conflict escalation or a conflict event..

Conflict aftermath is the result of a conflict episode. If all conflicts in a given situation are resolved and all parties involved in the conflict are satisfied with the results a better relationship may exist in the future. Yet repressed hostility and unresolved conflict may result in a heightened level of conflict for all parties involved in the episode and may lead to a degeneration of relations even to the point of violence.

Thus, all of these of conflicts may exist in a dynamic model of a conflict episode as described in Figure 2.2.

Pondy's model is one of the first general models of the conflict event occurrence in the organizational setting. It is in this model that the entire picture of conflict as an organizational force becomes apparent.

Pondy's model and others lead to the development of models of dyadic conflict behavior. Thomas (1976) examined two models as a means of development of a higher understanding of the forces driving the conflict process, particularly with regards to the environmental factors discussed by Pondy in Figure 2.2. Thomas's described conflict behavior as: 1) the process model, and 2) the structural model of conflict.

Figure 2.3 represents the process model of dyadic conflict episodes. Within this model Thomas considers Pondy's model from the viewpoint of two individuals (hence the inclusion of *dyadic* as part of the name).

Figure 2.2 (Pondy, 1967)

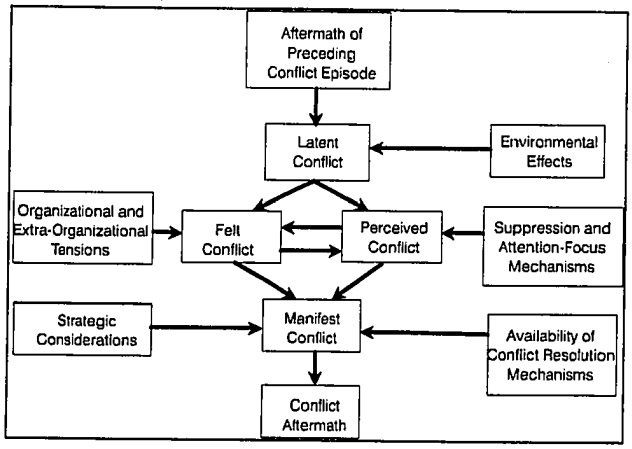
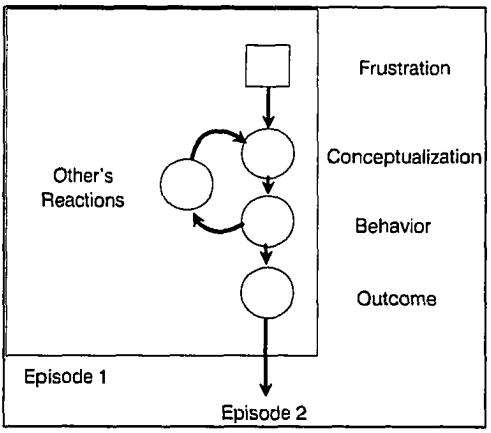


Figure 2.3 (Thomas, 1976)



Frustration is used in a general sense to describe the various aspects Pondy termed latent conflicts. It is through this frustration/latent conflict that the individual develops a sense of unhappiness or need for action to resolve the conflict and moves onward through the conflict process.

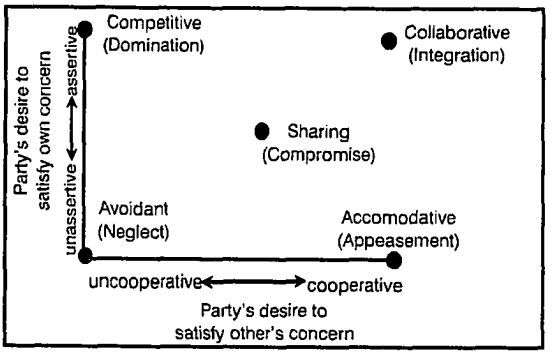
The next step in Thomas's process is the conceptualization of the conflict. This step which corresponds to Pondy's felt and perceived conflicts develops the idea of the subjective "feelings" of the members involved in the conflict event and how they interpret the actions of the other participants. Thomas, in describing this occurrence quotes Allport (1955) as saying "The way a man defines his situation constitutes for him its reality".

Behavior is the third step of the conflict event model as described by Thomas and entails an important development in the conflict arena. Pondy described this portion of the model as manifest conflict and described it as overt behavior or action towards another. Thomas considers this portion in detail and actually develops a second explanation of conflict behavior which will prove important. The reaction of the individual to the occurrence of conflict involves five personality types which may be considered in the determination of the reaction to the episode under way. Figure 2.4 is an illustration of this model of behavior in a conflict episode.

These developments are based on the work of Blake and Mouton (1964) and the development of their managerial grid approach to organizational management. Blake and Mouton established grids for various managerial styles and subsequently influenced the development of the conflict behavioral grid by Thomas in 1976.

This grid of conflict behavior has "self" and "others" as axes and essentially generates a variety of personal behavior styles for dealing with conflict in the behavior portion of the model of dyadic conflict episodes or the manifest conflict portion of Pondy's model.

Figure 2.4 (Thomas, 1976)



The sharing orientation on the grid of conflict behavior refers to those individuals who hold an intermediate position on both axes. These individuals are willing to make concessions in order to accomplish their own purpose. These persons will attempt to find some "middle ground" upon which to base their actions.

The collaborative persona will attempt to fully satisfy both himself and others in the model. Essentially, the desire of both parties to reach a conclusion or settlement is the key point of interest in this type of persona. In this case, no attempts to exercise an advantage over the other party in an effort to exert their own wishes will occur, but the bid to work together is pursued diligently.

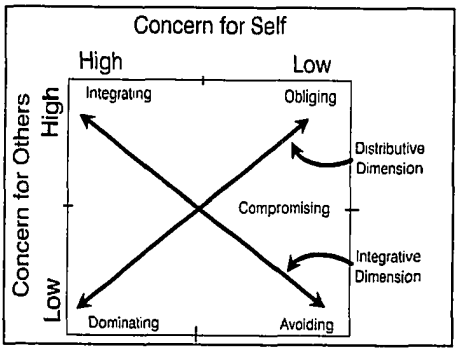
The competitive persona will attempt to win his or her own way without regard for the effect on the others involved. In fact, this person will sacrifice others to win and promote their own ideas. This situation often occurs in zero-sum games where only one person may "win" in the scenario.

The avoidant persona represents a person suffering from apathy and complacency. This person has no interest in the outcome for either party and is basically disinterested in the entire affair. This situation may result from ignorance, indifference, withdrawal, isolation, or reliance upon fate according to Thomas.

The final persona is accommodative. This person is committed to the satisfaction of others without regard to personal gain. These persons often believe short-run sacrifice will result in their long term gain (particularly in a superior-subordinate situation).

Both Prein (1976) and Thomas (1976) indicate two additional dimensions of conflict which may be obtained from information derived from the first five dimensions. These two are called the *integrative* dimension and the *distributive* dimension. Figure 2.5 illustrates the location of the integrative and distributive dimensions on the traditional graph of conflict styles seen in Figure 2.4.

Figure 2.5 (Rahim, 1992)



The integrative dimension of conflict represents the conflict episode participant's perception of the degree of satisfaction for both participants in the episode. This dimension is founded in the high-low relationship between integrating and avoiding conflict styles. The distributive dimension represents the other aspect between high-low dominating and obliging styles. Essentially, the distributive dimension describes the perception of the ratio of the level of satisfaction between self and others, and focuses on the satisfaction of only one of the parties involved in the episode.

These two dimensions have a relationship with all five types of conflict style found on the graph. Integrating styles attempt to increase the level of satisfaction of groups involved in the conflict episode. The avoiding style results in a reduction of satisfaction for all involved due to the lack of resolution from this style of conflict behavior. Compromising behavior is found at the point of intersection between the two dimensions. Each participant in the conflict episode will attempt to achieve this level of intermediate satisfaction. The dominating style will result in a high level of self satisfaction at the expense of the other participants in the episode. The obliging style will result in a high level of satisfaction for others at the expense of self. Through the computation of these factors, two additional observations regarding the nature of conflict found in the organization may be considered.

The final portion of the Thomas process model of dyadic conflict is the interaction portion. This portion also equates to Pondy's manifest conflict as this the action occurring with the other participants in the episode; while the behavior portion of Thomas' process model is the underlying cause of nature of the interaction. In contrast, Pondy included both portions in a single step.

This part of the model is important to the development of this entire paper as later researchers based the development of instruments to measure conflict upon the personality types of the individuals within the environment.

Interpersonal Conflict

Conflict which manifests itself as an *incompatibility, disagreement, or difference between two or more interacting individuals* (Rahim, 1992) may be described as interpersonal conflict (IEPC). IEPC may follow the patterns of conflict behavior illustrated in Figure 2.2 and Figure 2.3 which were described by Pondy and Thomas respectively. The IEPC which emerges in a situation of scarce resources may be derived from a number of sources, personality, bases of power, organizational culture, referent role, and gender (Rahim, 1992).

The personality source of conflict involves a body of literature which focuses on the relationship of conflict handling style and personality traits in an attempt to determine which styles are more prevalent in various personality types. The study of Jungian personality dimensions (Chanin and Schneer, 1984; Jones and White, 1985; Kilmann and Thomas, 1975; Myers, 1962; Schneer and Chanin, 1987) and conflict handling style resulted in findings of significant relationships between certain personality types and the use of a particular conflict handling style. Other studies of personality traits (more specific than Jungian classification) also resulted in significant findings as to the use of a particular conflict handling style (Baron, 1989; Pilkington, Richardson, and Utley, 1988).

A second source of IEPC may emerge from the bases of power within the organizational context. Bases of power (coercive, reward, expert, legitimate, and referent bases of power (French and Raven, 1959)) have been found to be correlated with satisfaction of workers as well as the performance of the workers. Later studies of the relationship of IEPC to power (Jamieson and Thomas, 1974; Lusch, 1976; Raven and Kruglanski, 1970; Stern and Gorman, 1969) found significant relationships.

Organizational culture explores the idea of the style of management within the organization as being a key factor in the determination of the style of handling

conflict by the workers. Several studies (Likert and Likert, 1976; Schein, 1990; Ting-Toomey, *et. al.*, 1991) all found significant effects of culture on the style used for handling conflict.

The referent role refers to the idea of class structures within the organization. Essentially the idea of superior-subordinate, subordinate-superior, etc. relationships leads to a class structure and may result in conflict. Lee (1990), Musser (1982), Phillips and Cheston (1979), and Rahim (1985) all found significant relationships among the class structure and the selection of a conflict handling style for use in a given situation.

Gender has resulted in only a few studies which found significant differences in men and women and the conflict handling styles chosen (Baron, 1989; Kilmann and Thomas, 1976; Rahim, 1983) other studies have found no significant statistical differences in the gender of the respondents (Hall, 1969; Neff, 1986; Renwick, 1977; Shockley-Zalabak, 1981; Wall and Blum, 1991).

Of the five sources only two, personality and gender, have met with criticism and conflicting results in the literature. In general, this discussion provides evidence of user attitudes and perceptions and the conflict handling styles they use in a given situation. The use of a particular conflict handling style is important to the resolution or escalation outcome of the conflict episode (Rahim, 1992). The examination of the conflict handling style in use and the known attitudes and perceptions of the users with regard to the system may therefore be vital to the understanding of the user behavior model as a whole.

The Rahim Organizational Conflict Inventory - II (ROCI-II) Instrument

In 1983, Rahim sought to measure the levels of conflict as discussed above. Based upon instruments developed by Thomas and Kilmann (1978), Blake and Mouton (1964), Hall (1969), and Lawrence and Lorsch (1967), Rahim produced a

means for measuring the various aspects of the behavior portion of the process model of dyadic conflict and the underlying dimensions, called styles, of handling interpersonal conflicts. Rahim constructed and validated an instrument using large samples and repeated measures to establish validity. This instrument is current and useful for measuring the styles of handling interpersonal conflict found in organizational environments.

COMPUTER INFORMATION SYSTEMS

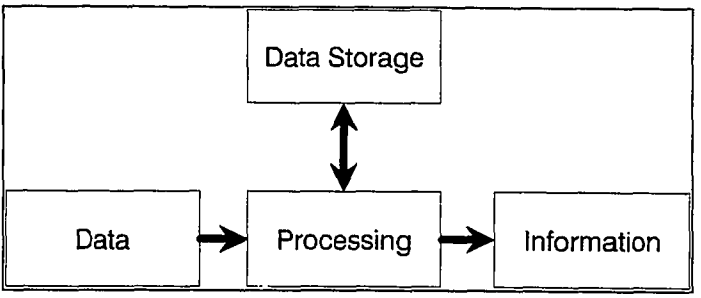
Many factors affect the organizational environment and the participants in the organizational environment. The advent of computer information systems provided a catalyst for the study of the effects of computers (and computer information systems) on the organizational paradigm. This section discusses the development of information systems and information systems within the organizational context.

Information and Information Systems

Davis and Olson (1985) define information as ...*data that has been processed into a form that is meaningful to the recipient and is of real or perceived value in current or prospective actions or decisions.* This definition leads the authors to the model of data transformation illustrated in Figure 2.6. This model provides an output of information after being processed within a system which might be described as an information system if considered in the broader context of an organization.

Gorry and Scott-Morton (1971) considered Anthony's (1965) taxonomy of the organization concurrently with information systems design. This development primarily focuses on three levels of an information system to match Anthony's three levels of the organization,: 1)strategic planning, 2)management control, and 3)operations control.

Figure 2.6 (Davis and Olson, 1985)



Anthony (1965) indicates, "Strategic planning is the process of deciding on objectives of the organization, on changes in these objectives, on resources used to attain these objectives, and on the policies that are to govern the acquisition, use, and disposition of these resources". Anthony developed this idea from the definitions of strategy (Andrews, 1964), Anthony's definition of long-range planning, and long range planning in military strategy. Gorry and Scott-Morton (1971) indicate this level of the organization is focused on the development of objectives (Simon's (1960) Intelligence phase) and the activities needed to meet the objectives (Simon's (1960) Design Phase).

The management control level is described as "...the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives "(Anthony, 1965). This is the focus of middle management in the organization. The middle managers are dedicated to the management of interpersonal interaction, the assurance of effective and efficient performance within the policies and objectives defined in the strategic planning level (Gorry and Scott-Morton, 1971).

The operational control level "...is the process of assuring that specific tasks are carried out effectively and efficiently "(Anthony, 1965). This level of the organization is focused on the tasks of the accomplishing the organizational objectives, as opposed to the management control level which is focused on people (Gorry and Scott-Morton, 1971).

The Lucas Model

In an attempt to develop a better understanding of the role of the information system and the interaction of the information system with the users of the system Lucas developed empirically a model of user behavior. This development

was pursued from the perspective of the integration of a highly differentiated data processing department and the organization (Lucas, 1970).

This examination by Lucas led to the development of an organizational perspective for information systems. In this perspective, Lucas provides for the development of a descriptive model of the use of an information system and performance (Lucas, 1975). The original model developed by Lucas is illustrated in Figure 2.7, while a later addition to the model, as the result of further empirical tests, is presented in Figure 2.8.

Two considerations emerge from the above discussion, the organizational context from Anthony's perspective and the model of information systems from Lucas's perspective. In this light the Lucas model might be applied to the three-dimensional view of the information systems, described by Anthony (1965), within the organization. In addition, the Lucas model might be applied to each of the three dimensions separately. As Gorry and Scott-Morton (1973) indicated, the needs and requirements (and subsequent cognitive style, situational and personal factors, attitudes and perceptions, *etc.*) vary with the level within the organization. Thus, it is possible to draw three different images of the Lucas model depending upon the level of the organization in which the consideration is being made.

SYNOPSIS

This chapter has provided an overview of the literature an focused on the development of the measurement of conflict handling style in the organizational context. In addition to the development of the conflict handling styles, a discussion of the use of information systems within the organizational context was also provided. The chapter concluded with a discussion of the Lucas model of information systems.

Figure 2.7 (Lucas, 1973)

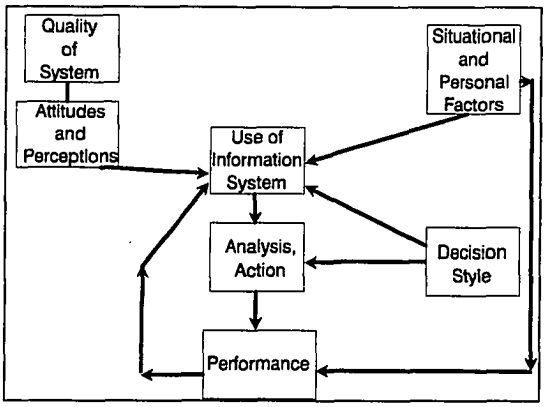
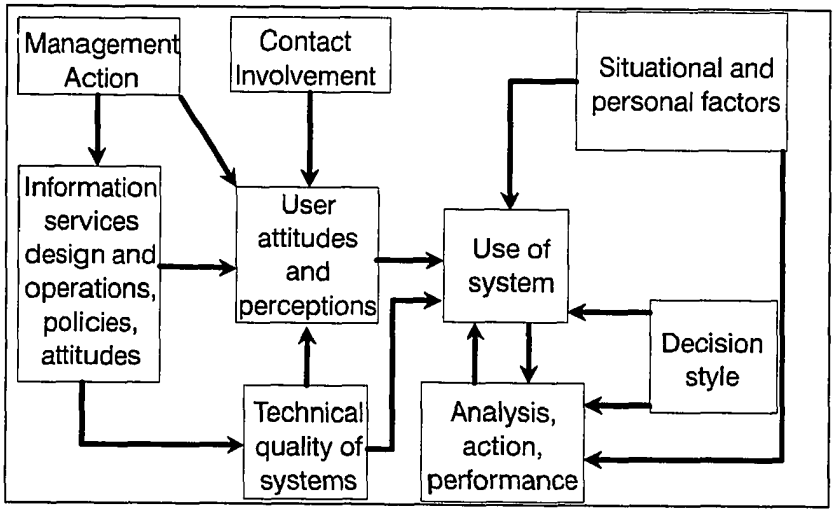


Figure 2.8 (Lucas, 1975)



CHAPTER II REFERENCES

Allport, G. W. 1955. *Becoming*, New Haven, CT: Yale University Press.

Angell, R. C. 1965. "The sociology of human conflict," In E. McNeil (ed.), *The Nature of Human Conflict*, Englewood Cliffs, NJ: Prentice-Hall.

Baron, R. A. 1989. "Personality and organization conflict: Effects of the Type A behavior pattern and self-monitoring," *Organizational Behavior and Human Decision Processes*, (44) pp. 281-296.

Bernard, J. 1950. "Where is the modern sociology of conflict?" *American Journal of Sociology*, (56:1), pp. 11-16.

Blake, R. R., and J. S. Mouton. 1964. *Managerial Grid*, Houston, TX: Gulf Publishing.

Boulding, K. 1962. *Conflict and Defense: A General Theory*, New York, NY: Harper.

Boulding, K. 1957. "Organization and conflict," *Journal of Conflict Resolution*, (1:2), pp. 122-134.

Cartwright, D., and A. Zander (eds.). 1968. *Group Dynamics: Research and Theory*, New York, NY: Harper & Row.

Carver, T. N. 1915. *Essays in Social Justice*, Cambridge, MA: Harvard University Press.

Carver, T. N. 1908. "The basis of social conflict," *American Journal of Sociology*, (13), pp. 628-637.

Chanin, M. N., and J. A. Schneer. 1984. "A study of the relationship between Jungian personality dimensions and conflict-handling behavior," *Human Relations*, (37), pp. 863-879.

Chase, S. 1951. *Roads to Agreement*, New York, NY: Harper.

Cooley, C. H. 1918. *Social Process*, New York, NY: Scribner's.

Coser, L. A. 1956. *The Functions of Social Conflict*, Glencoe, IL: The Free Press.

Cyert, R. M., and J. G. March. 1963. *A Behavioral Theory of the Firm*, Englewood Cliffs, NJ: Prentice-Hall.

Dahrendorf, R. 1958. "Toward a theory of social conflict," *Journal of Conflict Resolution*, (2:2), pp. 170-183.

Davis, G. B. and M. H. Olson. 1985. *Management Information Systems: Conceptual Foundations, Structure, and Development*, New York, NY: McGraw-Hill Book Company.

Fayol, H. 1949. *General and Industrial Management*, London: Pitman.

Fayol, H. 1916. *General and Industrial Management*, London: Pitman.

Fink, C. F. 1968. "Some conceptual difficulties in the theory of social conflict," *Journal of Conflict Resolution*, (11:4), pp. 412-460.

French, J. R. P., and B. H. Raven. 1959. "Organizational stress and individual strain, In A. J. Marrow (Ed.), *The Failure of Success*, New York, N.Y.:AMACOM.

Galtung, J. 1965. "Institutionalized conflict resolution: a theoretical paradigm," *Journal of Peace Research*, (2:4), pp. 348-396.

Gulick, L. H., and L. Urwick (eds.). 1937. *Papers on the Science of Administration*, New York, NY: Institute of Public Administration, Columbia University.

Hager, D. H., C. Y. Glock, and I. Chein. 1956. "Religious conflict in the U.S.," *Journal of Social Issues*, (12:3).

Hall, J. 1969. *Conflict Management Survey: A Survey on One's Characteristic Reaction to and Handling Conflicts Between Himself and Others*, Canoe, TX: Teleometrics International.

Jamieson, D. W., and K. W. Thomas. 1974. "Power and conflict in the student-teacher relationship," *Journal of Applied Behavioral Science*, (10), pp. 321-336.

Janowitz, M. 1957. "Military elites and the study of war," *Journal of Conflict Resolution*, (1), pp. 9-19.

Jones, R. E., and C. S. White. 1985. "Relationships among personality, conflict resolution styles, and task effectiveness," *Group and Organization Studies*, (10), pp. 152-167.

Keenan, D. 1984. "A study to determine the relationship between organizational climates and management styles of conflict as perceived by teachers and principals in selected school districts," Unpublished doctoral dissertation, West Virginia University.

Kilmann, R. H., and K. W. Thomas. 1975. "Interpersonal conflict-handling behavior as reflections of Jungian personality dimensions," *Psychological Reports*, (37), pp. 971-980.

Lasswell, H. D. 1931. "Conflict: Social," In E. R. Seligman and A. Johnson (eds.), *Encyclopedia of the Social Sciences, Vol. IV*, New York, NY: Macmillan.

Lawner, R. L. 1956. "Social conflict as a subject of investigation in American research from 1919 to 1953," Unpublished doctoral dissertation, New York University.

Lawrence, P. R., and J. W. Lorsch. 1967. *Organization and Environment*. Homewood, IL: Irwin-Dorsey.

Lee, C. W. 1990. "Relative status of employees and styles of handling interpersonal conflict: An experimental study with Korean managers," *International Journal of Conflict Management*, (1), pp. 327-340.

Levine, R. A. 1961. "Anthropology and the study of conflict: introduction," *Journal of Conflict Resolution*, (5:1), pp. 3-15.

Levinger, G. 1957. "Kurt Lewin's approach to conflict and its resolution: a review with some extensions," *Journal of Conflict Resolution*, (1:4), pp. 329-339.

Lewin, K. 1948. *Resolving Social Conflicts*, New York, NY: Harper.

Likert, R., and J. G. Likert. 1976. *New Ways of Managing Conflict*, New York, NY: McGraw-Hill.

Lucas, H. C. 1975. "Performance and the use of an information system," *Management Science*, (21:8), pp. 908-919.

Lucas, H. C. 1973. "A descriptive model of information systems in the context of the organization," *Database*, (5:2), pp. 27-36.

Lundberg, G. A. 1939. *Foundations of Sociology*, New York, NY: Macmillan.

