MEASUREMENT OF PERCEIVED CONFLICT BETWEEN MEMBERS IN AMERICAN HIGHER EDUCATION MERGED LIBRARY AND INFORMATION TECHNOLOGY DEPARTMENTS

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By
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And hereby certify that in their opinion it is worthy of acceptance.

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Dr. Matthew Symonds
DEDICATION

For Gene. There is no chance that I could ever repay what you’ve given me.
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CHAPTER 1
INTRODUCTION TO THE STUDY

There is a relatively new phenomenon in higher education of merging seemingly disparate departments in attempts to streamline operations and save money (Seiden & Kathman, 2000). One of the more common higher education departmental merger is that of the library and the information technology department (Hardesty, 1998). The merger of these two departments has been cited as a source of conflict due in part to differences in work habits, education, and cultural norms (Cain, 2003; Hawkins & Battin, 1997).

Chapter 1 of this study contains important background information regarding library/IT mergers, organizational conflict and the instrument that this study will use to measure conflict, the Rahim Organizational Conflict Inventory – I (ROCI-I). A statement of the problem, the purpose of the study, and research questions are provided. The conceptual underpinnings in the fields of social identity theory and psychometrics are outlined. Definitions are provided for terms that are used in the study that require additional clarification. This chapter also includes a statement on the significance of this study to the fields of organizational conflict and higher education.

Background of the Study

The background of the study begins with an overview of organizational conflict research followed by an overview of library and IT mergers and the potential impact of those mergers on conflict levels within the organization. This section also includes an exploration of the research tool used to measure organizational conflict, including the past psychometric testing to which it was subjected.
Organization conflict has been a topic of research and debate since the age of Taylor’s scientific management studies (Taylor, 1913). The early research in the area of organizational conflict deemed all conflict unhealthy and sought methods to eliminate it from organizations altogether (Litterer, 1966). Frederick Taylor’s (1913) scientific management, Max Weber’s (1958) bureaucracy, and Henri Fayol’s (1949) principles of management were all touted as solutions designed to eradicate organizational conflict.

Beginning on the 1960s, organizational conflict researchers began publishing articles with a shift in philosophy. Though some researchers still argued conflict was a negative drain on the organization (Cliff, 1987; Likert, 1961; Neuhauser, 1988), others began to argue conflict had benefits to productivity and job satisfaction (Bacal, 2004; Kerr, 1964; Nightingale, 1974). Harrison (1980) placed an even greater emphasis on conflict, arguing that “an organization without conflict would be complacent, stagnant, and devoid of the dynamism that frequently stems from disagreement and dissonance” (p. 30). Many researchers take a more balanced approach, recognizing the benefits of conflict while still understanding the negative influence it can have on an organization and the individuals within it (Bacal, 2004; Blake & Moulton, 1964; Kolb & Putnam, 1992; Rahim, 2011).

Rahim (2011) argued the difference between a positive and a negative organizational impact lies in the level of conflict. Organizational conflict literature has established optimal conflict levels to be critical in the creation of a healthy organization (Cliff, 1987; Litterer, 1966; Nightingale, 1974; Rahim 1983a; Rahim, 2011). Optimal conflict is often described as a balancing act between levels that are too high or too low.
While it has long been acknowledged that high conflict levels are detrimental to organizational health, modern researchers also now agree that low levels of conflict also negatively impact the health of an organization (Assael, 1969; Harrison, 1980; Litterer, 1966).

Although conflict has been shown to have both positive and negative impacts on the organization, numerous articles have been published outlining the negative role conflict between library and IT professionals has on the relationship of these two occupational groups in colleges and universities (Cain, 2003; Hardesty, 1998; Hawkins & Battin, 1997; Wagner, 2000). Most of these articles discuss conflict that takes the form of mistrust and stereotypes, which can be either real or imagined (Cain, 2003; Hardesty, 1998; Hawkins & Battin, 1997). As Hardesty (1998) explained, however, that distinction is not necessarily an important one, as “perceptions, accurate or not, often drive behaviors” (p. 37). Giving leaders a tool that can assess these sources of potential conflict will allow them the opportunity to bring them out in the open and possibly diffuse them.