Lusch, R. F. 1976. "Sources of power: Their impact on intrachannel conflict," *Journal of Marketing Research*, (13), pp. 382-390.

Mack, R. W., and R. C. Snyder. 1957. "The analysis of social conflict--toward an overview and synthesis," *Journal of Conflict Resolution*, (1:2), pp. 212-248.

Maciver, R. M. 1937. *Society: A Textbook of Sociology*, New York, NY: Farrar and Rinehart.

Mayo, E. 1933. *The Human Problems of an Industrial Civilization*. New York, NY: Macmillan.

Merton, R. K. 1967. *On Theoretical Sociology*, New York, NY: Free Press.

Merton, R. K. 1957. *Social Theory and Social Structure*, Glencoe, IL: Free Press.

Musser, S. J. 1982. "A model for predicting the choice of conflict management strategies by subordinates in high-stakes conflicts," *Organizational Behavior and Human Performance*, (29) pp. 257-269.

Myers, I. B. 1962. *Manual: The Myers-Briggs Type Indicator*, Princeton, NJ: Educational Testing Service.

Neff, E. K. 1986. *Conflict Management Styles of Woman Administrators in the Twelve State Universities in Ohio*. Unpublished doctoral dissertation. Bowling Green State University, Bowling Green, OH.

Nolan, R. L., and J. C. Wetherbe. 1980. "Toward a comprehensive framework for MIS research," *MIS Quarterly*, (4:2), pp. 1-13.

Park, R. E., and E. W. Burgess. 1924. *Introduction to the Science of Sociology*, Chicago, IL: University of Chicago Press.

Phillips, E. and R. Cheston. 1979. "Conflict resolution: What works?" *California Management Review*, (21:4), pp. 76-83.

Pilkington, C. J., D. R. Richardson, and M. E. Utley. 1988. "Is conflict stimulating? Sensation seekers' responses to interpersonal conflict," *Personality and Social Psychology Bulletin*, (14), pp. 596-603.

Pondy, L. R. 1967. "Organizational conflict: Concepts and models," *Administrative Science Quarterly*, (12:2), pp. 296-320.

Pondy, L. R. 1966. "A systems theory of organizational conflict," *Academy of Management*, (9:3), pp. 246-256.

Prein, H. C. M. 1976. "Stijlen van conflicthantering (Styles of handling conflict)," *Nederlands Tijdschrift voor de Psychologie*, (31), pp. 321-346.

Rahim, M. A. 1992. *Managing Conflict in Organizations*, Westport, CT: Praeger.

Rahim, M. A. 1985. "Referent role and styles of handling interpersonal conflict," *Journal of Social Psychology*, (126), pp. 79-86.

Rahim, M. A. 1983. "A measure of styles of handling interpersonal conflict," *Academy of Management Journal*, (26:2), pp. 368-376.

Rahim, M. A., and T. V. Bonoma. 1979. "Managing organizational conflict: A model for diagnosis and intervention," *Psychological Reports*, (44:3), pp. 1323-1344.

Rapoport, A. 1960. *Fights, Games, and Debates*, Ann Arbor, MI: University of Michigan Press.

Raven, B. H., and A. W. Kruglanski. 1970. "Conflict and power," In P. Swingle (Ed.), *The Structure of Conflict*, New York, N. Y.: Academic Press.

Renwick, P. A. 1977. "The effects of sex differences on the perception and management of superior-subordinate conflict: An exploratory study," *Organizational Behavior and Human Performance*, (19), pp. 403-415.

Robbins, S. P. 1974. *Managing Organizational Conflict: A Non-traditional Approach*, Englewood Cliffs, NJ: Prentice-Hall.

Ross, E. A. 1930. *Principles of Sociology*, New York, NY: Century.

Schein, E. H. 1990. "Organizational culture," *American Psychologist*, (45), pp.109-119.

Schneer, J. A., and M. N. Chanin. 1987. "Manifest needs as personality predispositions to conflict-handling behavior," *Human Relations*, (40), pp. 575-597.

Shockley-Zalabak, P. 1981. "The effects of sex differences on the preference for utilization of conflict styles of managers in a work setting: An exploratory study," *Public Personnel Management*, (10), pp. 289-295.

Simon, H. 1960. *The New Science of Management Decision*. New York, NY: Harper and Brothers.

Simmel, G. 1903. "The sociology of conflict," *American Journal of Sociology*, (9), pp. 490-525, 672-689, 798-811.

Simmel, G. 1955. *Conflict and the Web of Group Affiliations*, Glencoe, IL: Free Press.

Simpson, G. 1937. *Conflict and Community: A Study in Social Theory*, New York, NY: T. S. Simpson.

Singer, K. 1949a. *The idea of conflict*, Melbourne, Australia: Melbourne University Press.

Singer, K. 1949b. "The meaning of conflict," *Australian Journal of Philosophy*, (27:3), pp. 145-170.

Sorokin, P. A. 1966. *Sociological Theories of Today*, New York, NY: Harper and Row.

Sorokin, P. A. 1947. *Society, Culture and Personality*, New York, NY: Harper.

Sorokin, P. A. 1928. *Contemporary Sociological Theories*, New York, NY: Harper.

Stern, L., and R. H. Gorman. 1969. "Conflict in distribution channels: An exploration," In L. W. Stern (Ed.), *Distribution Channels: Behavioral Dimensions*, Boston, MA: Houghton Mifflin.

Taylor, F. W. 1911. *The Principles of Scientific Management*, New York, NY: Harper & Row.

Thomas, K. W. 1976. "Conflict and conflict management," In M.D. Dunnette (Ed.), *Handbook of Industrial and Organizational Psychology*, Chicago, IL:Rand McNally, pp. 889-935.

Thomas, K. W. and R. H. Kilmann. 1978. "Comparisons of four instruments measuring conflict behavior," *Psychological Reports*, (42:3), pp. 1139-1145.

Ting-Toomey, S., G. Gao, P. Trubisky, Z. Yang, H. S. Kim, S. L. Lin, and T. Nishida. 1991. "Culture, face maintenance, and conflict styles of handling interpersonal conflict: A study in five cultures," *International Journal of Conflict Management*, (2), pp. 275-296.

Turban, E. 1990. *Decision Support and Expert Systems*, New York, NY: Macmillan.

Von Weise, L., and H. Becker. 1932. *Systematic Sociology*, New York, NY: Wiley.

Wall, J. A., and M. W. Blum. 1991. "Negotiations," *Journal of Management*, (17), pp. 273-303.

Walton, R. E., and J. M. Dutton. 1969. "The management of interdepartmental conflict: A model and review," *Administrative Science Quarterly*, (14:1), pp. 73-84.

Weber, M. 1947. *The Theory of Social and Economic Organization*, New York: Oxford University Press.

Weber, M. 1929. *The Theory of Social and Economic Organization*, New York: Oxford University Press.

Williams, R. 1947. *The Reduction of Intergroup Tensions*, New York, NY: Social Research Council.

CHAPTER III

METHODOLOGY

The purpose of this chapter is to develop a theory of conflict relevant to the model of information systems research developed by Lucas (1975b). The chapter is divided into two sections which discuss 1) the research models used, and 2) the research design for testing hypothesized relationships addressed in section 1. The research design contains hypotheses to be tested, the *a priori* expectations of the hypothesis testing, a discussion of the research sample of interest, and the methods of data collection to be used in the study.

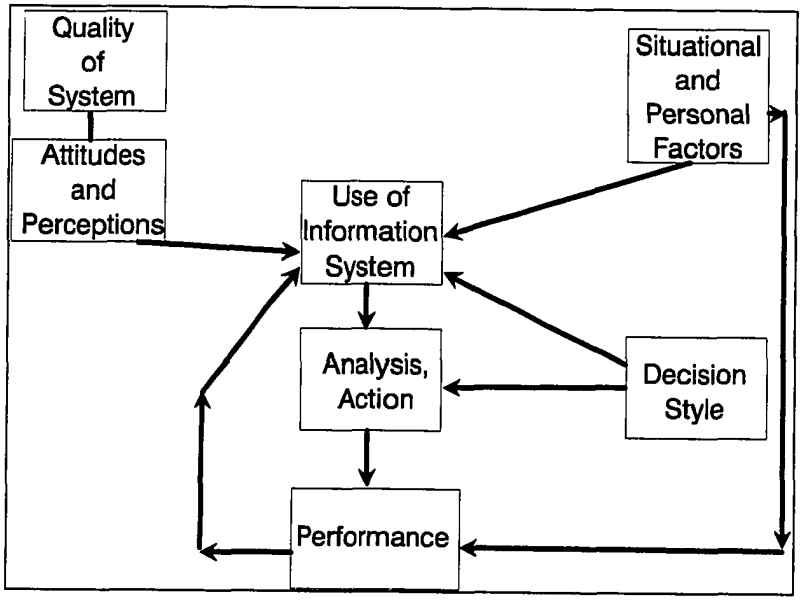
RESEARCH MODELS

Lucas Model of Information Systems (Lucas, 1975b)

Figure 3.1 presents the model developed by Lucas to explain the relationships of a number of constructs which are the basis of an information system user model of behavior. This model consists of a number of constructs with both empirically tested and hypothetical constructs determined by Lucas. The model was based on the observation and empirical study of a door-to-door clothing sales company, and many of the observations are obtained from information specific to the company being considered by Lucas in the development of the model.

Lucas considered the items *quality of system, attitudes and perceptions, situational and personal factors, use of information system, decision style, analysis, action, and performance*, to be the key components for describing the behavior of the users of an information system. Lucas tested the *attitudes and perceptions, use of information system, situational and personal factors, decision style, and performance* constructs to determine if relationships did indeed exist between the constructs in the

Figure 3.1 (Lucas, 1975b)



model. Unfortunately, the support found in the empirical tests of the model was not strong. Lucas (1975b) states ...*clearly more research is needed* in reference to the weak findings of the model. Additionally, Lucas (1975b) reports, "One of the most important implications of the model and results is that different personal, situational and decision style variables appear to affect the use of systems and ...designers should consider including more user research in the development of information systems".

Lucas indicated a need for further research into the underlying constructs in the model he developed. Partially due to the specificity of any given system and the relationship between a specific organizational style and the mapping of the style onto the organizational information system (as per Gorry and Scott-Morton, 1971), the model developed by Lucas may be incomplete. Likewise, it is possible other components come into play in determining, for instance, usage or perception. Likewise a great many components exist which should be placed into the model of information systems, but here the focus will be on the filling of several important gaps in the model. Lucas mentioned the missing components in the model often in his writing (Lucas, 1982; Lucas, 1975a; Lucas, 1975b, Lucas, 1973), but never considered the missing components in the empirical tests conducted on the model of information systems.

Additional Components of Lucas's Model

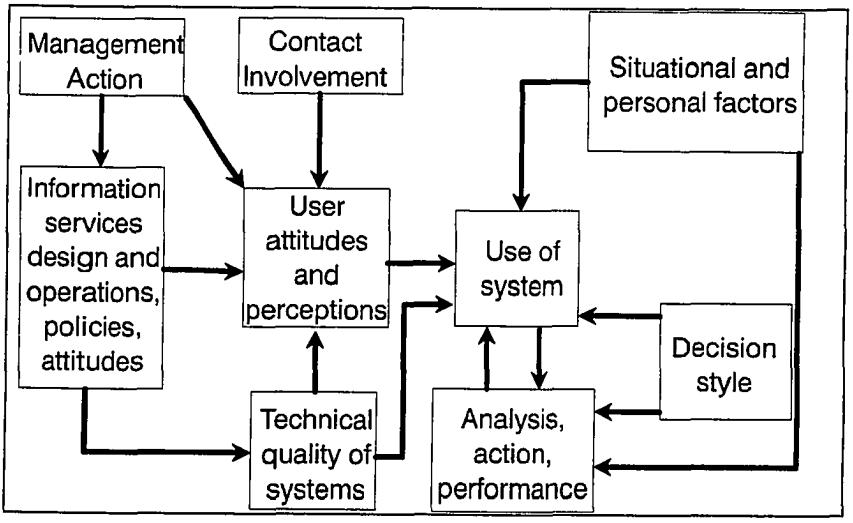
It would seem, based on Lucas's observations, the model he posited may be incomplete. The current literature in this area focuses on the development of measures of satisfaction (Lawrence & Low, 1993; Joshi, 1990; Melone, 1990; Baroudi & Orlikowski, 1988; Doll & Torkzadeh, 1988; Baroudi, Olson, & Ives, 1986; Rushinek & Rushinek, 1986; Bailey & Pearson, 1983; Ives, Olson, & Baroudi, 1983), measures of usage (Adams, *et. al.*, 1992; Amoroso & Cheney, 1991; Davis, 1989; King & Rodriguez, 1978), and attitudes (Srinivasan, 1985; Robey, 1979) as an attempt to further develop understanding of end user behavior as called for by Cheney, *et. al.* (1986).

These attempts to develop further constructs (or show empirical support for theoretical constructs) imply there may be missing elements in the Lucas model of end user behavior. Cheney, *et. al.* (1986) provided the basis for the introduction of organizational and behavioral factors into the models of MIS with the inclusion of *psychological climate* as a partially controllable variable in the model of end user computing research.

In later revisions of his model, Lucas (1982) provided an enhanced model of information systems in the context of organizations (Figure 3.2). Of particular note is the construct, *contact/involvement*. This construct is tested using the following proposition for a relationship with attitudes and perceptions, *user contact with information services staff members under adverse conditions leads to unfavorable user attitudes and perceptions of information systems and the information services staff.* Lucas discusses the *adverse conditions* in the form of poor quality of system being used as leading to less favorable perceptions of the system, but it would seem other adverse conditions may also lead to a deterioration of the attitudes and perceptions of the users. Rahim (1992) indicates, *when two or more social entities (i.e. individuals, groups, organization, and nations) come in contact with one another in attaining their objectives, the relationship may become incompatible or inconsistent.* Thus, there may be a missing component to Lucas's consideration in the *contact* arena.

Rahim (1992) indicated entities in contact may have a disintegrating relationship, but it is important to understand the source(s) of this friction. Lucas (1975a) developed the situational and personal factors as being a key component of the model of information systems. One of the propositions associated with the situational and personal factors construct indicates, *different personal and situational factors lead to differing levels of use of an information system and different actions.* Emphasis should be placed on the action component. If situational and personal factors drive action, it is possible these actions may affect the nature of a *contact* between entities and a

Figure 3.2 (Lucas, 1975a)



subsequent change in the state of the relationship. However, there is no provision in Lucas's model for the inclusion of such an item. Thus, it is possible a relationship may exist between the existing situational and personal construct, some additional situational and personal variables (or an additional construct), and the attitudes and perceptions construct (Figure 3.3). It is important to consider these missing pieces of the model to determine if a better model might exist with the gaps filled with new constructs.

A Model of Conflict Behavior

In considering a model of conflict behavior, Thomas (1976) indicated two dimensions upon which the conflict styles were based. The dimension of concern for self and the dimension of concern for others. By creating a grid of the two dimensions of conflict, an individual's (or group's) conflict style may be mapped based upon the level of concern for self[8] or the concern for others. Thomas' grid also indicates the five distinct styles of conflict found in individuals and groups: integrating, obliging, avoiding, dominating, and compromising. Figure 3.4 illustrates the grid with the respective styles of conflict indicated.

The integrating style strives for interaction as a means of problem solving. This style represents an individual who promulgates collaboration and exchange. Essentially, the integrating style may be described as *the process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible* (Gray, 1989).

The obliging style attempts to reduce the differences among the parties and strives toward commonality as a means of problem solving. These types of individuals may be described as *conflict absorbers* (Rahim, 1992; Rahim, 1986) and may commit acts of self sacrifice in order to better accommodate others.

[8] In the case of a group the concern for self involves the entire group.

Figure 3.3 Modified Lucas Model

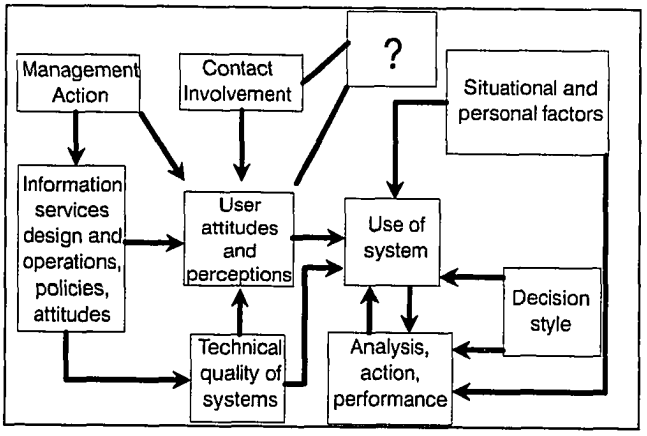
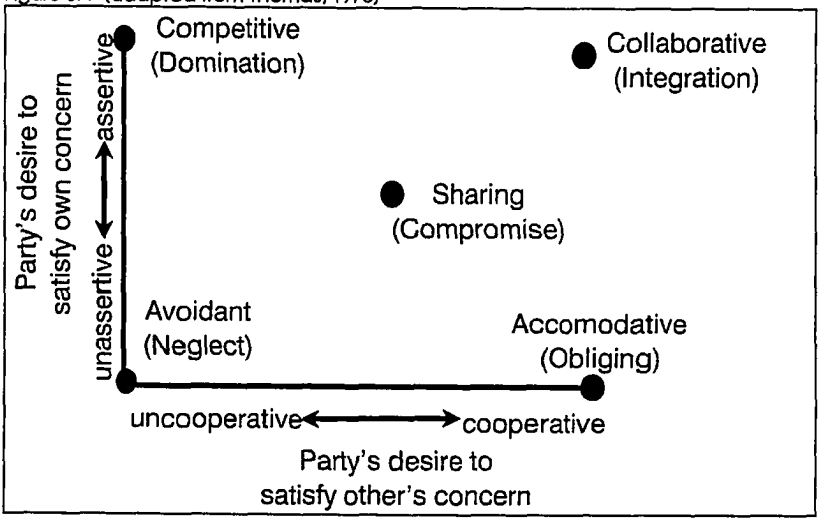


Figure 3.4 (adapted from Thomas, 1976)



The avoiding style is marked by apathy. This individual wishes only for the problem to go away with no interaction on the part of the avoider. In this manner, it is often the case that neither participant in the episode has the conflict resolved but merely represses the conflict which may result in repeated conflict episodes or escalation of conflict between the parties.

The dominating style may be known as competing (Rahim, 1992; Rahim, 1986). It is this style which addresses the idea of a zero-sum game or a "get them before they get you" style of handling conflict. It may be the case the dominator wishes to win at any price without regard for others or consideration of the consequences.

The compromising style is a sharing style. This intermediate point in the grid is marked by the individual who wishes all participants to leave the episode satisfied and with the conflict resolved.

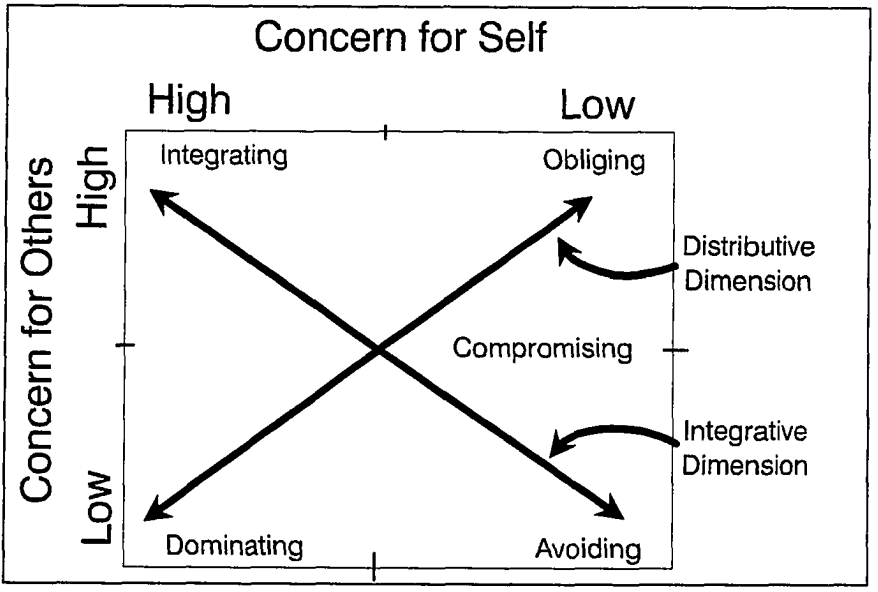
Each of these styles of conflict may affect the outcome of a conflict episode and describes the behavior of a participant in the episode. The level of conflict manifested in the episode is also a direct result of the style of conflict being used by the participants in the episode.

Two additional constructs for consideration in this model are forwarded by Thomas (1976) and Prein (1976) as additional dimensions of conflict. These two dimensions are called the distributive dimension and the integrative dimension of conflict and can be considered on the conflict grid seen in Figure 3.5.

The integrative dimension of conflict is a measure of the level of satisfaction found on the integrating/avoiding dimension . The distributive dimension is a measure of the ratio of the parties satisfaction of self and others on the dominating/obliging dimension. Both of these measures may also be used as a basis for the measurement of conflict within an organizational environment.

Thus, the style measures of conflict may be used as a basis for analysis of conflict in a given organizational environment. Focus may be placed on the role played by

Figure 3.5 (adapted from Thomas, 1976)



conflict within the models of information systems usage with particular focus on the role of conflict in terms of user perceptions.

Conflict is therefore seen in a grid where conflict style is emergent from Thomas' (1976) concern for self and others premise. Figure 3.5 illustrates the overall model of conflict in regard to the various conflict styles.

Conflict style may therefore be considered as a driving force behind action taken in a contact situation between entities (Bisno, 1988; Coser, 1968; Deutch, 1969; Rahim, 1992) particularly when a resource is needed by both parties and the resource is scarce. With this idea in mind, the discussion may return to the model presented by Lucas with the inclusion of missing components discussed earlier in the chapter.

Conflict Style as a Component of Lucas's Model

The underlying question asked by this research *is should there be modification to the Lucas model?* King and Rodriguez (1978) indicated, *attitudes and value perceptions are an important and often neglected aspect of MIS evaluation*, thus lending overall support to research in this area. Essentially, it is desirous to understand the role the individual's style of conflict management plays on the various constructs within the Lucas model. Lucas (1975a) indicated conflict as important in the model by *saying ...conflict can lead to unfavorable user attitudes*, but despite the indication of the existence of conflict in the model, Lucas did not attempt to determine the nature of the conflict nor the role it played in unfavorable user attitudes (perception). Thus, the model is redrawn with consideration focused on the relationship between conflict style, which may be an additional component of the situational and personal factors construct, contact, involvement, and user attitudes and perceptions.

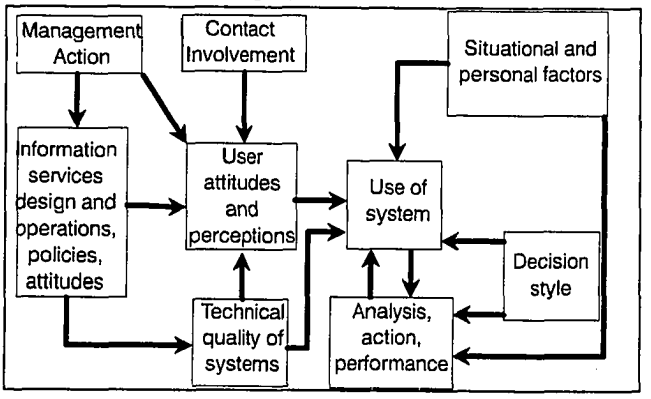
Several key constructs are brought into play in the development of this model. Lucas's attitudes and perceptions constructs are of primary interest as they play a direct role in the usage and subsequent success of the information system. These modifications

to Lucas's model result in a new model of information systems as illustrated by Figure 3.6. The understanding of these areas in the information systems field is important to the full specification of the model of user behavior and the understanding of the role of information systems in the organizational model.

In addition to the role of conflict and its effects on attitudes, perceptions, and situational and personal factors, the role played by conflict in the remainder of Lucas's model is also of interest. It would seem, based on Lucas's research (Lucas, 1982; Lucas, 1976; Lucas, 1975; Lucas, 1973), conflict plays an important role in the organization and the information systems within the organization. Thus, conflict should be considered as at least a moderating factor with all of Lucas's constructs. In this much larger context, conflict may simply become a part of a *gestalt* environmental effect on information systems and the management of information within the organization, but this role is an important one and should be empirically tested to determine its presence and its effect on the Lucas model.

Likewise, the model of end user behavior may be considered in the context of three dimensions of the organization as explored by the research of Gorry and Scott-Morton (1973) and Anthony (1965). In this context, there may emerge three models of user behavior for information systems affected by the various constructs in the Lucas model. Rahim (1992) discovered differences in the conflict handling styles of managers in different levels of the organization (levels as per Gorry and Scott-Morton's model) and ascertained these differences resulted from different situations within the various levels of the organization. Likewise, the measurement of the actual levels of conflict within the organizational setting (through the Rahim Organizational Conflict Inventory I (ROCI-I)) is important for the determination of external effects on the model. Through the measurement of the general level of inter-group conflict, the level of conflict may be controlled for in the analysis.

Figure 3.6 Conflict Handling Style in Lucas's Model



Through the inclusion of conflict style as a component of the Lucas model of information systems, a better understanding of the role played by conflict style may emerge. Two specific areas within the revised descriptive model of information systems in the context of the organization (Lucas, 1975) have been chosen to test empirically: 1) the effect of conflict handling style on Lucas's user attitudes and perceptions construct, and 2) the effect of conflict handling style on the system usage construct. Essentially, the issue is where to place the additional conflict handling construct with respect to the two constructs already in the model.

RESEARCH DESIGN

Instruments to be Used

In the case of conflict style, the Rahim Organizational Conflict Inventory - II (Rahim, 1983) will be used as a means of assessing the various conflict style measures on the five dimensions of conflict style. This instrument is well established in the literature (Buntzman, Rahim, and White, 1994; Buntzman and White, 1993; Buntzman and White, 1991; Eshleman, 1982; Keenan, 1984; Lee, 1990; Levy, 1989; Neff, 1986; Persico, 1986; Pilkington, Richardson, and Utley, 1988; Psenicka and Rahim, 1989; Rahim, 1992; Rahim, 1991; Rahim, 1990; Rahim, 1989a; Rahim, 1989b; Rahim, 1986; Rahim, 1985; Rahim, 1983a; Rahim, 1983b; Rahim, 1983c; Rahim, 1983d; Rahim, 1983e; Rahim, 1980; Rahim, 1979; Rahim, 1977; Rahim, 1976; Rahim and Bonoma, 1979; Rahim, Garret, and Buntzman, 1992; Rahim and Psenicka, 1984; Ting-Toomey, *et. al.*, 1991; Van de Vliert and Kabanoff, 1990; Weider-Hatfield, 1988) and will provide a valid, reliable means of measurement of the five conflict styles for the sample subjects. Each of the five constructs on the ROCI-II instrument will be designated by the following symbols for ease of discussion:

Avoiding	= AV
Compromising	= CO
Dominating	= DO
Integrating	= IN
Obliging	= OB

In addition to the five constructs measured directly by the ROCI-II instrument, it also provides the means for measurement of the two additional conflict dimensions posited by Thomas (1976) and Prein (1976) indicated as:

Integrative Dimension = ID
Distributive Dimension = DD

Thus, each of the above constructs is to be developed from the data obtained in the ROCI-II instrument and then compared to the remaining constructs of interest, the attitudes and perceptions construct and the usage construct found in Lucas's model.

The measurement of user attitudes and perceptions was undertaken by Lucas in the original (1975) study of the model. Robey (1979) indicated Schultz and Slevin's (1975) instrument to be superior in the measurement of the attitudes of managers in relation to systems being considered, particularly with regards to Lucas's attitudes and perceptions construct. Robey (1979) utilized the Schultz and Slevin instrument with the modification of the words "the system" in place of the original usage by Schultz and Slevin of the FORECAST (in reference to a specific system being implemented). This modification will also be used in this study. The Schultz and Slevin instrument results in seven factors for the measurement of attitudes within the model, 1) Performance, 2)Interpersonal, 3)Changes, 4)Goals, 5)Support/Resistance (Support). 6)Client/researcher (Client), and 7)Urgency.

Schultz and Slevin's performance construct refers to the manager's beliefs regarding the effect of the system on the manager's job performance and the review of the performance by peers and superiors (visibility).

The interpersonal construct refers to the end user's beliefs regarding the system's effect on the interactions with others. This construct primarily addresses beliefs about levels of communication with other individuals.

The changes construct refers to the beliefs about the system's effect on the organizational environment. Particular emphasis is placed upon the idea of structural change within the organization with regards to the user of the system.

The goals construct refers to the effect of the system on operational goals of the organization. The construct focuses on the development of the expectation of the organization regarding the user and the effect on other users with respect to organizational goals.

The support construct specifically focuses on the beliefs regarding organizational support of the system being considered. This construct emphasizes the top management involvement.

The client construct focuses on the beliefs regarding the system designers and their interaction with the users of the system. Additionally, this construct focuses on the involvement of the users of the system.

The urgency construct measures the beliefs regarding the importance of the system to the organization. Costs, beliefs of others (including superiors), and personal beliefs are all considered as components of this construct.

Each of these constructs measured by the Schultz and Slevin instrument will be indicated as follows:

Performance	= PE
Interpersonal	= IP
Changes	= CH
Goals	= GO
Support	= SU
Client	= CL
Urgency	= UR

Thus, the above constructs measured by Schultz and Slevin are provided as a means of assessment of the Lucas construct attitudes and perception. While Schultz and Slevin did not specifically discuss perception, the focus of the instrument is on the user's perceptions of the systems being considered.

The final construct of interest in Lucas's model is the development of the usage construct. This construct was also measured by Schultz and Slevin (1975) and was treated in a perceptual, as opposed to actual, manner. This construct focuses on the

issue of perceived usage of the system to be implemented and the effects of the system on the users as perceived by the users.

Development of Constructs

The ROCI-II instrument results in five separate style scores for conflict from a given administration of the instrument. The items in the ROCI-II instrument range from Strongly Disagree to Strongly Agree with three intermediate items. The items score is assigned based on 1 for Strongly Disagree and 5 for Strongly Agree. Any reverse scored items are scored in the opposite direction (e.g. Strongly Agree = 1). Appendix A contains all of the ROCI-II items, their construct membership, and the indication of positive or reverse scoring. A score is obtained for Avoiding (AV), Compromising (CO), Dominating (DO), Integrating (IN), and Obliging (OB) styles. Each style item is calculated using the following formula:

$$CI = \frac{\sum_{k=1}^{n} ROCI_k}{n} \qquad (1)$$

where: CI = conflict inventory construct (AV, CO, DO, IN, OB)
$ROCI_k$ = the kth conflict inventory item
n = the number of items in the construct

In addition, the two dimensional constructs (ID and DD) contained within the ROCI-II instrument are evaluated using the following formula for computation:

$$ID = IN - AV \qquad (2)$$

$$DD = DO - OB \qquad (3)$$

The constructs from the Schultz and Slevin instrument are developed using various items from the instrument to form the constructs. The items are Likert scale type items ranging from Strongly Disagree to Strongly Agree with three intermediate levels of response. In the positive scored responses, a 1 indicates strongly disagree and a 5

indicates strongly agree. Reverse scored items are included with values reversed in the computation (e.g. strongly agree = 1). Appendix B includes a complete listing of the items used for the Schultz and Slevin[9] instrument and the direction of scoring. The formula used in computing the constructs is as follows:

$$AI = \sum_{k=1}^{n} AI_k \qquad (4)$$

where: AI = attitude inventory construct (PE, IP, CH, GO, SU, CL, UR)
AI_k = the kth attitude inventory item
n = the number of items in the construct

The remaining construct is the usage[10]. This construct is comprised of three dependent variables each measured by a statement of the belief of the user regarding intended use of the system. These variables are measured on a 10 point Likert type scale ranging from 10% to 100% with eight intermediate points. Appendix C contains the three items and scales for the items. The variable score is reported in the research as an integer value (e.g. 10% = 10) for ease of reporting and data entry.

The conflict construct (as opposed to the conflict handling styles constructs) was also included as a means for determining the amount of intragroup conflict within the experimental setting for the research. In this manner determination of the level of conflict may also be considered for inclusion as an environmental effect and subsequently controlled for in the experiment. This construct is computed from a Likert scale of five items ranging from Strongly Disagree to Strongly Agree with three intermediate items. The items are scored with a 1 for Strongly Disagree and a 5 for Strongly Agree. The opposite is true for any reverse scored items (e.g. Strongly Agree = 1). Appendix D contains the listing of the ROCI-I items for the measurement of conflict in

[9] This instrument will be referred to as the attitude inventory throughout the remainder of this document.
[10] Usage, Use of System, and System Use are all synonymous in this document.

an intragroup environment with indication of reverse scoring. The intragroup conflict construct was computed with the following formula:

$$CC = \sum_{k=1}^{n} ROCI - I_k \qquad (5)$$

where: CC = Intragroup conflict construct (IAG)
$ROCI\text{-}I_k$ = the kth intragroup conflict item
n = the number of items in the construct

Research Questions and General Hypothesis

In Chapter 1 the objectives of the study were expressed as: 1) to develop an understanding of the presence of conflict in Lucas's model of information systems, and 2) to understand the relationship between conflict handling style and Lucas's model. These objectives lead directly to a series of research questions:

- What relationship, if any, exists between the attitudes and perceptions constructs and conflict handling styles of the users of the system?
- What relationship, if any exists between the usage variables and the conflict handling style of the users of the system?
- What relationship, if any, exists between the intragroup conflict levels and the attitudes and perceptions constructs?
- What relationship, if any, exists between the intragroup conflict levels and the usage variables?
- What relationships, if any, exist between the remaining constructs in Lucas's model and conflict handling style?
- What relationships, if any, exist between the remaining constructs in Lucas's model and the level of intragroup conflict?
- If any relationships exist, what is the magnitude of the relationships?

The assessment of each of the research questions results in a general hypothesis to be tested. These hypotheses are stated below in the null form:

H_{0a}: There is no relationship between the attitudes and perceptions constructs and conflict handling styles constructs in the users of the system.

H_{0b}: There is no relationship between the dependent variables (usage) and the conflict handling style constructs.

H_{0c}: There is no relationship between the intragroup conflict levels and the attitudes and perceptions constructs.

H_{0d}: There is no relationship between the intragroup conflict levels and the perceived usage variables.

H_{0e}: There is no significant regression between the conflict handling style constructs and the perceived usage variables.

H_{0f}: There is no significant regression between the attitudes and perceptions constructs and the perceived usage variables.

The first four hypothesis will be tested using Pearson's correlation coefficients, if the assumptions of correlation analysis are met. A significant correlation between the constructs being measured will cause the null hypothesis to be rejected and indicate a relationship does exist between those two constructs.

Hypothesis e and f will be tested using hierarchical principle components regression analysis to build a multiple regression model of the coefficients. As this is an exploratory study, ten separate models will be developed using each of the five dependent usage variables in order to determine which or all/none of the usage variables are useful in this situation. As an attempt to determine the best usage model, the null hypothesis will be rejected if any model results in a significant predictor of a usage construct. Thus, the twelve regression models being tested will be as follows:

$$U_1 = \beta_0 + \beta_1 AV + \beta_2 CO + \beta_3 DO + \beta_4 IN + \beta_5 OB \quad (6)$$

$$U_2 = \beta_0 + \beta_1 AV + \beta_2 CO + \beta_3 DO + \beta_4 IN + \beta_5 OB \quad (7)$$

$$U_3 = \beta_0 + \beta_1 AV + \beta_2 CO + \beta_3 DO + \beta_4 IN + \beta_5 OB \quad (8)$$

$$U_4 = \beta_0 + \beta_1 AV + \beta_2 CO + \beta_3 DO + \beta_4 IN + \beta_5 OB \quad (9)$$

$$U_5 = \beta_0 + \beta_1 AV + \beta_2 CO + \beta_3 DO + \beta_4 IN + \beta_5 OB \quad (10)$$

$$U_6 = \beta_0 + \beta_1 PE + \beta_2 IP + \beta_3 CH + \beta_4 GO + \beta_5 SU + \beta_6 CL + \beta_7 UR \quad (11)$$

$$U_7 = \beta_0 + \beta_1 PE + \beta_2 IP + \beta_3 CH + \beta_4 GO + \beta_5 SU + \beta_6 CL + \beta_7 UR \quad (12)$$

$$U_8 = \beta_0 + \beta_1 PE + \beta_2 IP + \beta_3 CH + \beta_4 GO + \beta_5 SU + \beta_6 CL + \beta_7 UR \quad (13)$$

$$U_9 = \beta_0 + \beta_1 PE + \beta_2 IP + \beta_3 CH + \beta_4 GO + \beta_5 SU + \beta_6 CL + \beta_7 UR \quad (14)$$

$$U_{10} = \beta_0 + \beta_1 PE + \beta_2 IP + \beta_3 CH + \beta_4 GO + \beta_5 SU + \beta_6 CL + \beta_7 UR \quad (15)$$

$$U_{11} = \beta_0 + \beta_1 AV + \beta_2 CO + \beta_3 DO + \beta_4 IN + \beta_5 OB \quad (16)$$

$$U_{12} = \beta_0 + \beta_1 PE + \beta_2 IP + \beta_3 CH + \beta_4 GO + \beta_5 SU + \beta_6 CL + \beta_7 UR \quad (17)$$

where:

U_1	=	Self Use Probability Item
U_2	=	Other's Use Probability Item
U_3	=	Probability of System Success Item
U_4	=	Likert Usefulness Item
U_5	=	Likert Accuracy Item
U_6	=	Self Use Probability Item
U_7	=	Other's Use Probability Item
U_8	=	Probability of System Success Item
U_9	=	Likert Usefulness Item
U_{10}	=	Likert Accuracy Item
U_{11}	=	$U_1 + U_2 + U_3 + U_4 + U_5$
U_{12}	=	$U_1 + U_2 + U_3 + U_4 + U_5$

A backwards stepwise model will be used to assess the principle components regression equations. Principal components will be removed from the model if they fail to make a significant contribution ($\alpha = .15$) to the overall R^2 of the model. As the principal components regression process uses components which are uncorrelated, the actual regression components may have no meaning. Thus, the principal components regression models are used to indicate a relationship between constructs which exist in the data and are used as a means for guidance to a general conclusion rather than to provide an explanatory regression weight.

Validity of Instruments

The instruments used in this study, the ROCI-II (Rahim, 1983d), the attitude inventory (Schultz & Slevin, 1975), and the ROCI-I (Rahim, 1983c) have been established and validated by the authors and others in the respective literature. This method of selection of predictor instruments from the "storehouse" of instruments is recommended by Nunnally and Bernstein (1994) and provides constructs which may be assessed for factorial validity. In this light, no further attempt to validate the instruments in terms of construct and predictive validity will be pursued, but a general assessment of the validity of the results in this experiment will be conducted.

Two methods will be utilized as a means of assessment of the validity of the experiment. The first method will be a Cronbach's alpha (Cronbach, 1951) analysis which is used to determine the item intercorrelations for the constructs (reliability).

The second means of assessing the validity of the measurement is to determine if the factor structures hypothesized (i.e. the items composing the various constructs) do indeed exist. This is done through a confirmatory factor analysis on the data obtained to test the constructs described previously. This test will be conducted to determine if the original instruments are behaving in the predicted manner.

Research Sample

The study will be based on a sample survey of items (found in the appendices) which will be administered to employees in organizations prior to the implementation of a systems change[11] within the organization. A mailing list of 1,000 chief information officers (CIO's) will be contacted with a preliminary letter (Appendix E) and requested to participate "if conditions within their organization warrant". All of the users of the new system[12] within the organization will be issued an instrument as found in Appendix F.

Data Collection

The data will be collected by asking the recipients of the instrument to complete the survey and return it to the researcher through the mail. The instrument contains sections of general demographics (some of which are actually Lucas's items), a section containing items from the Rahim Organizational Conflict Inventory - II instrument, a section containing the Schultz and Slevin instrument (excerpts), and a section containing the ROCI-I intragroup conflict inventory items. A cover letter explaining the research will be enclosed along with a post-paid return envelope. Any respondents failing to complete the entire questionnaire will be dropped from the study.

---

[11] Where a systems change may be considered as the introduction of a new system which may refer to hardware or software.

[12] The new system refers to the system to be implemented in the near future. It is in regards to this new system the Schultz and Slevin instrument pertains.

Method of Analysis

Upon completion of the collection of data in the experimental process, the data will be analyzed to determine which of the hypotheses should be rejected. The analysis will be conducted in two steps, 1) Pearson's correlation coefficients, and 2) Hierarchical regression analysis. An significance level (alpha) of 0.15 will be used for all of the analysis conducted.

Pearson's correlation analysis is used to specify the magnitude of the linear relationship between two variables (Nunnally & Bernstein, 1994) to test hypothesis categories a-d listed above.

These four hypotheses examine the several different models. Hypothesis a addresses the relationship between conflict handling styles and attitudes and perceptions of the users. Hypothesis b tests the relationship between the perceived usage constructs and conflict handling style. Hypothesis c considers the relationship between intra-group conflict levels and attitudes and perceptions. Hypothesis d focuses on the relationship between intra-group conflict and the perceived usage constructs.

The Pearson's correlation analysis requires certain assumptions be met in order to be used for inference (Nunnally and Bernstein, 1994). Each of the assumptions will be discussed and tested in Chapter IV, before any discussion or testing of the hypotheses is considered.

Hierarchical principal components regression is often used as a means of determining the strength of relationships indicated in the correlation analysis (the ability to *predict* the dependent variable (Nunnally and Bernstein, 1994)). Research in the area of conflict, as well as Lucas's research, has utilized this technique as a means to determine the relationship between the dependent variable and the independent constructs found in the research analysis (Lucas, 1973; Lucas, 1970; Rahim, 1983a).

The models tested will be the equations developed in equations 6-17 earlier in this chapter. This assumes all of the constructs involved are found to be sound and no

revision to the constructs is necessary based on the statistical analysis conducted in Chapter IV.

In this manner the analysis of the data gathered will result in an initial finding and rejection or failure to reject the hypotheses indicated above. In addition to the above analysis, if enough organizational entities respond then analysis may be performed on the aggregate data from the entire organization in an attempt to develop an understanding of the aggregate effects in the model (e.g. inter-organizational effects).

Thus, this study will attempt to determine if relationships do exist between the conflict constructs and the attitudes, perceptions, and usage constructs considered above. If such relationships are found to exist, additional analysis may provide the necessary information to draw conclusions from the models as to the strength of the relationships.

SYNOPSIS

This chapter has discussed the various constructs to be used in development of a greater understanding of the nature of styles of conflict in the Lucas model of information systems. A discussion of the major constructs involved in the research, the research questions, the sample, the hypotheses, and the statistical methodology for testing the hypotheses are all discussed and illustrated. This chapter provides a basis for the research to be conducted and should provide a clear review of the techniques involved along with a discussion of potential problems and limitations of the methods employed to test the hypotheses.

CHAPTER III REFERENCES

Amoroso, D. L., and P. H. Cheney. 1991. "Testing a causal model of end-user application effectiveness," *Journal of Management Information Systems*, (8:1), pp. 63-89.

Bailey, J. E., and S. W. Pearson. 1983. "Development of a tool for measuring and analyzing computer user satisfaction," *Management Science*, (29:5), pp. 530-545.

Baroudi , J. J., and W. J. Orlikowski. 1988. "A short-form measure of user information satisfaction: A psychometric evaluation and notes on use," *Journal of Management Information Systems*, (4:4), pp. 44-59.

Berenson, M. L., D. M. Levine, and M. Goldstein. 1983. *Intermediate Statistical Methods and Applications*, Englewood Cliffs, NJ: Prentice-Hall, Inc.

Bisno, H. 1988. *Managing Conflict*, Newbury Park, CA:Sage.

Buntzman, G. F., and D. White. 1994. "Ethical relativism, conflict, and performance in a strategic management setting," *Journal of Social Behavior and Personality*, (8:4), pp. 567-586.

Buntzman, G. F. and D. White. 1991. "Ethical relativism, conflict, and performance in a simulated industry", *International Association for Conflict Management Conference*, Den Dolder, Netherlands.

Coser , L. A. 1968. "Conflict: III. Social Aspects," in D. L. Sills (Ed.), *International Encyclopedia of the Social Sciences* (3), New York, NY: Crowell Collier and Macmillan.

Cronbach, L. J. 1951. "Coefficient alpha and the internal structure of tests," *Psychometrika*, (6), pp. 297-334.

Davis, F. D. 1989. "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quarterly*, (13:3), pp. 319-340.

Deutch, M. 1969. "Conflicts: Productive and destructive," *Journal of Social Issues*, (25:1), pp. 7-41.

Doll, W., and G. Torkzadeh. 1988. "The measurement of end-user computing satisfaction: Theoretical and methodological issues," *MIS Quarterly*, (15:1), pp. 5-10.

Eshleman, D. E. 1982. *The Relationship Between Innovation and the Styles of Handling Interpersonal Conflict*. Unpublished MBA thesis, Youngstown State University, Ohio.

Gorry, G. A., and M. S. Scott-Morton. 1971. "A framework for management information systems," *Sloan Management Review*, (13:1), pp. 55-71.

Gray, B. 1989. *Collaborating: Finding Common Ground for Multiparty Problems.* San Diego, CA: Jossey-Bass.

Joshi, K. 1990. "An investigation of equity as a determinant of user information satisfaction," *Decision Science.* (21:2), pp. 786-807.

Keenan, D. 1984. *A Study to Determine the Relationship Between Organizational Climates and Management Styles of Conflict as Perceived by Teachers and Principals in Selected School Districts.* Unpublished doctoral dissertation, University of South Carolina.

King, W. R. and J. I. Rodriguez. 1978. "Evaluating management information systems," *MIS Quarterly,* (2:3), pp. 43-51.

Lee, C. W. 1990. "Relative role and styles of handling interpersonal conflict: An experimental study with Korean managers," *International Journal of Conflict Management,* pp. 327-340.

Levy, M. B. 1989. *Integration of Lovestyles and Attachment Styles: Cross-partner Influences and a Clarification of Concepts, Measurement, and Conceptualization,* Unpublished doctoral dissertation, University of South Carolina.

Lucas, H. C. 1982. *Information Systems Concepts for Management.* New York, NY: McGraw-Hill Book Company.

Lucas, H. C. 1976. *The Analysis, Design, and Implementation of Information Systems.* New York, NY: McGraw-Hill Book Company.

Lucas, H. C. 1975. *Why Information Systems Fail,* New York, NY: Columbia University Press.

Lucas, H. C. 1975. "Performance and the use of an information system," *Management Science,* (21:8), pp. 908-919.

Lucas, H. C. 1973. "A descriptive model of information systems in the context of the organization," *Database,* (5:2), pp. 27-36.

Melone, N. P. 1990. "A theoretical assessment of the user satisfaction construct in information systems research," *Management Science,* (36:1), pp. 76-91.

Neff, E. K. 1986. *Conflict Management Styles of Women Administrators in the 12 State Universities in Ohio,* Unpublished doctoral dissertation, Bowling Green State University, Ohio.

Nunnally, J. C., and I. H. Bernstein. 1994. *Psychometric Theory, Third Edition,* New York, NY: McGraw-Hill, Inc.

Persico, J. 1986. *Levels of Conflict, Worker Performance, Individual Conflict Styles, Type of Work, Organizational Characteristics and the External Environment of the Organization,* Unpublished doctoral dissertation, University of Minnesota.

Pilkington, C. J., D. R. Richardson, and M. E. Utley. 1988. "Is conflict stimulating? Sensation seekers' responses to interpersonal conflict," *Personality and Social Psychology Bulletin*, (14), pp. 596-603.

Pondy, L. R. 1967. "Organizational conflict concepts and models," *Administrative Science Quarterly*, (12:2), pp. 296-320.

Prein, H. C. M. 1976. "Stijlen van conflicthantering (Styles of handling conflict)," *Nederlands Tijdschrift voor de Psychologie*, (31:1), pp. 321-346.

Psenicka, C., and M. A. Rahim. 1989. "Integrative and distributive dimensions of styles of handling interpersonal conflict and bargaining outcome," In M. A. Rahim (Ed.), *Managing conflict: An interdisciplinary approach*, New York, NY: Praeger.

Rahim, M. A. 1992. *Managing conflict in organizations, second edition*. Westport, CT: Praeger.

Rahim, M. A. 1991. "Styles of handling interpersonal conflict: A critical review of theory and research," Paper presented at the 4th annual conference of the International Association for Conflict Management, Den Dolder, Netherlands.

Rahim, M. A. 1990. "Moderating effects of hardiness and social support on the relationships of conflict and stress to job burnout and performance," In M. A. Rahim (Ed.), *Theory and research in conflict management*, New York, NY: Praeger.

Rahim, M. A. 1989a. "Rahim Organizational Conflict Inventory: Its uses and misuses in recent field studies," *Proceedings of the Second Annual Conference of the International Association for Conflict Management*, pp. 27.

Rahim, M. A. (Ed.), 1989b. *Managing Conflict: An Interdisciplinary Approach*. New York, NY: Praeger.

Rahim, M. A. 1986a. "Referent role and styles of handling interpersonal conflict," *Journal of Social Psychology*, (126), pp. 79-86.

Rahim, M. A. 1986b. *Managing Conflict in Organizations*, New York, NY:Praeger.

Rahim, M. A. 1985. "A strategy for managing conflict in complex organizations," *Human Relations*, (38), pp. 81-89.

Rahim, M. A. 1983a. "A measure of styles of handling interpersonal conflict," *Academy of Management Journal*, (26:2), pp. 368-376.

Rahim, M. A. 1983b. "Measurement of organizational conflict," *Journal of General Psychology*, (109), pp. 189-199.

Rahim, M. A. 1983c. *Rahim Organizational Conflict Inventory-I*. Palo Alto, CA: Consulting Psychologists Press.

Rahim, M. A. 1983d. *Rahim Organizational Conflict Inventory-II, Forms A, B, & C*, Palo Alto, CA: Consulting Psychologists Press.

Rahim, M. A. 1983e. *Rahim Organizational Conflict Inventories: Professional Manual,* Palo Alto, CA:Consulting Psychologists Press.

Rahim, M. A. 1980. "Some contingencies affecting interpersonal conflict in academia: A multivariate study," *Management International Review,* (20:2), pp. 117-121.

Rahim, M. A. 1979. "The management of intraorganizational conflicts: A laboratory study with organization design," *Management International Review,* (19:1), pp. 97-106.

Rahim, M. A. 1977. "The management of organizational intergroup conflict: A contingency model. *Proceedings of the 8th Annual Meeting of the Midwest American Institute for Decision Sciences,* Cleveland, OH, pp. 247-249.

Rahim, M. A. 1976. *Managing Conflict Through Effective Organization Design: An Experimental Study with the MAPS Design Technology,* Unpublished doctoral dissertation, University of Pittsburgh.

Rahim, M. A., and T. V. Bonoma. 1979. "Managing organizational conflict: A model for diagnosis and intervention," *Psychological Reports* ,(44), pp. 1323-1344.

Rahim, M. A. and G. F. Buntzman. 1989. "Supervisory power bases, styles of handling conflict with subordinates, and subordinate compliance and satisfaction," *Journal of Psychology,* (123), pp. 195-210.

Rahim, M. A., J. E. Garrett, and G. F. Buntzman. 1992. "Ethics of managing interpersonal conflict in organizations," *Journal of Business Ethics,* (11), pp. 87-96.

Rahim, M. A., and C. Psenicka. 1984. "Comparison of reliability and validity of unweighted and factor scales," *Psychological Reports,* (55) pp. 439-445.

Robey, D. 1979. "User atttitudes and management information system use," *Academy of Management Journal,* (22:3), pp. 527-538.

Rushinek, A., and S. F. Rushinek. 1986. "What makes users happy?" *Communication of the ACM,* (29:7), pp. 594-598.

Schultz, R. L., and D. P. Slevin. 1975. *Implementing Operations Research/Management Science,* New York, NY: American Elsevier Publishing Company, Inc.

Srinivasan, A. 1985. "Alternative measures of system effectiveness: Associations and implications," *MIS Quarterly,* (9:3), pp. 243-253.

Thomas, K. W. 1976. "Conflict and conflict management," in M.D. Dunnette (Ed.), *Handbook of Industrial and Organizational Psychology,* Chicago: Rand McNally, pp. 889-935.

Ting-Toomey, S., G. Gao, P. Trubisky, Z. Yang, H. S. Kim, S. Lin, and T. Nishida. 1991. "Culture, face maintenance, and styles of handling interpersonal conflict: A study in five cultures," *International Journal of Conflict Management,* (2), pp. 275-295.

Van de Vliert, E., and B. Kabanoff. 1990. "Toward theory-based measures of conflict management," *Academy of Management Journal*, (33), pp. 199-209.

Weider-Hatfield, D. 1988. "Assessing the Rahim Organizational Conflict Inventory-II (ROCI-II)," *Management Communications Quarterly*, (1), pp. 350-366.

Chapter IV

INTRODUCTION

This chapter provides the analysis of the data gathered as specified in Chapter III of this document. The first part of the chapter is dedicated to analysis and review of the measurement techniques used in this study, and the second part of the chapter reports the results of the statistical analysis performed on the data gathered for hypothesis testing purposes.

RESTATEMENT OF HYPOTHESES

In Chapter III of this document a number of hypotheses were developed for testing in this study. The hypotheses are restated here for the convenience of the reader.

H_{0a}: There is no relationship between the attitudes and perceptions constructs and conflict handling styles constructs in the users of the system.

H_{0b}: There is no relationship between the dependent variables (usage) and the conflict handling style constructs.

H_{0c}: There is no relationship between the intragroup conflict levels and the attitudes and perceptions constructs.

H_{0d}: There is no relationship between the intragroup conflict levels and the usage variables.

H_{0e}: There is no significant regression between the conflict handling style constructs and the usage variables.

H_{0f}: There is no significant regression between the attitudes and perceptions constructs and the usage variables.

DEMOGRAPHICS

After contacting numerous organizations regarding the immediate implementation of a system, organizations were screened to determine if they indeed possessed a user group of twenty to fifty employees who would be using the system and the system would be implemented within several months of the initial contact. Ten user

groups were initially identified as being able to participate in the study, but four of the initial groups either canceled their project implementation or asked to be excluded from the study for their own reasons. This left six groups to participate in the study. The total number of instruments submitted to the users was 190. Of this total 84 instruments were returned in usable condition. Five additional instruments were returned, but were not completed or were modified in some manner by the participant and thus rendered unusable for the study. This represents a response rate of forty-four percent of the instruments returned in usable condition.

General Demographics

A number of items requested information from the user regarding various general attributes. These items attempt to determine if any gender biases or other unusual attributes existed among the respondents.

The mean age of the respondents was thirty-six years of age. The mean number of computer courses taken for training purposes was two. Forty-two percent (thirty-six persons) of the sample were identified as female and forty-one percent (thirty-five persons) of the sample were identified as male. Sixteen percent of the respondents did not indicate their sex. Thirty-three percent of the sample had a computer available at home and sixteen percent of the respondents did not indicate whether or not they had a computer. The mean number of training courses taken by respondents who indicated they had a computer at home was four courses per person, while individuals who had no computer at home reported an mean of one course per person. Males and females seemed to have taken about the same number of courses on average (two courses and three courses, respectively).

An additional demographic was collected for informational purposes. This demographic refers to the level of the person in the organization. While this is demographic is not an extremely reliable, some perspective of the number of

employees subordinate to the respondent is obtained. The mean number of supervised employees was found to be eight.

The organizations which responded represent a variety of industries with no particular theme. The groups of individuals were also selected only because they were the planned users of the system to be implemented. In this light, the generalizability of the study is increased. There is no evidence to indicate a bias towards any group in the sample.

Levels of Conflict and Conflict Handling Style

Rahim (1992) provides a table of norms for the various conflict handling style and conflict measures provided by the ROCI-I and the ROCI-II. Table 4.1 provides the measures and the results obtained from this data set for comparison purposes. All the differences found were small and may be attributed to the variation among the sample subjects. The small variations are most likely due to longitudinal effects as well as the differences in the samples. Rahim used undergraduate and MBA students to establish his collegiate norms, while real-world system users were sampled here. Nevertheless, the results do not differ dramatically from the results obtained by Rahim in the original study.

ANALYSIS OF MEASUREMENT TECHNIQUES

Each of the instruments used in the research was assessed to determine their level of validity and reliability. In order to determine the validity of the instruments' constructs for analysis purposes, the Cronbach's (1951) alpha measure of inter-item correlation among the components which comprise the construct is used. In the case of reliability, a confirmatory factor analysis of the various constructs found within each instrument is developed which assesses the ability to reproduce the results desired in this study.

Table 4.1. Collegiate Norms for Conflict and Conflict Handling Styles

Item	Collegiate Mean	Observed Mean
Integrating	4.09	4.20
Obliging	3.38	3.40
Dominating	3.34	3.00
Avoiding	3.09	3.12
Compromising	3.82	3.58
Intragroup Conflict Level	2.36	2.40

Statistical Assumptions

Assumptions of Correlation

Several statistical assumptions were made in order to utilize the Pearson's correlation technique for evaluation relationships in the data. The assumptions for Pearson's correlation are found below (Nunnally and Bernstein, 1994):

1) The relationship between X and Y should be essentially monotonic and, preferably linear.

2) The relationship must be homoscesdastic so that the spread (errors of estimate) about the best-fitting straight line is approximately the same at all levels of X and Y, rather than heteroscedastic, where the spread is much greater at certain levels than others.

3) Error affecting each of the variables must be normally distributed (not necessarily the variables themselves).

Scatter plots were used to detect violations of the first two assumptions. There was no indication of any violation of the assumptions in the correlation analyses. Many of the scatter plots failed to provide clear evidence of a monotonic, linear relationship, but no evidence of a non-linear relationship existed. Due to the small effects upon the magnitude of correlation (Parker, *et. al.*, 1988), and the lack of any indication of non-linear relationships, the first two assumptions are considered to be met.

In the case of the third assumption, the central limit theorem allows for samples which exceed a size of thirty observations the sampling distribution is considered normal, even if the original population is far from normal (Berenson, Levine, and Goldstein, 1983). Due to the central limit theorem, the sample provided here is considered to have a normal distribution of errors.

Assumptions of Principle Components Regression

As with correlation analysis, a number of assumptions must be met if the principle components regression technique is to be used as a means of assessing the strength of the model. The assumptions for linear regression are listed by Berenson, Levine, and Goldstein (1983) as follows:

1) Normality -- For each fixed X value (the independent variable), the population of values for the random variable Y is normally distributed.

2) Linearity -- There is a linear functional relationship between the X and Y variables.

3) Independence -- The observed Y values are independent of each other for every value of X.

4) Homoscedasticity -- The dependent variable Y varies the same amount when an independent variable X is fixed at a low value as when X is fixed at a high value.

Again, as in the correlation assumptions, the normality assumption is considered met due to the central limit theorem. The linearity assumptions was tested for significance, and the models which exhibited linearity were reported in the results. Due to the nature of the study, each of the participants was considered to be independent of the other respondents. While no specific controls were put in place to assure this, there is no reason to believe there is a violation of this assumption. Independence of the data is considered inherent in the design of the study. Assumption four was analyzed using scatter plots of the residuals. No anomalies were found in the scatter plots which might be indicative of problems with homoscedasticity (e.g. a horn or other similar patterns). Thus, there is no reason to believe any assumption of regression has been violated.

Cronbach's Alpha

Table 4.2 provides the results of the Cronbach's alpha analysis for the twelve constructs used in the analysis. The results of the Cronbach's Coefficient Alpha examination are strong with most of the inter-item correlations exceeding 0.80. This result was expected due to the historical stability of the instrument. Several of the user attitudes constructs are below the 0.80 level, but are still strong indication of reliability. The .80 inter-item correlations are actually quite strong given typical findings in the conflict and conflict handling style measurement arena. The original findings by Rahim (1983) ranged from 0.72 to 0.76 on the managerial sample.

Table 4.2. Cronbach's Inter-Item Correlation

Item	Cronbach's Inter-Item Correlation
Integrating	.834
Obliging	.727
Dominating	.808
Avoiding	.841
Compromising	.728
Interpersonal	.822
Performance	.879
Support	.695
Urgency	.905
Changes	.724
Clients	.781
Goals	.832

The inter-item correlation analysis supports the belief that the constructs hypothesized to exist in the instrument are indeed composed of closely related items. The confirmatory factor analysis is then needed to determine if the constructs hypothesized to exist are indeed found in the data.

Confirmatory Factor Analysis

In this section, a single-order confirmatory factor analysis is undertaken to verify each instrument. In the event an instrument is not found to be valid, an exploratory factor analysis will be produced to determine the actual factor structure in the in data.

Bartlett's Sphericity Test

Bartlett (1954) established an examination of the correlation matrix to determine a significant difference from zero (sphericity). This test considers the hypothesis of no factors in the data versus at least one factor in the data. The statistical hypothesis in this case is as follows:

H_0: $\rho = I$
where: I = the identity matrix
ρ = the correlation matrix

The first analysis is conducted on the conflict handling styles. In this analysis the test statistic is computed to be 23,940.02[13], and the degrees of freedom in the problem

[13] In this calculation the equation to compute the test statistic is:

$$\chi^2 = -[(n-1)\frac{1}{6}(2p+5)]\mathrm{Log}_e|R_{pp}| \quad \text{and}$$

$df = p\frac{p-1}{2}$ where

$|R_{pp}| = \delta_1 \bullet \delta_2 \bullet \delta_3 \ldots \delta_p$, δ_i is an Eigenvalue of R_{pp} and p is the dimension of the correlation matrix.

The hypothesis is as follows:

H_0: $\rho = I$
Where ρ is the correlation matrix and I is the identity matrix.

are df=595. The χ^2 value (critical value) from the table (Dillon & Goldstein, 1984) is found to be 652.57[14] . In the Bartlett test, the decision rule for rejection of the null hypothesis is to reject H_0 if the test statistic is greater than the critical value from the table. In this examination, the test statistic is indeed greater than the critical value and the null hypothesis is rejected. This indicates a correlation matrix which is significantly different from the identity matrix.

A second Bartlett's test is needed to consider the correlation matrix for the user attitudes and perceptions constructs. Again, the null hypothesis is stated as: no significant difference between the correlation and the identity matrix.

In the analysis of the user attitudes data, the test statistic is determined to be 150,872.70 (based on the above computational methodology) and the critical value determined to be 2,320.89. As in the first case, the decision rule indicates rejection of the null hypothesis and the conclusion of a correlation matrix significantly different from the identity matrix.

Thus far the analysis has proved satisfactory for the continuation of the study with the data collected. The validity tests have indicated no problems with the reliability of the constructs.

In order to assess the internal consistency of the instruments, the various items discussed in Chapter III should load into the constructs theorized to exist in each of the instruments, i.e., the five conflict handling styles and the seven user attitudes. Each of the instruments was analyzed in a separate confirmatory analysis.

Confirmatory Analysis of Conflict Handling Styles

In the first analysis of the ROCI-II data, the five constructs are hypothesized in the model as described in the original Rahim study and analyzed for fit. Table 4.3 provides the resultant goodness of fit tests provided by the PROC CALIS procedure (SAS Institute,

[14] Computed from the equation $Z = \sqrt{2\chi^2} - \sqrt{(2df - 1}$.

1994) for assessment of the fit of the data in the sample. In this case, two of the measures meet the heuristic tests of the fit. The χ^2/df test is considered acceptable for this model (Wheaton, *et. al.*, 1977), as is the Root Mean Square Residual (RMR). Two other common measures, Bentler and Bonnett Non-Normed Index (1980) and the Bollen Non-Normed Index Δ^2 (1989), are less than the heuristic, but are in a moderate range. Nunnally and Bernstein (1994) indicate *Although there is a strong tendency to view coefficients in excess of .9 as indicative of good fit, it is difficult, if not impossible, to state a criterion value with any assurance.* This might imply a reasonable model, despite some parameters outside the heuristic norms. Nunnally and Bernstein (1994) go on to suggest ...*that the correct groupings are at least a good first approximation to the data and* (the authors) *would never criticize someone for accepting this as a solution.*

Thus, due to the moderate confirmatory analysis and the well-established nature of the instrument to measure the five conflict handling style constructs reliably and accurately, the theorized factor structure is considered to hold. While some weakness appears to exist in this particular data set, there is no reason to conclude the five constructs are non-reliable or non-existent.

Confirmatory Analysis of User Attitudes and Behavior Constructs

In the case of the second confirmatory analysis on the user attitudes and behaviors constructs, Table 4.4 provides the resulting values and heuristics for this model. In this case, only the χ^2/df and the Root Mean Square Residual tests provide any support for the model. The remaining tests lend only weak support to the fit of the model to the data and may indicate a problem with the internal consistency of the Schultz and Slevin instrument in this sample.

As was indicated earlier, in this situation an exploratory analysis of the user attitudes and behaviors data is undertaken. It is hoped through this analysis, a better set

Table 4.3. ROCI-II Goodness of Fit Indicators

Method	Value	Heuristic
χ^2/df	1.3548	<5
Goodness of Fit	.6347	>.9
Adjusted Goodness of Fit	.5807	>.8
Root Mean Square Residual	.1412	<1.0
Bentler and Bonnett's Non-Normed Index	.7414	>.9
Bollen Non-Normed Index Δ^2	.7722	>.9

Table 4.4. Schultz and Slevin Goodness of Fit Indicators

Method	Value	Heuristic
χ^2/df	1.4842	<5
Goodness of Fit	.4678	>.9
Adjusted Goodness of Fit	.4262	>.8
Root Mean Square Residual	.1793	<1.0
Bentler and Bonnett's Non-Normed Index	.5581	>.9
Bollen Non-Normed Index Δ^2	.5903	>.9

of constructs may be developed for use in testing the hypotheses discussed in Chapter III.

Exploratory Factor Analysis with User Attitudes and Behaviors Items

Due to the weakness of the fit, an exploratory factor analysis was conducted on the Schultz and Slevin data to determine if the hypothesized constructs did indeed exist in the instrument, or if some other structure prevails. This analysis is conducted by first determining the number of factors to extract from the data using the Horn's test (Horn, 1965) for determination of the correct number.

Table 4.5 contains the Horn's values generated for comparison to the Eigenvalues of the user attitudes and behaviors data set. The Horn's test indicates five factors should be retained in the model for rotation and explanation. The theoretical model contained seven factors, but it may be that some of the factors in this case are not found in this sample and the items have thus loaded into only five factors. Only loadings of 0.4 or greater will be considered. Items which load at less than the 0.4 level will be dropped from the model.

The five factor extraction for the user attitudes and behaviors data resulted in a slightly altered view of the constructs originally theorized to exist in the Shultz and Slevin instrument. Table 4.6 illustrates the item components of the new factors in the Shultz and Slevin instrument.

The relationship of the first attitudes and perceptions construct is named *System Importance (SI)* and seems to center around the users' ideas of the need for the system in the workplace. This construct contains items from the Performance, Urgency, Client Relationship, and Goals constructs previously hypothesized to exist. This construct contains items which focus on the effect of the system on the organization and the individual in terms of improvement or decline in the general state of operations.

Table 4.5. Horn's Test and Eigenvalues for Schultz and Sievin Items

Item	Horn's Test Value	Eigenvalue
1	3.3268	15.3950
2	3.0793	7.5422
3	2.9143	4.3366
4	2.7724	3.4211
5	2.6466	2.5654
6	2.5245	2.3723
7	2.4195	2.0551

Table 4.6. New Shultz and Slevin Factor Items

Construct	Components
System Importance (SI)	5, 6, 7, 8, 9 15, 16, 18, 23, 26, 28, 31, 34, 47, 50, 51, 56, 57, 61, 63
Job/Performance Concerns (JO)	3, 11, 14, 22, 25, 27, 32, 42, 49, 53, 59, 60, 62, 66
Interaction Concerns (IN)	12, 29, 30, 36, 37, 44, 46, 48
Organizational Impact (OI)	10, 33, 39, 40, 43, 64, 65
External System Support (ES)	1, 4, 17, 21

The second construct to emerge from the data has been named the *Job/Performance Concerns (JO)* construct. This item primarily consists of Performance and Goals items from the hypothesized structure. These items contain questions regarding the effect of the system on the user's job performance, the perception of the job performance by others, and the modifications of personal perceptions of job performance (goals) of the user.

The third construct is described as *Interaction Concerns (IN)*. This construct consists of Change and Interpersonal items from the original instrument. This construct seems to address user concerns regarding the interaction with the organization and other users after the system is in place.

The fourth construct is named *Organizational Impact (OI)* and centers on items from the list of Support items in the original study. This item focuses on the effect of the system on the organization in terms of profit, *etc.*

The fifth construct is described as *External System Support (ES)*. This construct mainly deals with items regarding the levels of support expected from the IS group and the upper management of the organization.

After construction of the five factors from the exploratory factor analysis of the data, the constructs from the user attitudes and behavior data were again subjected to Cronbach's alpha analysis to determine the reliability of each construct. Table 4.7 contains the results of the Cronbach's alpha analysis. All of the constructs resulted in strong reliability from this test with the exception of the External System Support construct (ES). This item appears to be non-reliable and was therefore dropped from further use in the analysis.

In the hypotheses testing, only the four remaining Schultz and Slevin constructs will be used: System Importance, Job/Performance Concerns, Interaction Concerns, and Organizational Impact. All of the other constructs hypothesized to exist in Chapter III of this document will be considered in the hypothesis testing.

Table 4.7. Cronbach's Alpha Analysis of New Schultz and Slevin Constructs

Construct	Cronbach's Inter-Item Correlation
System Importance (SI)	.9351
Job/Performance Concerns (JO)	.8947
Interaction Concerns (IN)	.8465
Organizational Impact (OI)	.7931
External System Support (ES)	<.3

HYPOTHESIS TESTING

The methodology discussed in Chapter III for testing the hypotheses in this study was used and described here as a means of determining of rejection or failure to reject the various null hypotheses presented in Chapter III. In this manner, two analyses were performed for purposes of hypothesis testing: 1) Pearson's correlation analysis, and 2) Multiple linear principal components regression analysis of the data.

Hypothesis a -- Conflict Handling Style and Attitudes and Perceptions

Hypothesis a is an examination of the inclusion of the conflict handling style constructs as components of the attitudes and perceptions second-order construct in the model. If significant relationships exist between the attitudes and perceptions constructs, the conflict handling styles may be moderating the attitudes and perceptions of the users, as well as the levels of conflict existing among the users of the systems. If this hypothesis is rejected, a model of conflict, conflict handling style, and perceived usage may emerge. This hypothesis is tested using Pearson's correlation analysis and an alpha level of .15 to test the significance of the relationships statistically. The decision rule for this hypothesis is the significance of the correlation. Any correlation which is significant will result in a rejection of the null hypothesis. Due to the lack of confirmation of the Schultz and Slevin model, a revised set of sub-hypotheses is stated below in the null form[15]:

H_{0a1}: There is no significant relationship between conflict handling style and System Importance.

H_{0a2}: There is no significant relationship between conflict handling style and Job/Performance Concerns.

H_{0a3}: There is no significant relationship between conflict handling style and Interaction Concerns.

[15] Conflict handling style refers to the five conflict handling styles: Integration, Compromising, Avoiding, Dominating, and Obliging.

H_{0a4}: There is no significant relationship between conflict handling style and Organizational Impact.

Table 4.8 provides the results of the analysis of the correlation analysis. The table contains the Pearson's product moment correlation, the p-value, and the n for the given intersection.

Seven of the twenty overall correlations are significant, which implies some relationship exists between the conflict handling styles of the users and the attitudes and perceptions constructs. For hypothesis a, the null sub-hypotheses 1, 2, and 4 are all rejected which results in the conclusion: there is a relationship between conflict handling style and the attitudes and perceptions construct in Lucas's model.

Hypothesis b -- Conflict Handling Style and Perceived Usage Constructs

This hypothesis is directed at the determination of the effect of conflict handling style on the perceived usage constructs and is tested using Pearson's correlation analysis. The usage constructs were tested as both first-order constructs (the five constructs described in Chapter III) and a second-order construct, which is an aggregate of the five usage constructs. Therefore, there are seven sub-hypotheses tested in this section which are listed below:

H_{0b1}: There is no significant relationship between perceived usage and conflict handling style levels.

H_{0b2}: There is no significant relationship between the perceived usage of others and conflict handling style levels.

H_{0b3}: There is no significant relationship between the perceived success and conflict handling style levels.

H_{0b4}: There is no significant relationship between the perceived worth and the conflict handling style levels.

H_{0b5}: There is no significant relationship between the perceived accuracy and the conflict handling style levels.

H_{0b6}: There is no significant relationship between conflict handling style and the aggregate usage construct.

Table 4.8. Correlation Analysis for Hypothesis a

	Integrating	Obliging	Dominating	Avoiding	Compromising
System Importance	.3342 .0026 79	-.0085 .9407 79	.2345 .0376 79	-.0971 .3977 78	.1892 .0972 78
Job/Performance Concerns	.2806 .0112 81	.1013 .3683 81	.1630 .1460 81	-.1183 .2961 80	.1765 .1196 79
Interaction Concerns	-.1569 .1619 81	-.0533 .6365 81	.0237 .8337 81	-.0639 .5735 80	-.1130 .3215 79
Organizational Impact	.1540 .1699 81	.2107 .0590 81	-.0120 .9152 81	.1186 .2947 80	.0914 .4232 79

.9999 = Pearson's Product Moment Correlation
.9999 = P-Value
99 = n

Correlations which are significantly different from zero are shaded.

Each of the six hypotheses was tested using the alpha=.15 criteria established for this study. Table 4.9 provides the numerical results of the analysis. In this case, fifteen of the thirty possible overall correlation intersections are significant. The evidence indicates rejection of all six null hypotheses in the b category. The conclusion is there is a relationship between conflict handling style and perceived usage measures in the model.

Hypothesis c -- Intragroup Conflict and Attitudes and Perceptions

Hypothesis c provides an analysis of the relationship between the measured levels of conflict in the groups and the attitudes and perceptions of the user. Stated below in the null form are the sub-hypotheses which are to be tested:

H_{0c1}: There is no significant relationship between intragroup conflict and the System Importance construct.

H_{0c2}: There is no significant relationship between intragroup conflict and the Job/Performance concerns.

H_{0c3}: There is no significant relationship between intragroup conflict and Interaction concerns.

H_{0c4}: There is no significant relationship between intragroup conflict and the Organizational Impact construct.

Again, this analysis is conducted using the Pearson's correlation coefficient analysis and provides an indication of the need for inclusion (control) of intragroup conflict at when the measurement of attitudes and perceptions of users is being considered. Table 4.10 provides the numerical results of this analysis. The analysis results in the rejection of the hypotheses 3 and 4. This leads to the conclusion of a relationship between intragroup conflict levels and interaction concerns and a relationship between intragroup conflict and the perceived organizational impact of a new system.

Hypothesis d -- Intragroup Conflict and Perceived Usage

This hypothesis assesses the effect of intragroup conflict on the various usage constructs. As with hypotheses a, b, and c, a series of sub-hypotheses are developed,

Table 4.9. Correlation Analysis for Hypothesis b

	Integrating	Obliging	Dominating	Avoiding	Compromising
Usage	.2407 .0274 84	.0403 .7157 84	.2506 .0215 84	.0301 .7872 83	.2323 .0357 82
Other's Usage	.1258 .2542 84	.1726 .1164 84	.1693 .1237 84	.1959 .0760 83	.2851 .0094 82
Success	.0452 .6829 84	.0284 .7976 84	.2207 .0437 84	-.0345 .7572 83	.1167 .2964 82
Worth	.1163 .2951 83	.0354 .7509 83	.2018 .0674 83	-.0526 .6388 82	.3106 .0048 81
Accuracy	.1957 .0763 83	-.0020 .9860 83	.1421 .2001 83	-.0849 .4485 82	.2623 .0180 81
Aggregate Usage	.1993 .0726 82	.0776 .4881 82	.2575 .0195 82	.0210 .8527 81	.3116 .0049 80

Table 4.10. Correlation Analysis of Hypothesis c

	Intragroup Conflict
System Importance	-.0515 .6505 80
Job/Performance Concerns	.02937 .7933 82
Interaction Concerns	.1771 .1115 82
Organizational Impact	-.3349 .0021 82

which will be tested using the Pearson's correlation analysis. The hypotheses are stated below in the null form:

H_{0d1}: There is no significant relationship between the perceived usage item and intragroup conflict levels.

H_{0d2}: There is no significant relationship between the perceived usage of others and intragroup conflict levels.

H_{0d3}: There is no significant relationship between the perceived success and intragroup conflict levels.

H_{0d4}: There is no significant relationship between the perceived worth and the intragroup conflict levels.

H_{0d5}: There is no significant relationship between the perceived accuracy and the intragroup conflict levels.

H_{0d6}: There is no significant relationship between intragroup conflict and the aggregate usage construct.

Each of the sub-hypotheses is tested using the alpha=.15 criteria and the results of the analysis are found in Table 4.11. In this analysis, only two of the six intersections were found to be significant. This resulted in the rejection of null sub-hypotheses 3 and 6 which implies a relationship exists between perceived system success and intragroup conflict levels and a relationship exists between aggregate perceived usage and intragroup conflict levels.

Hypothesis e -- Perceived Usage and Principal Components of Conflict Handling Style Model

In order to begin model development, a principal components analysis is undertaken to describe interrelationships among a set of variables (Freund and Littell, 1991). The number of principal components to extract was determined by the earlier analysis of the ROCI-II instrument which results in the extraction of five factors based on the theoretical number of constructs. Five components was further supported in the confirmatory factor analysis conducted earlier in the chapter. This hypothesis focuses on the interrelationship between conflict handling style and the usage variables. If any of

Table 4.11. Correlation Analysis of Hypothesis d

	Intragroup Conflict
Usage	-.0964 .3801 85
Other's Usage	-.1412 .1975 85
Success	-.2777 .0101 85
Worth	-.0335 .7625 84
Accuracy	-.1320 .2313 84
Aggregate Usage	-.1745 .1147 83

the seven models of usage are found to be significant, the null hypothesis e will be rejected and a relationship will be considered to have been found.

The first model investigates the interrelationships between conflict handling style and the usage construct. The results obtained from this model with five principal components extracted and used as independent variables are found in Tables 4.12.1 through 4.12.6.

In this case, the null hypothesis is rejected, and a conclusion of coefficients of regression significantly different from zero is obtained. While the r^2 measures for the significant models are in the ten to twenty percent range, some relationship between conflict handling style and the usage constructs is certainly present.

Hypothesis f -- Perceived Usage and Principal Components of Attitudes and Perceptions Model

This hypothesis is used to determine if interrelationships exist between the attitudes and perceptions constructs and the usage variables. The purpose is primarily to illustrate the behavior of the instruments in the fashion shown by Lucas in the original model. This hypothesis, if rejected, will lend support to the theoretical model and provide evidence of validity of the overall measures being considered in this study. The results of the principal components regression analysis conducted for hypothesis f are contained in Tables 4.13.1 through 4.13.6.

Of the six models, only the model for others' usage was found to contain an insignificant regression. Thus, the models indicate a rejection of null hypothesis f and the conclusion: attitudes and perceptions are related to the perceived usage of the system.

Additional Models

In order to further establish the relationship of conflict handling styles, attitudes and perceptions, and perceived usage, six additional models were developed using backwards hierarchical regression techniques. This type of modeling provides additional

Table 4.12.1. ANOVA Table for Usage and Conflict Handling Style

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	5	49.47	9.89	2.002	0.0884
Error	73	360.88	4.94		
C Total	78	410.35			

Root MSE	2.22	R-Square	0.1206
Dep Mean	8.37	Adj R-Sq	0.0603
C. V.	26.57		

Model is:

$$U_1 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \beta_5 PC_5 + \varepsilon \quad (18)$$

where:

U_1 = Perceived Usage
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted
PC_5 = Fifth Principal Component Extracted

Table 4.12.2. ANOVA Table For Others' Usage And Conflict Handling Style

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	5	48.58	9.72	2.201	0.0633
Error	73	322.31	4.42		
C Total	78	370.89			

Root MSE	2.10	R-Square	0.1310
Dep Mean	8.04	Adj R-Sq	0.0715
C. V.	26.14		

Model is:

$$U_2 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \beta_5 PC_5 + \varepsilon \quad (19)$$

where:

U_2 = Perceived Usage by Others
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted
PC_5 = Fifth Principal Component Extracted

Table 4.12.3. ANOVA Table For Success And Conflict Handling Style

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	5	17.86	3.57	0.967	0.4437
Error	73	269.63	3.69		
C Total	78	287.49			

Root MSE	1.92	R-Square	0.0621
Dep Mean	7.56	Adj R-Sq	-0.0021
C. V.	25.43		

Model Is:

$$U_3 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \beta_5 PC_5 + \varepsilon \quad (20)$$

where:

U_3 = Perceived System Success
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted
PC_5 = Fifth Principal Component Extracted

Table 4.12.4. ANOVA Table For Worth And Conflict Handling Style

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	5	24.56	4.91	1.565	0.1808
Error	73	229.18	3.14		
C Total	78	253.75			

Root MSE	1.77	R-Square	0.0968
Dep Mean	7.51	Adj R-Sq	0.0349
C. V.	23.60		

Model is:

$$U_4 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \beta_5 PC_5 + \varepsilon \qquad (21)$$

where:

U_4 = Perceived System Worth
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted
PC_5 = Fifth Principal Component Extracted

Table 4.12.5. ANOVA Table For Accuracy And Conflict Handling Style

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	5	32.28	6.46	1.750	0.1341
Error	73	269.32	3.69		
C Total	78	301.59			

Root MSE	1.92	R-Square	0.1070
Dep Mean	7.46	Adj R-Sq	0.0459
C. V.	25.76		

Model Is:

$$U_5 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \beta_5 PC_5 + \varepsilon \qquad (22)$$

where:

U_5 = Perceived System Accuracy
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted
PC_5 = Fifth Principal Component Extracted

Table 4.12.6. ANOVA Table For Aggregate Usage And Conflict Handling Style

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	5	23.57	4.71	1.941	0.0979
Error	73	177.37	2.43		
C Total	78	200.94			

Root MSE	1.56	R-Square	0.1173
Dep Mean	7.78	Adj R-Sq	0.0569
C. V.	20.02		

Model Is:

$$U_6 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \beta_5 PC_5 + \varepsilon \qquad (23)$$

where:

U_6 = Perceived Aggregate Usage
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted
PC_5 = Fifth Principal Component Extracted

Table 4.13.1. ANOVA Table For Usage And Attitudes And Perceptions

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	110.34	27.59	6.890	0.0001
Error	74	296.27	4.00		
C Total	78	406.61			

Root MSE	2.00	R-Square	0.2714
Dep Mean	8.38	Adj R-Sq	0.2320
C. V.	23.88		

Model Is:

$$U_1 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \varepsilon \qquad (24)$$

where:

U_1 = Perceived Usage
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted

Table 4.13.2. ANOVA Table For Others' Usage And Attitudes And Perceptions

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	31.82	7.96	1.736	0.1511
Error	74	339.06	4.58		
C Total	78	370.89			

Root MSE	2.14	R-Square	0.0858
Dep Mean	8.04	Adj R-Sq	0.0364
C. V.	26.63		

Model Is:

$$U_2 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \varepsilon \qquad (25)$$

where:

U_2 = Perceived Usage by Others
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted

Table 4.13.3. ANOVA Table For Success And Attitudes And Perceptions

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	94.81	23.70	9.189	0.0001
Error	74	190.86	2.58		
C Total	78	285.67			

Root MSE	1.61	R-Square	0.3319
Dep Mean	7.53	Adj R-Sq	0.2958
C. V.	21.32		

Model is:

$$U_3 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \varepsilon \quad (26)$$

where:

U_3 = Perceived System Success
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted

Table 4.13.4. ANOVA Table For Worth And Attitudes And Perceptions

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	157.53	39.38	30.314	0.0001
Error	74	96.14	1.30		
C Total	78	253.67			

Root MSE	1.14	R-Square	0.6210
Dep Mean	7.53	Adj R-Sq	0.6005
C. V.	15.13		

Model Is:

$$U_4 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \varepsilon \qquad (27)$$

where:

U_4 = Perceived System Worth
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted

Table 4.13.5. ANOVA Table For Accuracy And Attitudes And Perceptions

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	91.79	22.95	8.251	0.0001
Error	74	205.80	2.78		
C Total	78	297.59			

Root MSE	1.67	R-Square	0.3084
Dep Mean	7.46	Adj R-Sq	0.2711
C. V.	22.37		

Model is:

$$U_5 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \varepsilon \qquad (28)$$

where:

U_5 = Perceived System Accuracy
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted

Table 4.13.6. ANOVA Table For Aggregate Usage And Attitudes And Perceptions

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	86.20	21.55	15.139	0.0001
Error	74	105.34	1.42		
C Total	78	191.55			

Root MSE	1.19	R-Square	0.4500
Dep Mean	7.79	Adj R-Sq	0.4203
C. V.	15.32		

Model is:

$$U_6 = \beta_0 + \beta_1 PC_1 + \beta_2 PC_2 + \beta_3 PC3 + \beta_4 PC_4 + \varepsilon \qquad (29)$$

where:

U_6 = Perceived Aggregate Usage
PC_1 = First Principal Component Extracted
PC_2 = Second Principal Component Extracted
PC_3 = Third Principal Component Extracted
PC_4 = Fourth Principal Component Extracted

evidence of the need for the inclusion of conflict handling styles in the overall framework of the Lucas model.

The earlier tests using principal components regression indicated strong support for Lucas' original conclusion of the relationship of attitudes and perceptions in the model. With this in mind, an overall model which includes attitudes and perceptions as well as conflict handling style is developed, again using perceived usage as a dependent variable. The removal of insignificant items from the model in a backwards fashion provides evidence of the importance of the inclusion of conflict handling style in the model. Models which contain significant coefficients for conflict handling style in the presence of the much stronger attitudes and perceptions coefficients will provide a great deal of insight into the importance of conflict handling styles as components of the Lucas model. Only models which produced significant results which contained conflict handling styles will be reported.

The first model tested is the model of perceived usage. The perceived usage model did not result in a final model which contained a conflict handling style.

The second model is the test of perceived others' usage. This model resulted in the a significant model which contained two coefficients. Table 4.14.1 provides the results of this model. In this case, the conflict handling style retained is the compromising style with the system importance construct. The compromising style's beta coefficient of .98 implies the compromising style plays a greater role than the attitudes and perceptions measurement in the interrelationship with perceived others' usage.

In the model of perceived system success, a significant result was again found. Table 4.14.2 provides the results. In this model, the dominating style emerged as a significant coefficient with the system importance and the organizational impact constructs. In this model the beta coefficient of the dominating style is not as strong as in the preceding model but is still a significant component of the regression model.

Table 4.14.1. Perceived Other's Usage Hierarchical Regression

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	2	45.15	22.58	5.27	0.0073
Error	73	312.64	4.28		
Total	75	357.79			

Intercept	1.29	R-Square	.1262
System Importance	0.86		
Compromising	0.98		

Model is:

$$U_2 = 1.29 + 0.86SI + 0.98COM + \varepsilon \qquad (30)$$

where:

U_2 = Perceived Others' Usage
SI = System Importance
COM = Compromising Style Score

Table 4.14.2. Perceived System Success Hierarchical Regression

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	3	93.25	31.08	12.07	0.0001
Error	72	185.42	2.58		
Total	75	278.67			

Intercept	-2.15	R-Square	.3346
System Importance	1.56		
Organizational Impact	0.72		
Dominating	0.50		

Model is:

$$U_3 = -2.15 + 1.56SI + 0.72OI + 0.50DOM + \varepsilon \quad (31)$$

where:

U_3 = Perceived System Success
SI = System Importance
OI = Organizational Impact
DOM = Dominating Style

The next model involves the perceived system worth. Table 4.14.3 provides the results of this regression analysis. In the worth model, integrating and compromising styles emerged as significant coefficients with system importance and organizational impact. The beta coefficients of the conflict handling style exceed the values of two of the three attitudes and perceptions in the model which is quite strong (r^2 = .71).

In the model of perceived system accuracy, Table 4.14.4 provides results from the regression. Again, system importance and the compromising style emerge as significant components of the model. The compromising style is not as great a coefficient as system importance, but nevertheless provides a significant component of the accuracy model.

In the final model of aggregate perceived usage, table 4.14.5 provides the results. In this model the compromising style and system importance constructs once again emerge as significant components with the system importance construct being the strongest.

In each of the above cases, some conflict handling styles emerged as significant components of the regression models to predict usage. This type of analysis provides a great deal of evidence of the appropriateness of the rejection of the null hypotheses presented in this section and the need for the inclusion of conflict handling styles as components of the Lucas model.

SYNOPSIS

In this chapter, hypotheses a, b, c, d, e, and f were tested to determine if the null hypotheses might be rejected. In all of the cases, the null hypotheses were rejected after review of the sub-hypotheses described above. It would seem, based upon the findings in this chapter, there is sufficient evidence to warrant extensive research in the conflict - conflict handling style arena for information systems.

Certainly, the relationships found between conflict handling style and usage are not overwhelming, but relationships were indeed found to exist in the users sampled. Strong relationships were found to exist between the attitudes and perceptions constructs and the usage items which implies the measurement is reliable and consistent with Lucas' original findings. Further evidence of these relationships was provided through the use of backwards hierarchical regression analysis of the attitudes and perceptions constructs with the conflict handling styles and usage. Table 4.15 provides a review of the hypotheses tested and the conclusion reached based on the statistical analysis earlier in the chapter.

Thus, Chapter IV has provided a review of the hypotheses and the statistical results of the hypothesis testing. In Chapter V, a discussion of the findings will be undertaken.

Table 4.14.3. Perceived System Worth Hierarchical Regression

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	4	174.05	43.51	43.58	0.0001
Error	71	70.89	1.00		
Total	75	244.95			

Intercept	-3.74	R-Square	.7106
System Importance	2.72		
Organizational Impact	0.42		
Integrating	-0.79		
Compromising	0.82		

Model is:

$$U_4 = -3.74 + 2.72SI + 0.42OI - 0.79INT + 0.82COM + \varepsilon \quad (32)$$

where:

U_4	=	Perceived System Worth
SI	=	System Importance
OI	=	Organizational Impact
INT	=	Integrating Style
COM	=	Compromising Style

Table 4.14.4. Perceived System Accuracy Hierarchical Regression

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	2	96.36	48.18	17.90	0.0001
Error	73	196.52	2.69		
C Total	75	292.88			

Intercept	-2.18	R-Square	.3290
System Importance	1.92		
Compromising	0.67		

Model is:

$$U_5 = -2.18 + 1.92SI + 0.67COM + \varepsilon \quad (33)$$

where:

U_5 = Perceived System Accuracy
SI = System Importance
COM = Compromising Style

Table 4.14.5. Perceived Aggregate Usage Hierarchical Regression

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	2	92.77	46.38	34.68	0.0001
Error	73	97.63	1.34		
C Total	75	190.40			

Intercept	-1.56	R-Square	.4872
System Importance	1.92		
COM	0.59		

Model is:

$$U_6 = -1.56 + 1.92SI + 0.59COM + \varepsilon \quad (34)$$

where:

U_6 = Perceived Aggregate Usage
SI = System Importance
COM = Compromising Style

Table 4.15. Summary of Hypothesis Testing

Hypothesis	Failure to Reject H_0	Rejection of H_0
a -- Conflict Handling Style and Attitudes and Perceptions		✔
b -- Conflict Handling Style and Perceived Usage		✔
c -- Intragroup Conflict and Attitudes and Perceptions		✔
d -- Intragroup Conflict and Perceived Usage		✔
g -- Perceived Usage and Principal Components of Conflict Handling Style Model		✔
h -- Perceived Usage and Principal Components of Attitudes and Perceptions Model		✔

REFERENCES FOR CHAPTER IV

Bartlett, M. S. 1954. "A further note on the multiplying factors for various χ^2 approximations in factor analysis," *Journal of the Royal Statistical Society*, (16), pp. 296-298.

Bentler, P. M., and Bonnett, D. G. 1980. "Significance tests and goodness of fit in the analysis of covariance structures," *Psychological Bulletin*, (88), pp. 588-606.

Berenson, M. L., D. M. Levine, and M. Goldstein. 1983. *Intermediate Statistical Methods and Applications*, Englewood Cliffs, NJ: Prentice-Hall, Inc.

Bollen, K.A. 1988. *Structural Equations with Latent Variables*. New York, NY: John Wiley and Sons.

Cronbach, L. J. 1951. "Coefficient alpha and the internal structure of tests," *Psychometrika*, (6), pp. 297-334.

Dillon, W. R., and M. Goldstein. 1984. *Multivariate Analysis: Methods and Applications*. New York, NY: John Wiley & Sons.

Freund, R. J., and R. C. Littell. 1991. *SAS System for Regression*. Cary, NC: SAS Institute Inc.

Horn, J. L. 1965. "A rationale and test for the number of factors in factor analysis," *Psychometrika*, (30:2), pp. 179-185.

Nunnally, J. C., and I. H. Bernstein. 1994. *Psychometric Theory, Third Edition*. New York, NY: McGraw-Hill, Inc.

Parker, S. J. Casey, J. M. Ziriax, and A. Silberberg. 1988. "Random monotone data fit simple algebraic models: Correlation is not confirmation," *Psychological Bulletin*, (104), pp. 417-423.

Rahim, M. A. 1992. *Managing Conflict in Organizations, Second Edition*. Westport, CT: Praeger.

Rahim, M. A. 1983. "A measure of styles of handling interpersonal conflict," *Academy of Management Journal*, (26:3), pp. 368-376.

SAS Institute. 1994. *SAS/STAT User's Guide, Version 6, Fourth Edition, Volume 1*. Cary, NC:SAS Institute Inc.

Wheaton, B. B., B. Muthen, D. F. Alwin, and G. F. Summers. 1977. "Assessing reliability and stability in panel models," *Sociological Methodology, D. R. Heise (ed.)*, San Francisco:CA, Jossey-Bass.

Chapter V

INTRODUCTION

Chapter V provides a discussion of the findings described in Chapter IV. The discussion is developed over five sections. The first section of the chapter discusses the implications of the hypotheses testing conducted in Chapter IV. Each of the six hypotheses tested will be discussed in turn. The second section discusses the implications of the findings on managers and organizations and how the research may be used by those organizations to improve the likelihood of successful system implementation. The third section of this chapter deals with limitations involved in generalizing this research to business and the limitations of the statistical methodologies, sample size, etc., which were encountered while conducting the research. The final section of the chapter describes the future path this research will take, including further studies and other issues emergent from this research.

DISCUSSION OF FINDINGS

Hypothesis a -- Conflict Handling Styles and Attitudes and Perceptions

The strongest findings for this hypothesis are the emergence of the relationship of the integrating style of conflict handling and two of the attitudes and perceptions constructs. In a peer/peer environment[16], the integrating style should be evident as a powerful force, and this style is often predominant in handling situations where (Rahim, 1992):

1) Issues are complex.
2) Synthesis of ideas is needed to come up with better solutions.

[16] As was discussed in Chapter III, the conflict handling style measures may be conducted from different perspectives, Superior-Subordinate, Peer-Peer, or Subordinate-Superior. Rahim found different results from various organizational perspectives suggesting the CHS measures may be altered as the organizational view changes. It may be further suggested that Lucas' model also has multiple perspectives depending upon the level of the organization being considered.

3) Commitment is needed from other parties for successful implementation.
4) Time is available for problem solving.
5) One party alone cannot solve the problem.
6) Resources possessed by different parties are needed to solve their common problems.

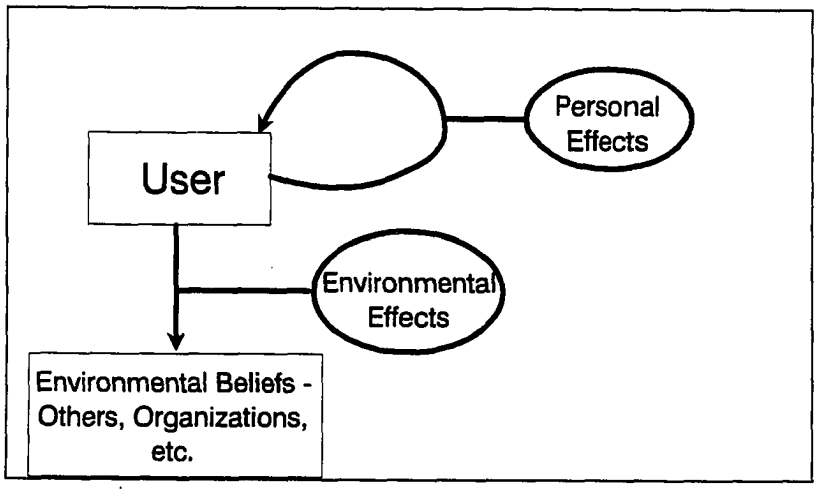
Thus, the integrating style is particularly prevalent when users are faced with the uncertainty of a new implementation and, with respect to item 3 above, where perception of the commitment of others to the project is necessary. This item correlated positively with the system importance construct and the job/performance concerns construct.

This same pattern of correlation was also found for the dominating style and the compromising style, although neither result was as strong as was the integrating style correlation. The dominating style may emerge for the reason stated by Rahim (1992) that the dominating style may be most effective when the issue is important to the individual. The compromising style is often used when the integrating or dominating style fails to resolve the conflict.

This leads to an interesting observation regarding the attitudes and perceptions constructs which were developed. The system importance and job/performance concerns items primarily focus on the internal belief structure of the user, e.g., how the implementation of the system affects the user personally, while the interaction concerns and organizational impact items assess the user's perception regarding environmental changes which may occur. Figure 5.1 illustrates this relationship. Thus, a dual focus for the user attitudes and perceptions is suggested in relationship to Lucas' model of user attitudes and behaviors.

The obliging style was found to be positively correlated with the organizational impact (environmental) item. With this additional evidence, Figure 5.1 seems to be realistic. Rahim (1992) indicates the obliging style as being appropriate when issues are more important to the other party. It certainly may be the case; the users are enacting different conflict handling styles to deal with the many conflicts in the environment, and

Figure 5.1. The Dual Focus



the obliging style may be functional in terms of acceptance of the system from an organizational perspective as opposed to a purely personal perspective.

Thus, in the case of Hypothesis a, the outcome may imply not the emergence of a given conflict handling style to deal with implementation, but two different focuses, the personal and the environmental focus of attitudes and perceptions. Therefore, the three main styles for dealing with the conflict, that is, conflict regarding the pending implementation of a new system, are the three styles indicated by Rahim as best for dealing with that situation: integrating, dominating, and compromising styles.

In a peer/peer situation, the interpersonal effects of the system being implemented may give rise to little or no environmental conflict as the users are more concerned with the effects on them and their workplace than with the effect of their peer/peer relationships. This would explain the lack of any styles being significantly related to the interpersonal attitudes and perceptions.

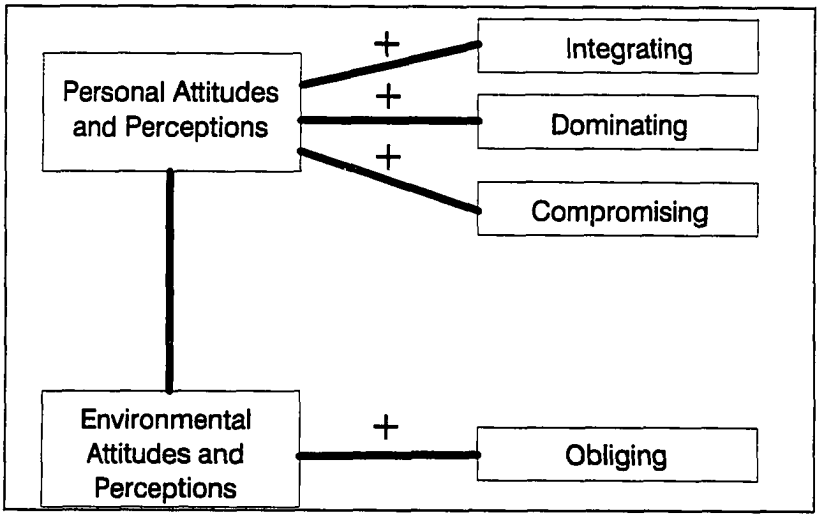
Obviously, the strongest relationships are the personal components. Users must find ways to reconcile the increased levels of conflict arising from changes in the environment. The users with best developed conflict handling styles (specifically, integrating, dominating, and compromising styles) provide the highest (best) reports of the benefits of the systems to them personally. Integration and domination appear to be the best styles for dealing with this type of conflict, but the compromising style may be seen as a fall back position.

The null hypothesis a was rejected and the conclusion is to include the conflict handling style an effect on attitudes and perceptions. The model for this component is found in Figure 5.2.

Hypothesis b -- Conflict Handling Styles and Perceived Usage

This hypothesis focuses on the management of conflict (through the appropriate conflict handling style) in relation to the user's perception of system usage. There were

Figure 5.2. Attitudes and Perceptions and CHS



five different usage constructs and an aggregate usage construct used in this analysis as well as the five conflict handling styles.

The compromising and dominating styles are found to be the strongest positive correlations in this hypothesis. Each of the two styles was found to be significant in every usage measure except one. The dominating style was not related to the accuracy measure and the compromising style was not related to the success measure. Both measures were significantly correlated with the aggregate measure. The integrating measure was not as strong, but was correlated with two of the first order measures, usage and accuracy, and the aggregate construct.

As was seen in hypothesis a, the obliging and avoiding styles seem to be more environmental in nature and were only found to be related to the usage measure "*others' usage*". In this case, unlike hypothesis a, both the obliging and avoiding styles are found to be related to the environmental concern of others' usage.

The predominant personal conflict handling styles appear to be the integrating, compromising, and dominating styles. Greater ability to utilize these styles (i.e., higher scores) should result in reduced levels of conflict in the work environment and subsequently better abilities to integrate and utilize change (e.g., a new system) and to resolve the conflicts associated with the change. These abilities lead to a heightened sense of usability and perceived usefulness of the system being implemented. In these cases, the users had not actually worked with the system, but had merely heard about it thus they had no idea of the true quality of the system or the system's actual usefulness, but still conclusions regarding the quality and usefulness of the system were reached by the users. This may be the essence of Lucas' belief concerning the detrimental effects of destructive conflict on system success.

In the usage category, the split between environmental and personal is not as clear. The personal conflict handling styles overlap with the environmental styles. Yet, as before, the environmental styles showed almost no relationships with any of the personal

usage items. As the usage items may be autonomous and not seen in terms of the personal and environmental relationships, this lack of emergence of the two separate effects is not surprising.

General Observations Regarding Hypotheses a & b

The results obtained from analysis of hypotheses a and b are encouraging regarding the inclusion of conflict handling style in the Lucas model. Certainly, the styles are causing various levels of conflict to be managed or mismanaged, particularly with regard to the new conflict emerging from the pending implementation of a new system. It would appear at this point that the focus on personal effects vs. environmental effects may also emerge as important in the analysis of user behavior. These clues from conflict handling style differences may imply users have different perspectives on the personal and environmental effects of system implementation. These perspectives may result in the need for analysis of new types of conflict (e.g. user vs. system) which should be controlled for and managed by the organization.

This may also have implications for the study of other constructs which may be considered from the personal vs. environmental perspective. Certainly success as a measure of viability is an environmental measure as opposed to satisfaction (a common surrogate for viability) which focuses on the personal issues regarding the system.

Hypothesis c -- Intragroup Conflict and Attitudes and Perceptions

Hypothesis c changes the focus of the discussion from the conflict handling style relationships with the various constructs to the effect of intragroup (user) conflict among the peer groups. The findings for this case are interesting as the environmental vs. personal situation is once again evident.

This type of conflict is the conflict experienced by the users arising from incidents among the users (and perhaps conflict between the users and the systems they use). The issue is how does this conflict affect the attitudes and perceptions of the users? The

only significant correlations are with the environmental constructs, interaction concerns, and organizational impact. A strong negative correlation was found with the organizational impact construct, while a weak positive correlation was detected with interaction concerns.

These findings would imply higher levels of conflict actually resulting in better attitudes towards the system's effects on inter-personal relationships (interaction) but worse perceptions of the effects of the system on the organization (organizational impact). This type of situation may be the result of the user's interpretation of the impact of the new system. Since the only conflict measured is conflict within the user's peer group, this result may be indicative of the U-shaped conflict curve (Rahim and Bonoma, 1979), but it is possible this curve differs for different perspectives on the organization. A given level of conflict may be more optimal for the user's local perspective (interaction concerns), and subsequently conflict is improving the user's view of how the implementation will affect his/her relationships with peers, yet the conflict level is destructive for a different perspective (the impact on the organization). In this light, the impact of conflict is very important as it may cause attitudes to improve or decline based on the situation, but regardless, the conflict level is quite important to the environmental attitudes and perceptions constructs.

It was surprising that relationships found with the personal attitudes and perceptions were very weak. This may imply a different type of conflict is affecting the users' personal attitudes and perceptions. This may be the conflict between user and system. If this is the case, the results indicate more research is needed to determine the nature of this conflict. The literature would lead us to believe conflict must certainly exist in this situation, but the intragroup measure was not related to the personal attitudes and perceptions.

Hypothesis d -- Intragroup Conflict and Perceived Usage

Hypothesis d resulted in a moderately strong and a weak negative correlation with the success usage measure and the aggregate usage constructs, respectively. The remainder of the correlation coefficients in the usage analysis were also in the negative direction despite their lack of statistical significance. This result is more in line with the theoretical expectations of the conflict model.

The negative effects of conflict are well documented and it is accepted that heightened levels of conflict may result in attitudinal decline among the users (Lucas, 1975). Higher conflict levels among the users resulted in lower success perceptions and lower aggregate usage estimates for the system.

Despite the insignificance of the remaining usage constructs in relation to intragroup conflict, all of the correlations are in the expected directions. The evidence here is clear, there is a negative effect of high levels of intragroup conflict on the users' perceptions regarding usage of the system.

Hypothesis e -- Perceived Usage and Principal Components of Conflict Handling Style

In the case of hypothesis e, six separate sub hypotheses were tested regarding the inter-relationship of the usage measures (dependent) and the conflict handling styles. The hypotheses were tested using principal components regression techniques. This technique involves the removal of all correlation from the independent values (thus eliminating multicollinearity) and the extraction of principal components in order from the largest variance to the smallest. In this manner, further insight may be gained into the relationship of conflict handling style and usage.

Table 5.1 provides a summary of the results obtained with the six principal components regression analysis. Four of the six models were found to be significant and had r-squares greater than 0.10. This would imply the conflict handling style effects are indeed causing change in the usage measures: usage, others' usage, accuracy, and aggregate usage. The model with others' usage (environmental) provides the largest

Table 5.1. Summary of Hypothesis e Results

Model	F	p-value	r^2
Usage vs. CHS	2.002	.0884	.1206
Other's Usage vs. CHS	2.201	.0633	.1310
Success vs. CHS	0.967	.4437	.0621
Worth vs. CHS	1.565	.1808	.0968
Accuracy vs. CHS	1.750	.1341	.1070
Aggregate Usage vs. CHS	1.941	.0979	.1173

effect which may provide further evidence of the dual focus of conflict handling style effects and perceptions (the personal vs. environmental concept discussed earlier).

Certainly, the r-square values obtained do not indicate a great deal of effect, but there is a ten to fifteen percent change in the user's perception based on the manipulation of their conflict handling style. This results from the user's ability to manage conflict arising from all sources (including the user vs. system conflict).

The null hypothesis e was rejected, and based on the four significant models a relationship between CHS and perceived usage is believed to exist in this data. This provides support for the issues discussed earlier in the section on hypothesis b.

Hypothesis f -- Perceived Usage and Principal Components of Attitudes and Perceptions

Hypothesis f tests the relationship of the various usage constructs and the attitudes and perceptions of the users, again using principal components regression techniques. This hypothesis was developed to lend credence to the overall theoretical model and provide support for the data matching the theoretical model.

Table 5.2 provides a summary of the results obtained in this analysis. Again, the dual focus indication appears. All of the models of attitudes and perceptions are strong with the exception of the environmental function, which is insignificant. The implication is the attitudes and perceptions and usage constructs fit the theoretical model as expected.

General Discussion

The results obtained lend support to the idea of conflict handling style and conflict affecting the perceptions of users of systems regarding new systems to be implemented. The emergence of the dual focus of personal vs. environmental models may prove to be of interest to systems developers as well.

There would certainly appear to be support for the inclusion of conflict handling style and intragroup conflict as effects in Lucas' model of user behavior based on this

Table 5.2. Summary of Hypothesis f Results

Model	F	p-value	r^2
Usage vs. A&P	6.890	.0001	.2714
Other's Usage vs. A&P	1.736	.1511	.0858
Success vs. A&P	9.189	.0001	.3319
Worth vs. A&P	30.314	.0001	.6210
Accuracy vs. A&P	8.251	.0001	.3084
Aggregate Usage vs. A&P	15.139	.0001	.4500

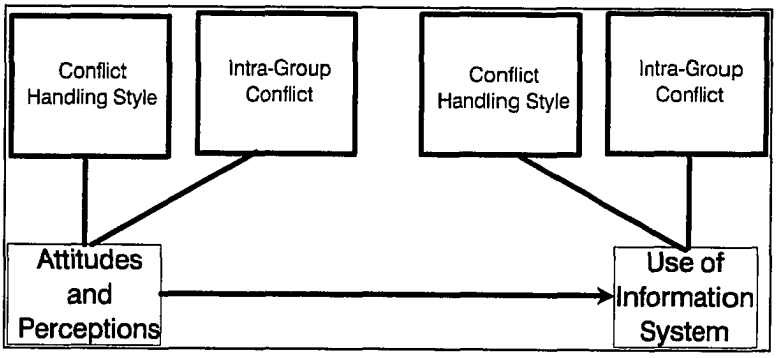
data. Figure 5.3 provides an overview of the model developed from this analysis. This model is a revision to Lucas' model and includes both intragroup conflict and users' conflict handling styles as components of the model.

The dual focus indications should not affect the conflict handling styles, but may provide different approaches to the measurement and management of conflict in the user setting. The diverse results for intragroup conflict relationships may be evidence of the need for a modified measure of conflict when attempting to manage conflict in the user's environment. From this, conflict may arise over environmental issues, such as the effect a system has on the organization, as well as conflict arising from personal issues, such as the effect of the system on the user's job. If this is the case, and the evidence here indicates that it is, the measures may need be revised for use in the information systems setting to measure conflict from the different perspectives. In addition, the need to observe conflict arising between the user and the system may also provide an interesting area for research. This type of conflict may also contain personal and environmental issues.

The dual focus indications may also give rise to new dimensions of conflict handling style research by adding dimensions to the use of conflict handling style. If two dimensions, concern for environmental issues and concern for personal issues, are mapped, it may be that users' conflict handling styles will need to be adapted depending upon the concerns of the user (e.g., a dominating style is most appropriate in dealing with environmental conflict, while an integrating style is most appropriate for personal conflicts).

The management of conflict may also provide information to system designers and information systems departments who must manage systems in the user's environment. The failure to manage the conflict which emerges between the computing department and the users of the systems must also be managed. This type of conflict gives rise to an additional focus of conflict handling style and conflict, the

Figure 5.3 Lucas' Revised Model



focus of intergroup conflict. This intergroup conflict may manifest itself from different organizational perspectives (e.g., peer/peer, superior/subordinate, etc.) depending upon the empowerment of the various groups and their level in the organization. One would certainly expect different relationships for a system installed for vice presidents of a bank than would exist for the conflict relationship in a system installed for line employees in a factory.

All in all, this study provides evidence of the importance of the management of conflict not only in managerial situations (an established fact), but in system implementation situations as well. As Lucas indicated, conflict may influence the behavior of users. This study provides empirical support for this statement and the inclusion of conflict and conflict handling style in the Lucas model of user behavior.

ORGANIZATIONAL IMPLICATIONS

The main implication of the data is the implied need for conflict management techniques in all settings. Through training, users may learn to implement the appropriate conflict handling styles in given situations and thus reduce the overall level of conflict which arises in the work environment. The conflict between user and machine (which is only alluded to in this study), may also need to be managed if it is shown to exist in later research.

Organizations (particularly the information systems function) need to be made aware of the danger of destructive conflict. The lack of interest and attention to these environmental and personal factors may result in unforeseen system failures due not to the lack of capability on the part of systems developers, but due to external, controllable effects.

In the case of attitudes and perceptions of the users, this study supports the idea that the users' perceptions may have positive or negative effects on the system's success. Observant organizations will take heed and monitor the user's beliefs before

undertaking any sort of change. This type of proactive behavior may empower the information systems management to take action to change the belief structure before any new project is put in place. In this manner, the negative effects of attitude and perception may be overcome regardless of the general levels of conflict in the organization.

The final implication of this work is a call for more diligence in the attempt to measure system worth. It is obvious from the results here that, as information systems managers attempt to measure the "worth" of a system (whether it be through surrogates like satisfaction, perceived usefulness, or some other measure), the managers must be aware of the influence of environmental factors, such as conflict, which may cloud the users' perception of the issue, as well as personal issues (such as conflict handling style) which may affect the users' ability to deal with the situation. While the difficulty of controlling all environmental factors in the field is great, the need for awareness and monitoring of known confounds, such as conflict, should be carefully reviewed before any such attempt to measure system worth is made.

LIMITATIONS OF THE RESEARCH

As with any sample survey research, several limitations exist. The most noticeable of the limitations is the lack of ability to control for situational and procedural variables in the data collection stage. As the surveys are mailed, the variation in the instructions (or lack of instruction) by the administrator may affect the participant, particularly with regards to the completion rate of the surveys. Likewise, conditions measured in this particularly study reflect a time-slice of the work environment and not a longitudinal overview of the environment. This may lead to extreme responses or not reflect accurately the true environment which is experienced by the users.

The major limitation of this study is the small sample size. It is hoped the six companies which participated in the study are representative of a broad range of

industries and managerial styles, but due to the small sample it is certainly possible a bias may exist in the data. Due to the diversity of the subjects, it is not likely this is the case, but it is certainly possible.

An additional limitation of this study is the lack of non-self-reported data as a means of confirmation. The issue of mono-methods variance is certainly evident in this study, but due to the difficulty in measuring actual usage as well as the lack of any objective measures of conflict, conflict handling style, and perceptions, it is difficult to overcome this problem. It is hoped through the use of multiple usage measures and the general quality of the ROCI-II instrument, this research is moved upwards along the continuum from single-trait-single-method research towards the ideal of multi-trait-multi-method researches (Avolio, Yammarino, Bass, 1991). Yet, this issue remains a limitation of this particular study.

FUTURE RESEARCH ISSUES

A great number of research issues emerge from this paper. This section discusses several of the ideas which will be pursued as a result of this project as well as several issues not resolved.

One of the main issues of the research is to determine if there are conflict and conflict handling style effects evident in the other constructs in the Lucas model. It may be that conflict and conflict handling style should be considered as a global effect rather than an isolated instance. In this case, the need for conflict management in the information system environment is even more critical.

The next project upon completion of this study is the undertaking of an analysis of the effects of conflict on users' attitudes and perceptions in a longitudinal fashion. As is evidenced here, conflict may have negative effects in a given instance, but theoretically this conflict may have a continuing detrimental effect longitudinally on the attitudes and perceptions of the users. Identification and study of user groups with high

and low levels of conflict to determine if attitudes and perceptions regarding systems change over time will be attempted.

An additional immediate project is the further study of the dual focus indication (environmental vs. personal) found in the study. The development of environmental conflict management as well as personal conflict management may prove to provide additional information regarding the users' belief system and the effects of conflict on individual users regarding a given information system.

Finally, the development of measures of actual usage and the exploration of perception versus reality are additional items of interest which arise from this study. It is hoped the perceptions of the users are affecting the reality of usage and certainly the theory indicates this, but empirical support for this indication would lend support to the behavioral study of users.

The future of conflict management, conflict handling style, and their effect on information systems management is the primary stream of research emergent from this exploratory research. This study has provided empirical support for several theoretical notions which had not previously been tested. Many years of research in this area will be necessary before a full development of the nature of conflict handling styles, conflict, and user behavior may be understood, but the need for understanding of the underlying personal and environmental aspects of user behavior is critical if reliable measure of system "worth" are to be developed.

Thus, the inclusion of the issues discussed here in the model of user behavior provides a theoretical building block upon which other research may be based. The empirical evidence regarding conflict and conflict handling style as effects in the Lucas model indicate a continual need for the development of research into user behavior as well as the need for diligence in the management of systems implementation if system success is to be achieved.

SYNOPSIS

This chapter has provided a discussion of the findings which were developed in Chapter IV. The findings support the idea of both intragroup conflict and conflict handling styles being components of the Lucas model of user behavior. As a result of the findings, further research in this area may be rooted in a theoretical framework of behavior in MIS. There are many aspects to the model of user behavior. Intragroup conflict and conflict handling style represent only a small contribution to the overall model, but as each component of the model emerges, a better understanding of user behavior and subsequent user reaction to systems may be developed.

REFERENCES FOR CHAPTER V

Avolio, B. J., F. J. Yammarino, B. M. Bass. 1991. "Identifing common methods variance with data collected from a single source: An unresolved sticky issue," *Journal of Management*, (17:3), pp. 571-587.

Lucas, H. C. 1975. *Why Information Systems Fail*, New York, NY: Columbia University Press.

Rahim, M. A. 1992. *Managing Conflict in Organizations, Second Edition*, Westport, CT: Praeger.

Rahim, M. A., and T. V. Bonoma. 1979. "Managing organizational conflict: A model for diagnosis and intervention," *Psychological Reports* ,(44), pp. 1323-1344.

Bibliography

Ackoff, R. L. 1967. "Management misinformation systems," *Management Science*, (14:4), pp. B147-B156.

Adams, D. A., R. R. Nelson, and P. A. Todd. 1992. "Perceived usefulness, ease of use, and usage of information technology: a replication," *MIS Quarterly*, (16:2), pp. 227-247.

Allison, G. T. 1969. "Conceptual models and the Cuban missile crisis," *The American Political Science Review*, in *The Strategy Process: Concepts, Contexts, and Cases*, ed. J.B. Quinn, H. Mintzberg, and R. M. James, Englewood Cliffs, NJ: Prentice Hall, pp. 314-323.

Allport, G. W. 1955. *Becoming*, New Haven, CT: Yale University Press.

Amoroso, D. L., and P. H. Cheney. 1991. "Testing a causal model of end-user application effectiveness," *Journal of Management Information Systems*, (8:1), pp. 63-89.

Angell, R. C. 1965. "The sociology of human conflict," In E. McNeil (ed.), *The Nature of Human Conflict*, Englewood Cliffs, NJ: Prentice-Hall.

Athos, A. G. and R. E. Coffey. 1968. *Behavior in Organizations: A Multidimensional View*, Englewood Cliffs, NJ: Prentice-Hall, Inc.

Avolio, B. J., F. J. Yammarino, B. M. Bass. 1991. "Identifing common methods variance with data collected from a single source: An unresolved sticky issue," *Journal of Management*, (17:3), pp. 571-587.

Bailey, J. E., and S. W. Pearson. 1983. "Development of a tool for measuring and analyzing computer user satisfaction," *Management Science*, (29:5), pp. 530-545.

Barki, H., and J. Hartwick. 1994. "User participation, conflict, and conflict resolution: The mediation roles of influence,", *Information Systems Research*, (5:4), pp. 423-437.

Baron, R. A. 1989. "Personality and organization conflict: Effects of the Type A behavior pattern and self-monitoring," *Organizational Behavior and Human Decision Processes*, (44) pp. 281-296.

Baroudi, J. J., M. H. Olson, and B. Ives. 1986. "An empirical study of the impact of user involvement on system usage and information satisfaction," *Communications of the ACM*, (29:3), pp. 232-238.

Baroudi , J. J., and W. J. Orlikowski. 1988. "A short-form measure of user information satisfaction: A psychometric evaluation and notes on use," *Journal of Management Information Systems*, (4:4), pp. 44-59.

Bartlett, M. S. 1954. "A further note on the multiplying factors for various χ^2 approximations in factor analysis," *Journal of the Royal Statistical Society*, (16), pp. 296-298.

Bernard, J. 1950. "Where is the modern sociology of conflict?" *American Journal of Sociology*, (56:1), pp. 11-16.

Berenson, M. L., D. M. Levine, and M. Goldstein. 1983. *Intermediate Statistical Methods and Applications*, Englewood Cliffs, NJ: Prentice-Hall, Inc.

Bisno, H. 1988. *Managing Conflict*, Newbury Park, CA:Sage.

Blake, R. R., and J. S. Mouton. 1964. *Managerial Grid*, Houston, TX:Gulf Publishing.

Boulding, K. 1962. *Conflict and Defense: A General Theory*, New York, NY: Harper.

Boulding, K. 1957. "Organization and conflict," *Journal of Conflict Resolution*, (1:2), pp. 122-134.

Bowen, W. 1986. "The puny payoff from office computers," *Fortune*, May 26, pp. 20-24.

Buntzman, G. F., and D. White. 1994. "Ethical relativism, conflict, and performance in a strategic management setting," *Journal of Social Behavior and Personality*, (8:4), pp. 567-586.

Buntzman, G. F. and D. White. 1991. "Ethical relativism, conflict, and performance in a simulated industry", *International Association for Conflict Management Conference*, Den Dolder, Netherlands.

Cartwright, D., and A. Zander (eds.). 1968. *Group Dynamics: Research and Theory*, New York, NY: Harper & Row.

Carver, T. N. 1915. *Essays in Social Justice*, Cambridge, MA: Harvard University Press.

Carver, T. N. 1908. "The basis of social conflict," *American Journal of Sociology*, (13), pp. 628-637.

Chandler, A. D. 1962. *Strategy and Structure: Chapters in the History of the Industrial Enterprise*, Cambridge, MA: M.I.T. Press.

Chanin, M. N., and J. A. Schneer. 1984. "A study of the relationship between Jungian personality dimensions and conflict-handling behavior," *Human Relations*, (37), pp. 863-879.

Chase, S. 1951. *Roads to Agreement*, New York, NY: Harper.

Cheney, P. H., R. I. Mann, and D. L. Amoroso. 1986. "Organizational factors affecting the success of end-user computing," *Journal of Management Information Systems*, (3:1), pp. 65-80.

Cooley, C. H. 1918. *Social Process*, New York, NY: Scribner's.

Coser , L. A. 1968. "Conflict: III. Social Aspects," In D. L. Sills (Ed.), *International Encyclopedia of the Social Sciences* (3), New York, NY: Crowell Collier and Macmillan.

Coser, L. A. 1956. *The Functions of Social Conflict*, Glencoe, IL: The Free Press.

Cronbach, L. J. 1951. "Coefficient alpha and the internal structure of tests," *Psychometrika*, (6), pp. 297-334.

Cyert, R. M., and J. G. March. 1963. *A Behavioral Theory of the Firm*, Englewood Cliffs, NJ: Prentice-Hall.

Dahrendorf, R. 1958. "Toward a theory of social conflict," *Journal of Conflict Resolution*, (2:2), pp. 170-183.

Davis, F. D. 1989. "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quarterly*, (13:3), pp. 319-340.

Davis, G. B. and M. H. Olson. 1985. *Management Information Systems: Conceptual Foundations, Structure, and Development*, New York, NY: McGraw-Hill Book Company.

Dess, G.G., and N. K. Origer. 1987. "Environment structure, and consensus in strategy formulation: a conceptual integration," *Academy of Management Review*, (12), pp. 313-330.

Deutch, M. 1969. "Conflicts: Productive and destructive," *Journal of Social Issues*, (25:1), pp. 7-41.

Dickson, G. W. 1981. "Management information systems: evaluation and status," *Advances in Computers*, (20), pp. 1-37.

Dillon, W. R., and M. Goldstein. 1984. *Multivariate Analysis: Methods and Applications*. New York, NY: John Wiley & Sons.

Doll, W., and G. Torkzadeh. 1988. "The measurement of end-user computing satisfaction: Theoretical and methodological issues," *MIS Quarterly*, (15:1), pp. 5-10.

Eshleman, D. E. 1982. *The Relationship Between Innovation and the Styles of Handling Interpersonal Conflict*. Unpublished MBA thesis, Youngstown State University, Ohio.

Fayol, H. 1949. *General and Industrial Management*, London: Pitman.

Fayol, H. 1916. *General and Industrial Management*, London: Pitman.

Fink, C. F. 1968. "Some conceptual difficulties in the theory of social conflict," *Journal of Conflict Resolution*, (11:4), pp. 412-460.

French, J. R. P., and B. H. Raven. 1959. "Organizational stress and individual strain, In A. J. Marrow (Ed.), *The Failure of Success*, New York, N.Y.:AMACOM.

Freund, R. J., and R. C. Littell. 1991. *SAS System for Regression.* Cary, NC: SAS Institute Inc.

Galtung, J. 1965. "Institutionalized conflict resolution: a theoretical paradigm," *Journal of Peace Research,* (2:4), pp. 348-396.

Ginzberg, M.J. 1981. "Early Diagnosis of MIS Implementation failure: promising results and unanswered questions," *Management Science,* (27:4), pp. 459-478.

Ginzberg, M.J. 1978. "Finding an adequate measure of OR/MS effectiveness," *Interfaces,* (8:4), pp. 59-62.

Gorry, G. A., and M. S. Scott-Morton. 1971. "A framework for management information systems," *Sloan Management Review,* (13:1), pp. 55-71.

Gray, B. 1989. *Collaborating: Finding Common Ground for Multiparty Problems.* San Diego, CA: Jossey-Bass.

Gulick, L. H., and L. Urwick (eds.). 1937. *Papers on the Science of Administration,* New York, NY: Institute of Public Administration, Columbia University.

Hager, D. H., C. Y. Glock, and I. Chein. 1956. "Religious conflict in the U.S.," *Journal of Social Issues,* (12:3).

Hall, J. 1969. *Conflict Management Survey: A Survey on One's Characteristic Reaction to and Handling Conflicts Between Himself and Others,* Canoe, TX: Teleometrics International.

Hall, W. K. 1980. "Survival Strategies in a Hostile Environment," in *The Strategy Process,* eds. J. B. Quinn, H. Mintzberg, and R. M. James, Englewood Cliffs, NJ: Prentice-Hall, Inc. pp. 569-576.

Henderson, J. C., and M. E. Treacy. 1986. "Managing end-user computing for competitive advantage," *Sloan Management Review,* (27:2), pp. 3-14.

Hoskisson, R. E., and M. A. Hitt. 1990. "Antecedents and performance outcomes of diversification: a review and critique of theoretical perspectives," *Journal of Management,* (16), pp. 461-509.

Ives, B., M. H. Olson, and J. J. Baroudi. 1983. "The measurement of user information satisfaction," *Communications of the ACM,* (28:10), pp. 785-793.

Jamieson, D. W., and K. W. Thomas. 1974. "Power and conflict in the student-teacher relationship," *Journal of Applied Behavioral Science,* (10), pp. 321-336.

Janowitz, M. 1957. "Military elites and the study of war," *Journal of Conflict Resolution,* (1), pp. 9-19.

Jarvenpaa, S.L., G. W. Dickson, and G. DeSanctis. 1985. "Methodological issues in experimental IS research: experiences and recommendations," *MIS Quarterly* (9:2), pp. 141-156.

Jones, R. E., and C. S. White. 1985. "Relationships among personality, conflict resolution styles, and task effectiveness," *Group and Organization Studies*, (10), pp. 152-167.

Joshi, K. 1990. "An investigation of equity as a determinant of user information satisfaction," *Decision Science*. (21:2), pp. 786-807.

Keenan, D. 1984. *A Study to Determine the Relationship Between Organizational Climates and Management Styles of Conflict as Perceived by Teachers and Principals in Selected School Districts.* Unpublished doctoral dissertation, University of South Carolina.

Kilmann, R. H., and K. W. Thomas. 1975. "Interpersonal conflict-handling behavior as reflections of Jungian personality dimensions," *Psychological Reports*, (37), pp. 971-980.

King, W. R. and J. I. Rodriguez. 1978. "Evaluating management information systems," *MIS Quarterly*, (2:3), pp. 43-51.

Kohlberg, L. 1969. "Stage and sequence: the cognitive-developmental approach to socialization," in *Handbook of Theory and Research*, D. Goslin (ed.), Chicago, IL: Rand McNally and Co.

Lasswell, H. D. 1931. "Conflict: Social," In E. R. Seligman and A. Johnson (eds.), *Encyclopedia of the Social Sciences, Vol. IV*, New York, NY: Macmillan.

Lawner, R. L. 1956. "Social conflict as a subject of investigation in American research from 1919 to 1953," Unpublished doctoral dissertation, New York University.

Lawrence, M. and G. Low. 1993. "Exploring user satisfaction within user-led development," *MIS Quarterly*, pp. 195-208.

Lawrence, P. R., and J. W. Lorsch. 1967. *Organization and Environment.* Homewood, IL: Irwin-Dorsey.

Lee, C. W. 1990. "Relative role and styles of handling interpersonal conflict: An experimental study with Korean managers," *International Journal of Conflict Management*, pp. 327-340.

Levine, R. A. 1961. "Anthropology and the study of conflict: introduction," *Journal of Conflict Resolution*, (5:1), pp. 3-15.

Levinger, G. 1957. "Kurt Lewin's approach to conflict and its resolution: a review with some extensions," *Journal of Conflict Resolution*, (1:4), pp. 329-339.

Levy, M. B. 1989. *Integration of Lovestyles and Attachment Styles: Cross-partner Influences and a Clarification of Concepts, Measurement, and Conceptualization*, Unpublished doctoral dissertation, University of South Carolina.

Lewin, K. 1948. *Resolving Social Conflicts*, New York, NY: Harper.

Likert, R., and J. G. Likert. 1976. *New Ways of Managing Conflict*, New York, NY: McGraw-Hill.

Lucas, H. C. 1982. *Information Systems Concepts for Management*. New York, NY: McGraw-Hill Book Company.

Lucas, H. C. 1976. *The Analysis, Design, and Implementation of Information Systems*. New York, NY: McGraw-Hill Book Company.

Lucas, H. C. 1975. *Why Information Systems Fail*, New York, NY: Columbia University Press.

Lucas, H. C. 1975b. "Performance and the use of an information system," *Management Science*, (21:8), pp. 908-919.

Lucas, H. C. 1973. "A descriptive model of information systems in the context of the organization," *Database*, (5:2), pp. 27-36.

Lundberg, G. A. 1939. *Foundations of Sociology*, New York, NY: Macmillan.

Lusch, R. F. 1976. "Sources of power: Their impact on intrachannel conflict," *Journal of Marketing Research*, (13), pp. 382-390.

Mack, R. W., and R. C. Snyder. 1957. "The analysis of social conflict--toward an overview and synthesis," *Journal of Conflict Resolution*, (1:2), pp. 212-248.

Maciver, R. M. 1937. *Society: A Textbook of Sociology*, New York, NY: Farrar and Rinehart.

Mason, R. O., and I. I. Mitroff. 1973. "A program for research on management information systems," *Management Science*, (19:5), pp. 475-487.

Mayo, E. 1933. *The Human Problems of an Industrial Civilization*. New York, NY: Macmillan.

Melone, N. P. 1990. "A theoretical assessment of the user satisfaction construct in information systems research," *Management Science*, (36:1), pp. 76-91.

Merton, R. K. 1967. *On Theoretical Sociology*, New York, NY: Free Press.

Merton, R. K. 1957. *Social Theory and Social Structure*, Glencoe, IL: Free Press.

Miller, D. 1984. *Organizations: A Quantum View*, Englewood Cliffs, NJ: Prentice-Hall.

Musser, S. J. 1982. "A model for predicting the choice of conflict management strategies by subordinates in high-stakes conflicts," *Organizational Behavior and Human Performance*, (29) pp. 257-269.

Myers, I. B. 1962. *Manual: The Myers-Briggs Type Indicator*, Princeton, NJ: Educational Testing Service.

Neff, E. K. 1986. *Conflict Management Styles of Women Administrators in the 12 State Universities in Ohio,* Unpublished doctoral dissertation, Bowling Green State University, Ohio.

Nolan, R. L., and J. C. Wetherbe. 1980. "Toward a comprehensive framework for MIS research," *MIS Quarterly,* (4:2), pp. 1-13.

Nunnally, J. C., and I. H. Bernstein. 1994. *Psychometric Theory, Third Edition,* New York, NY: McGraw-Hill, Inc.

Park, R. E., and E. W. Burgess. 1924. *Introduction to the Science of Sociology,* Chicago, IL: University of Chicago Press.

Parker, S. J. Casey, J. M. Ziriax, and A. Silberberg. 1988. "Random monotone data fit simple algebraic models: Correlation is not confirmation," *Psychological Bulletin,* (104), pp. 417-423.

Persico, J. 1986. *Levels of Conflict, Worker Performance, Individual Conflict Styles, Type of Work, Organizational Characteristics and the External Environment of the Organization,* Unpublished doctoral dissertation, University of Minnesota.

Phillips, E. and R. Cheston. 1979. "Conflict resolution: What works?" *California Management Review,* (21:4), pp. 76-83.

Pilkington, C. J., D. R. Richardson, and M. E. Utley. 1988. "Is conflict stimulating? Sensation seekers' responses to interpersonal conflict," *Personality and Social Psychology Bulletin,* (14), pp. 596-603.

Pondy, L. R. 1967. "Organizational conflict concepts and models," *Administrative Science Quarterly,* (12:2), pp. 296-320.

Pondy, L. R. 1966. "A systems theory of organizational conflict," *Academy of Management,* (9:3), pp. 246-256.

Prein, H. C. M. 1976. "Stijlen van conflicthantering (Styles of handling conflict)," *Nederlands Tijdschrift voor de Psychologie,* (31:1), pp. 321-346.

Psenicka, C., and M. A. Rahim. 1989. "Integrative and distributive dimensions of styles of handling interpersonal conflict and bargaining outcome," In M. A. Rahim (Ed.), *Managing conflict: An interdisciplinary approach,* New York, NY: Praeger.

Quinn, J. B. 1985. "Strategic goals: process and politics," *Sloan Management Review,* (19), pp. 21-37.

Rahim, M. A. 1992. *Managing conflict in organizations, second edition.* Westport, CT: Praeger.

Rahim, M. A. 1991. "Styles of handling interpersonal conflict: A critical review of theory and research," Paper presented at the 4th annual conference of the International Association for Conflict Management, Den Dolder, Netherlands.

Rahim, M. A. 1990. "Moderating effects of hardiness and social support on the relationships of conflict and stress to job burnout and performance," In M. A. Rahim (Ed.), *Theory and research in conflict management*, New York, NY: Praeger.

Rahim, M. A. 1989. "Rahim Organizational Conflict Inventory: Its uses and misuses in recent field studies," *Proceedings of the Second Annual Conference of the International Association for Conflict Management*, pp. 27.

Rahim, M. A. (Ed.), 1989. *Managing Conflict: An Interdisciplinary Approach*. New York, NY: Praeger.

Rahim, M. A. 1986. "Referent role and styles of handling interpersonal conflict," *Journal of Social Psychology*, (126), pp. 79-86.

Rahim, M. A. 1986. *Managing Conflict in Organizations*, New York, NY:Praeger.

Rahim, M. A. 1985. "A strategy for managing conflict in complex organizations," *Human Relations*, (38), pp. 81-89.

Rahim, M. A. 1985. "Referent role and styles of handling interpersonal conflict," *Journal of Social Psychology*, (126), pp. 79-86.

Rahim, M. A. 1983. "A measure of styles of handling interpersonal conflict," *Academy of Management Journal*, (26:2), pp. 368-376.

Rahim, M. A. 1983. "Measurement of organizational conflict," *Journal of General Psychology*, (109), pp. 189-199.

Rahim, M. A. 1983. *Rahim Organizational Conflict Inventory-I*. Palo Alto, CA: Consulting Psychologists Press.

Rahim, M. A. 1983. *Rahim Organizational Conflict Inventory-II, Forms A, B, & C*, Palo Alto, CA: Consulting Psychologists Press.

Rahim, M. A. 1983. *Rahim Organizational Conflict Inventories: Professional Manual*, Palo Alto, CA:Consulting Psychologists Press.

Rahim, M. A. 1980. "Some contingencies affecting interpersonal conflict in academia: A multivariate study," *Management International Review*, (20:2), pp. 117-121.

Rahim, M. A. 1979. "The management of intraorganizational conflicts: A laboratory study with organization design," *Management International Review*, (19:1), pp. 97-106.

Rahim, M. A. 1977. "The management of organizational intergroup conflict: A contingency model. *Proceedings of the 8th Annual Meeting of the Midwest American Institute for Decision Sciences*, Cleveland, OH, pp. 247-249.

Rahim, M. A. 1976. *Managing Conflict Through Effective Organization Design: An Experimental Study with the MAPS Design Technology*, Unpublished doctoral dissertation, University of Pittsburgh.

Rahim, M. A., and T. V. Bonoma. 1979. "Managing organizational conflict: A model for diagnosis and intervention," *Psychological Reports* ,(44), pp. 1323-1344.

Rahim, M. A. and G. F. Buntzman. 1989. "Supervisory power bases, styles of handling conflict with subordinates, and subordinate compliance and satisfaction," *Journal of Psychology*, (123), pp. 195-210.

Rahim, M. A., J. E. Garrett, and G. F. Buntzman. 1992. "Ethics of managing interpersonal conflict in organizations," *Journal of Business Ethics*, (11), pp. 87-96.

Rahim, M. A., and C. Psenicka. 1984. "Comparison of reliability and validity of unweighted and factor scales," *Psychological Reports*, (55) pp. 439-445.

Rapoport, A. 1960. *Fights, Games, and Debates*, Ann Arbor, MI: University of Michigan Press.

Raven, B. H., and A. W. Kruglanski. 1970. "Conflict and power," In P. Swingle (Ed.), *The Structure of Conflict*, New York, N. Y.: Academic Press.

Renwick, P. A. 1977. "The effects of sex differences on the perception and management of superior-subordinate conflict: An exploratory study," *Organizational Behavior and Human Performance*, (19), pp. 403-415.

Rivard, S. and S. L. Huff. 1984. "User developed applications: evaluations of success from the DP department perspective," *MIS Quarterly*, (8:3), pp. 39-50.

Robbins, S. P. 1974. *Managing Organizational Conflict: A Non-traditional Approach*, Englewood Cliffs, NJ: Prentice-Hall.

Robey, D. 1979. "User attitudes and management information system use," *Academy of Management Journal*, (22:3), pp. 527-538.

Ross, E. A. 1930. *Principles of Sociology*, New York, NY: Century.

Rushinek, A., and S. F. Rushinek. 1986. "What makes users happy?" *Communication of the ACM*, (29:7), pp. 594-598.

Schein, E. H. 1990. "Organizational culture," *American Psychologist*, (45), pp.109-119.

Schneer, J. A., and M. N. Chanin. 1987. "Manifest needs as personality predispositions to conflict-handling behavior," *Human Relations*, (40), pp. 575-597.

Schultz, R. L., and D. P. Slevin. 1975. *Implementing Operations Research/Management Science*, New York, NY: American Elsevier Publishing Company, Inc.

Shockley-Zalabak, P. 1981. "The effects of sex differences on the preference for utilization of conflict styles of managers in a work setting: An exploratory study," *Public Personnel Management*, (10), pp. 289-295.

Simon, H. 1960. *The New Science of Management Decision*. New York, NY: Harper and Brothers.

Simmel, G. 1903. "The sociology of conflict," *American Journal of Sociology*, (9), pp. 490-525, 672-689, 798-811.

Simmel, G. 1955. *Conflict and the Web of Group Affiliations*, Glencoe, IL: Free Press.

Simpson, G. 1937. *Conflict and Community: A Study in Social Theory*, New York, NY: T. S. Simpson.

Singer, K. 1949. *The idea of conflict*, Melbourne, Australia: Melbourne University Press.

Singer, K. 1949. "The meaning of conflict," *Australian Journal of Philosophy*, (27:3), pp. 145-170.

Sorokin, P. A. 1966. *Sociological Theories of Today*, New York, NY: Harper and Row.

Sorokin, P. A. 1947. *Society, Culture and Personality*, New York, NY: Harper.

Sorokin, P. A. 1928. *Contemporary Sociological Theories*, New York, NY: Harper.

Srinivasan, A. 1985. "Alternative measures of system effectiveness: Associations and implications," *MIS Quarterly*, (9:3), pp. 243-253.

Stern, L., and R. H. Gorman. 1969. "Conflict in distribution channels: An exploration," In L. W. Stern (Ed.), *Distribution Channels: Behavioral Dimensions*, Boston, MA: Houghton Mifflin.

Taylor, F. W. 1911. *The Principles of Scientific Management*, New York, NY: Harper & Row.

Thomas, K. W. 1976. "Conflict and conflict management," in M.D. Dunnette (Ed.), *Handbook of Industrial and Organizational Psychology*, Chicago: Rand McNally, pp. 889-935.

Thomas, K. W. and R. H. Kilmann. 1978. "Comparisons of four instruments measuring conflict behavior," *Psychological Reports*, (42:3), pp. 1139-1145.

Ting-Toomey, S., G. Gao, P. Trubisky, Z. Yang, H. S. Kim, S. Lin, and T. Nishida. 1991. "Culture, face maintenance, and styles of handling interpersonal conflict: A study in five cultures," *International Journal of Conflict Management*, (2), pp. 275-295.

Turban, E. 1990. *Decision Support and Expert Systems*, New York, NY: Macmillan.

Van de Vliert, E., and B. Kabanoff. 1990. "Toward theory-based measures of conflict management," *Academy of Management Journal*, (33), pp. 199-209.

Von Weise, L., and H. Becker. 1932. *Systematic Sociology*, New York, NY: Wiley.

Wall, J. A., and M. W. Blum. 1991. "Negotiations," *Journal of Management*, (17), pp. 273-303.

Walton, R. E., and J. M. Dutton. 1969. "The management of interdepartmental conflict: A model and review," *Administrative Science Quarterly*, (14:1), pp. 73-84.

Weber, M. 1947. *The Theory of Social and Economic Organization*, New York: Oxford University Press.

Weber, M. 1929. *The Theory of Social and Economic Organization*, New York: Oxford University Press.

Weider-Hatfield, D. 1988. "Assessing the Rahim Organizational Conflict Inventory-II (ROCI-II)," *Management Communications Quarterly*, (1), pp. 350-366.

Weiss, A. R., and P. H. Birnbaum. 1989. "Technological infrastructure and the implementation of technological strategies," *Management Science*, (35:8), pp. 1014-1026.

Williams, R. 1947. *The Reduction of Intergroup Tensions*, New York, NY: Social Research Council.

Young, T. R. 1984. "The lonely micro," *Datamation*, (30:4), pp. 100-114.

Appendices

Appendix A: ROCI-II Items and Item Information

Items

01) I try to investigate an issue with my peers to find a solution acceptable to us.

02) I generally try to satisfy the needs of my peers.

03) I attempt to avoid being "put on the spot" and try to keep my conflict with my peers to myself.

04) I try to integrate my ideas with those of my peers to come up with a decision jointly.

05) I give some to get some.

06) I try to work with my peers to find solutions to a problem which satisfy our expectations.

07) I usually avoid open discussion of my differences with my peers.

08) I usually hold on to my solution to a problem.

09) I try to find a middle course to resolve an impasse.

10) I use my influence to get my ideas accepted.

11) I use my authority to make a decision in my favor.

12) I usually accommodate the wishes of my peers.

13) I give in to the wishes of my peers.

14) I win some and I lose some.

15) I exchange accurate information with my peers to solve a problem together.

16) I sometimes help my peer to make a decision in his/her favor.

17) I usually allow concessions to my peers.

18) I argue my case with my peers to show the merits of my position.

19) I try to play down our differences to reach a compromise.

20) I usually propose a middle ground for breaking deadlocks.

21) I negotiate with my peers so that a compromise can be reached.

22) I try to stay away from disagreement with my peers.

23) I avoid an encounter with my peers.

24) I use my expertise to make a decision in my favor.

25) I often go along with the suggestions of my peers.

26) I use "give and take" so that a compromise can be made.

27) I am generally firm in pursuing my side of the issue.

28) I try to bring all our concerns out in the open so that the issues can be resolved in the best possible way.

29) I collaborate with my peers to come up with decisions acceptable to us.

30) I try to satisfy the expectations of my peers.

31) I sometimes use my power to win a competitive situation.

32) I try to keep my disagreement with my peers to myself in order to avoid hard feelings.

33) I try to avoid unpleasant exchanges with my peers.

34) I generally avoid an argument with my peers.

35) I try to work with my peers for a proper understanding of a problem.

Table A.1: ROCI-II Item Information

ROCI-II Item	Hypothesized Construct	Scoring (+/-)
01	IN	+
02	OB	+
03	AV	+
04	IN	+
05	CO	+
06	IN	+
07	AV	+
08	DO	+
09	CO	+
10	DO	+
11	DO	+
12	OB	+
13	OB	+
14	•	+
15	IN	+
16	•	+
17	OB	+
18	DO	+
19	CO	+

20	CO	+
21	CO	+
22	AV	+
23	AV	+
24	DO	+
25	OB	+
26	CO	+
27	DO	+
28	IN	+
29	IN	+
30	OB	+
31	DO	+
32	AV	+
33	AV	+
34	AV	+
35	IN	+

A * indicates the original item loading was less than .3 and the item was not used.

Appendix B: Schultz and Slevin Attitude Inventory

Attitudinal Items

01) I will need to communicate with others more.

02) My job will be more satisfying.

03) Others will better see the results of my efforts.

04) Top management will provide the resources to implement the system.

05) The system costs too much.

06) I will be supported by my boss if I decide not to use this system.

07) It will be easier to perform my job well.

08) Decisions based on the system will be better.

09) The results of the system are needed now.

10) People will accept the required changes.

11) The accuracy of information I receive will be improved by the system.

12) The individuals I work with will change.

13) The developers of these techniques don't understand management problems.

14) I will have more control over my job.

15) The system is important to me.

16) I need the system.

17) The developers of these techniques seldom consult with the people who use them.

18) It is important that the system be used soon.

19) Implementing the system will take a lot of time.

20) Individuals will set higher targets for performance.

21) Top management sees the system as being important.

22) I will be able to improve my performance.

23) The project is important to my boss.

24) The management structure will be changed.

25) The use of the system will increase profits.

26) The project is technically sound.

27) Others will be more aware of what I am doing.

28) The information I will receive from the system will make my job easier.

29) I will need the help of others more.

30) The system will not require any changes in division/department structure.

31) I will spend less time looking for information.

32) Company goals will become more clear.

33) Implementing the system will be difficult.

34) The system should be put into use immediately.

35) I will see less of my friends in the organization.

36) I will have to get to know several new people.

37) I will report to a different boss.

38) Many other people in the company will be affected.

39) Top management does not realize how complex this change is.

40) People will be given sufficient training to utilize the system.

41) This project is important to top management.

42) My counterparts in other divisions/departments will identify more with the organization's goals.

43) There will be adequate staff available to successfully implement the system.

44) I will need to consult others more often before making a decision.

45) The patterns of communication will be more simplified.

46) I will need to talk with other people more.

47) It is urgent that the system be implemented.

48) I will need the help of others more.

49) I will be able to see better the results of my efforts.

50) People will realize that the system is an improvement.

51) I enjoy working with those who are implementing the system.

52) When I talk to those implementing the system, they respect my opinions.

53) I will be in a better position to reach my goals.

54) Others do not see the system as being important.

55) My counterparts in other divisions/departments are generally resistant to changes of this type.

56) The sooner the system is in use the better.

57) The system is worth the time required to implement it.

58) I will play an important role in the implementation of the system.

59) The accuracy of my forecast will improve as the result of using the system.

60) My performance will be more closely monitored.

61) Benefits will outweigh the costs.

62) My goals and the company goals will be more similar than they are now.

63) The division/department will perform better.

64) Personal conflicts will not increase as a result of the system.

65) The developers of the system will provide adequate training to users.

66) The aims of my counterparts in other divisions/departments will be more easily achieved.

67) My personal goals will be better reconciled with the company goals.

Table B.1: Attitudinal Item Information

Attitudinal Item	Hypothesized Construct	Scoring (+/-)
1	IP	+
2	PE	+
3	PE	+
4	SU	+
5	UR	-
6	UR	-
7	PE	+
8	UR	+
9	UR	+

10	SU	+
11	PE	+
12	CH	+
13	CL	-
14	PE	+
15	UR	+
16	UR	+
17	•	0
18	UR	+
19	•	0
20	GO	+
21	SU	+
22	PE	+
23	UR	+
24	CH	+
25	GO	+
26	GO	+
27	PE	+
28	PE	+
29	IP	+
30	CH	-
31	PE	+
32	GO	+
33	SU	-
34	UR	+
35	•	0
36	CH	+
37	•	0
38	•	0
39	SU	-
40	SU	+
41	SU	+
42	GO	+
43	SU	+
44	IP	+
45	GO	+
46	IP	+
47	UR	+
48	IP	+
49	PE	+
50	•	0
51	CL	+
52	CL	+
53	•	0
54	•	0
55	SU	-
56	UR	+
57	•	0
58	•	0
59	PE	+
60	PE	+
61	UR	+

62	GO	+
63	PE	+
64	SU	+
65	SU	+
66	GO	+
67	GO	+

Items indicated with a "*" did not load onto any construct in the original development and will not be used in this study.

Appendix C: Schultz and Slevin Usage Items

Usage Items

01) Please circle the number on the scale below that indicates the probability that you will use the system.

0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1.0

02) Please circle the number on the scale below that indicates the probability that other managers will use the system.

0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1.0

03) Please circle the number on the scale below that indicates the probability that the system will be a success.

0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1.0

04) On the 10-point scale below indicate your evaluation of the worth of the system.

Not Useful at all				Moderately useful				Excellent	
1	2	3	4	5	6	7	8	9	10

05) Please circle the number on the scale below that indicates the level of accuracy you expect from the system.

Not accurate at all				Moderately accurate			Extremely Accurate		
1	2	3	4	5	6	7	8	9	10

Appendix D: ROCI-I Conflict Items

Intra-Group Conflict Items

01) There is harmony within my group. (03)

02) In our group, we have lots of bickering over who should do what job. (05)

03) There is a difference of opinion among the members of my group. (11)

04) There is dissension in my group. (13)

05) The members of my group are supportive of each other's ideas. (15)

06) There are clashes between sub-groups within my group. (18)

07) There is friendliness among the members of my group. (20)

08) There is "we" feeling among the members of my group. (22)

Items 01, 05, 07, and 08 are scored in a negative fashion. Numbers in parenthesis indicate the original item number on the ROCI-I instrument.

Appendix E: Contact Letter

April 28, 1991

«Title» «First» «Last»
«JobTitle»
«Company»
«Address1»
«Address2»
«City», «State» «Zip»

Dear «Title» «Last»:

I am a doctoral candidate at the University of Arkansas conducting my dissertation research. I am currently procuring permission from organizations to administer a survey to the employees who use the organization's computer systems. I will provide survey instruments and postage for their return to the university if you are willing to participate.

The only criteria for eligibility are:

1) You are willing to participate and distribute the survey to your employees.

2) You are planning a system implementation in the near future (this may be either a hardware or software implementation).

Completion of the survey should take less than 20 minutes per employee and will provide information for my research project. All results from the study will be made available to you if you wish, but total anonymity will be maintained with regard to individuals and organizations. No names nor identification of you, your employees, or organization will ever be used in any fashion.

The benefits to you as a CIO are:

1) A better understanding of the needs of the end-users of new systems.

2) Insight into the creation of successful systems.

3) Insight into the effect of conflict on system users.

If you meet the above criteria, please return the enclosed postcard with an indication of the number of employees who will complete the survey, and the approximate date of the implementation of the system. If your name or any other information on the postcard is incorrect, please indcate the changes. If you are ineligible or unwilling to participate, please indicate "no" on the postcard.

If you are able to assist me in this project, I would greatly appreciate your help.

Sincerely,

Douglas E. White
Doctoral Candidate

Appendix F: Instrument

UNIVERSITY OF ARKANSAS[17]

Fayetteville

College of Business Administration
Department of Computer Information Systems and Quantitative Analysis
CISQ Doctoral Dissertation

Doug White

Description: The purpose of this research is to conduct an exploration of the role of conflict handling styles in systems implementation and the subsequent effect on the model of user behavior as described by Henry Lucas.

Benefits and Risks: Your participation in this study will help contribute to the understanding of organizational and group conflict. This type of research provides information to managers, users, and systems professionals regarding the success of new systems and the effect of new systems on your organization.

Voluntary Participation: Your participation in this project is voluntary. There are no payments nor credits associated with this research.

Confidentiality: All information will be recorded anonymously and will be held in the strictest of confidence. Only Doug White will have access to the electronic and hardcopy results. Analysis will be performed by Doug White and only the consolidated results will be seen and used in the paper. Hardcopy results will be stored in a locked file cabinet in Doug White's office. The code attached to the document identifies your company in an anonymous manner (e.g. company A). There will be no means by which an individual may be identified.

Right to Withdraw: You may refuse to participate in this study or withdraw from the study any time you wish. If you choose to withdraw, please return this packet to the administrator.

Procedure: The instrument will be administered to members of organizations which have volunteered to participate in the research. A designated member of the organization will be mailed copies of the instrument specific to that organization with return postage. The administrator will gather the completed instruments and return them to Doug White.

Informed Consent: I have read the above description, including the nature and purposes of the study, the benefits, confidentiality statement, and the right to withdraw from the study at any time. My participation indicates that I freely agree to participate in this experimental study.

[17] The instrument presented to the participants will appear in booklet form, but will contain the items in the same order and appearance as presented here.

HOW TO COMPLETE THIS QUESTIONNAIRE

All information provided by you for this study will be confidential and individual specific information will not be released to anyone other than Doug White. You will in no way be identified in the results of the study.

Section I. Please provide some general background information regarding your personal situation.

Company Code _____

What is your age? _____

What is your sex? (M or F) _____

Approximately how many employees do you supervise? _____

How many training courses have you taken for computer use? _____

Do you have a computer at home? (Y or N) _____

Section II.
For each of the items below place a ✔ or x mark in the box above the number which best describes your reaction to the statement. For Example:

I like to read fiction.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

1=Strongly Disagree 2=Disagree 3=Neither Agree nor Disagree 4=Agree 5=Strongly Agree

I try to investigate an issue with my peers to find a solution acceptable to us.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I generally try to satisfy the needs of my peers.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I attempt to avoid being "put on the spot" and try to keep my conflict with my peers to myself.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I try to integrate my ideas with those of my peers to come up with a decision jointly.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I give some to get some.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I try to work with my peers to find solutions to a problem which satisfy our expectations.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I usually avoid open discussion of my differences with my peers.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I usually hold on to my solution to a problem.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I try to find a middle course to resolve an impasse.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I use my influence to get my ideas accepted.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I use my authority to make a decision in my favor.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I usually accommodate the wishes of my peers.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I give in to the wishes of my peers.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I win some and I lose some.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I exchange accurate information with my peers to solve a problem together.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I sometimes help my peer to make a decision in his/her favor.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I usually allow concessions to my peers.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I argue my case with my peers to show the merits of my position.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I try to play down our differences to reach a compromise.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I usually propose a middle ground for breaking deadlocks.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I negotiate with my peers so that a compromise can be reached.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I try to stay away from disagreement with my peers.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I avoid an encounter with my peers.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I use my expertise to make a decision in my favor.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I often go along with the suggestions of my peers.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I use "give and take" so that a compromise can be made.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I am generally firm in pursuing my side of the issue.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I try to bring all our concerns out in the open so that the issues can be resolved in the best possible way.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I collaborate with my peers to come up with decisions acceptable to us.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I try to satisfy the expectations of my peers.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I sometimes use my power to win a competitive situation.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I try to keep my disagreement with my peers to myself in order to avoid hard feelings.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I try to avoid unpleasant exchanges with my peers.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I generally avoid an argument with my peers.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

I try to work with my peers for a proper understanding of a problem.

Strongly Disagree					Strongly Agree
1	2	3	4	5	

Section III.

In this section all questions relate to the system change your company is preparing to conduct. In the line following the statement, please circle the word that describes most clearly how you feel about the statement. For example:

I like to read fiction.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will need to communicate with others more.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

My job will be more satisfying.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Others will better see the results of my efforts.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Top management will provide the resources to implement the system.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The system costs too much.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will be supported by my boss if I decide not to use this system.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

It will be easier to perform my job well.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Decisions based on the system will be better.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The results of the system are needed now.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

People will accept the required changes.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The accuracy of information I receive will be improved by the system.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The individuals I work with will change.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The developers of these techniques don't understand management problems.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will have more control over my job.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The system is important to me.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I need the system.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The developers of these techniques seldom consult with the people who use them.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

It is important that the system be used soon.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Implementing the system will take a lot of time.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Individuals will set higher targets for performance.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Top management sees the system as being important.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will be able to improve my performance.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The project is important to my boss.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The management structure will be changed.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The use of the system will increase profits.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The project is technically sound.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Others will be more aware of what I am doing.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The information I will receive from the system will make my job easier.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will need the help of others more.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The system will not require any changes in division/department structure.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will spend less time looking for information.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Company goals will become more clear.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Implementing the system will be difficult.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The system should be put into use immediately.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will see less of my friends in the organization.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will have to get to know several new people.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will report to a different boss.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Many other people in the company will be affected.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Top management does not realize how complex this change is.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

People will be given sufficient training to utilize the system.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

This project is important to top management.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

My counterparts in other divisions/departments will identify more with the organization's goals.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

There will be adequate staff available to successfully implement the system.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will need to consult others more often before making a decision.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The patterns of communication will be more simplified.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will need to talk with other people more.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

It is urgent that the system be implemented.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will need the help of others more.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will be able to see better the results of my efforts.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

People will realize that the system is an improvement.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I enjoy working with those who are implementing the system.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

When I talk to those implementing the system, they respect my opinions.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will be in a better position to reach my goals.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Others do not see the system as being important.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

My counterparts in other divisions/departments are generally resistant to changes of this type.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The sooner the system is in use the better.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The system is worth the time required to implement it.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I will play an important role in the implementation of the system.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The accuracy of my forecast will improve as the result of using the system.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

My performance will be more closely monitored.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Benefits will outweigh the costs.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

My goals and the company goals will be more similar than they are now.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The division/department will perform better.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Personal conflicts will not increase as a result of the system.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The developers of the system will provide adequate training to users.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The aims of my counterparts in other divisions/departments will be more easily achieved.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

My personal goals will be better reconciled with the company goals.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Section IV.

Please circle the number on the scale below that indicates the probability that you will use the system.

0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1.0

Please circle the number on the scale below that indicated the probability that other managers will use the system.

0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1.0

Please circle the number on the scale below that indicates the probability that the system will be a success.

0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1.0

On the 10-point scale below indicate your evaluation of the worth of the system.

Not Useful at all				Moderately useful				Excellent	
1	2	3	4	5	6	7	8	9	10

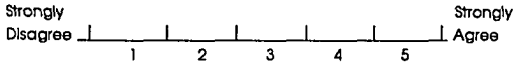
Please circle the number on the scale below that indicates the level of accuracy you expect from the system.

Not accurate at all				Moderately accurate			Extremely Accurate		
1	2	3	4	5	6	7	8	9	10

(Please continue on the next page)

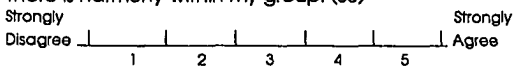
Section V.
Each of the following questions refers to your peer group within the company where you work. For each of the items below place a ✔ or x mark in the box above the number which best describes your reaction to the statement. For Example:

I like to read fiction.

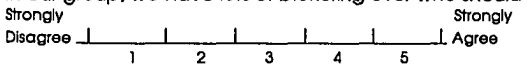


1=Strongly Disagree 2=Disagree 3=Neither Agree nor Disagree 4=Agree 5=Strongly Agree

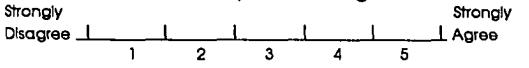
There is harmony within my group. (03)



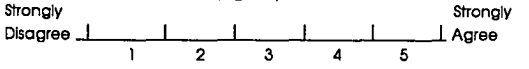
In our group, we have lots of bickering over who should do what job. (05)



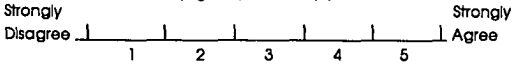
There is a difference of opinion among the members of my group. (11)



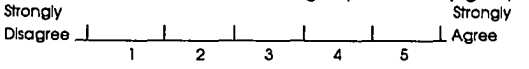
There is dissension in my group. (13)



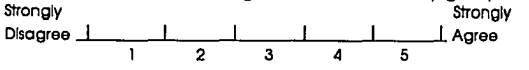
The members of my group are supportive of each other's ideas. (15)



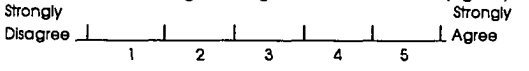
There are clashes between sub-groups within my group. (18)



There is friendliness among the members of my group. (20)



There is "we" feeling among the members of my group. (22)



Appendix G: Human Subjects Review Committee Approval

Research and Sponsored Programs
Office of the Director

120 Ozark Hall
Fayetteville, Arkansas 72701
(501) 575-3845
(501) 575-3846 (FAX)

MEMORANDUM

TO: Doug White

FROM: John King, Chair
Institutional Review Board

DATE: August 15, 1994

SUBJECT: IRB Protocol #95-013, "The Exploration of Conflict Handling style as an Effect in Lucas's Model of Information Systems", 01/01/95

The IRB has approved the protocol listed above. You may begin your study.

Only the protocol provided has approval. If there are any changes or additions to the protocol during the study, please advise the IRB before any new initiation.

The IRB appreciates your assistance and cooperation in complying with University and Federal guidelines for research involving human subjects.

/ca

cc: Phillip Taylor

The Exploration of Conflict Handling Style and Intra-Group Conflict as Effects in the Lucas Model of User Behavior

Abstract of dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

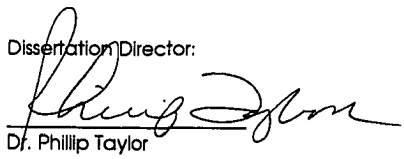
By

Douglas E. White, B.S., M.B.A
University of Tennessee, 1986
Western Kentucky University, 1988

May 1995
University of Arkansas

This abstract is approved by:

Dissertation Director:



Dr. Phillip Taylor

The Exploration of Conflict Handling Style and Intra-Group Conflict as Effects in the Lucas Model of User Behavior

Robey (1979) indicated *MIS can and does fail where user psychological reactions and organizational factors are ignored by system designers.* The importance of the development of models to describe user behavior is well-known in the management information systems research arena, but constructs which are known to exist are often overlooked in user behavioral research.

This study focuses on the analysis of Lucas' (1973) model of user behavior. Lucas believed conflict to be a component of the behavioral model, the nature of the relationship of conflict, users, and systems was never explored. Other researchers have delved into the exploration of conflict and user behavior (Barki and Hartwick, 1994), but no research has been conducted regarding the inclusion of conflict handling style as a component of the users' behavioral processes.

The measurement of conflict handling styles and intra-group conflict is well developed in the conflict literature through the use of the Rahim Organizational Conflict Inventory - II (ROCI-II) and the Rahim Organizational Conflict Inventory - I (ROCI-I) respectively. In this study, the ROCI-II and a portion of the ROCI-I instrument were used in association with the Schultz and Slevin (1975) attitudes and perceptions/usage instrument for the measurement of user attitudes regarding a system implementation.

Findings in this research indicate support for the inclusion of both conflict handling style measures and intra-group conflict as components of the Lucas model of user behavior. Increased conflict handling style scores imply better conflict management skills and resulted in improved attitudes and perceptions as well as improved perceived usage scores. High levels of intragroup conflict resulted in lower perceived usage scores. This supports Lucas' claims regarding destructive conflict having a negative effect upon user attitudes and perceptions regarding systems.

Essentially, the findings indicate a need for the consideration of the effects of conflict and the users' ability to manage a wide variety of types of conflict before any other measures of system quality are undertaken. The conflict handling styles and intragroup conflict constructs are included in the Lucas model of user behavior as effects upon both user attitudes and perceptions as well as the perceived usage measures.