Library and IT Mergers in Higher Education

Rapid technology growth, increased technology costs, and increased reliance on technology, in tandem with stagnant enrollments and decreased government funding, have administrators looking to address technology issues with as little capital as possible (Hardesty, 1998) Many administrators have chosen to merge their college’s library and information technology departments as a way to address technology issues while strategically aligning departments that have grown increasingly similar over the years (Ferguson, Spencer & Metz, 2004; Fielden & Markham, 1997; Supra, Zebrowski & Thompson, 1998).
In the realm of higher education, librarians have been among the most active
drivers of technological advancement for the benefit of end users. Ayers (2004) described
librarians as “the real heroes of the digital revolution in higher education. They are the
ones who have seen the farthest, done the most, accepted the hardest challenges….,” (p. 50).
The 1980s saw the entrance of libraries into the computer world. Massive mainframe
computers were host to the first attempts at library networks (Lynch, Greifeneder &
Seadle, 2012). In 1995, Ekman and Quandt speculated about the possibilities technology
could hold for libraries in the form of increased access to journals and books in electronic
format. Today, library networks allow access via mobile devices, electronic library
catalogs provide users with links to e-books and electronic journals, and electronic
interfaces provide real time information regarding physical materials in the collection and
their availability. Databases provide users with millions of articles, encyclopedias, music
and video files that can be accessed from anywhere in the world.

All of these technological advances have required cooperation between academic
libraries and IT departments. As McKinzie (2007) noted, libraries and IT departments
have been working together “since the dawn of automation” (p. 340). When campus
leaders begin looking at restructuring possibilities, the library and IT departments are
logical candidates for potential partnership.

*Barriers to merger success.* Putting library professionals and IT professionals into
the same department has been likened to mixing oil and water (Scanlon, 1990). The
differences that exist between the two groups have been identified by many researchers
as the primary obstacle to a successful merger (Cain, 2003; Favini & Baker, 1997;
Hawkins & Battin, 1997; Hughes, 1990; Hwang, 2007). Library professionals have
described IT professionals as “cowboys” who make technological changes without consideration of or communication with the other departments on campus who may be affected by these changes (Renaud, 2001). In another study library professionals were stereotyped by one IT professional as “conservative wooly mammoths that are hard to move” (Hawkins & Battin, 1997, p. 26). With these images at play in the minds of the two groups, it is reasonable to assume that conflict would play a negative role in the success of these mergers.

Conflict levels are unknown. Library researchers argue that while some library/IT mergers have successfully managed personnel costs and duplication of expertise, they have also increased the level of organizational conflict (Cain, 2003; Favini & Baker, 1997; Hardesty, 1998; Hawkins & Battin, 1997; Ludwig & Bullington, 2007; Renaud, 2001; West & Smith, 1995). These assertions, however, are based on very little real evidence. It could be argued that the research itself has perpetuated the conflict between these two groups by publishing articles extolling the inability of the two groups to work effectively together before there was significant evidence to support those claims (Dougherty, 1987; Moholt, 1985; Woodsworth & Williams, 1988). The merger debate would benefit from a quantitative measurement of the levels of conflict that exist in these merged departments and whether the results of the ROCI-I can identify areas in which the two occupational groups show differences in perceived conflict levels based on their responses to the survey questions.

Organizational Conflict Measurement

Since organizational conflict literature advocates for a balanced approach to conflict levels, Rahim (2011) argued that it is important for leaders to understand where
their organization falls on the conflict continuum. Only one instrument exists that measures conflict levels among groups (Rahim, 2011). The *Rahim Organizational Conflict Inventory –I* (ROCI-I) was created to measure levels of conflict within organizations. This instrument is one half of a two-part instrument consisting of the ROCI-I and the ROCI-II. The ROCI-II is used to determine conflict management styles once the level of conflict has been determined by the ROCI-I (Rahim, 2011). The two surveys have been used in numerous studies in tandem (Kimball, 2004; Livers, 2003) but are also often used independently (Easter, 1997; Gutierrez, 2001; Johnson & Short, 1998).

*Background of the instrument.* The ROCI-I was found to have adequate reliability and validity when it was created (Rahim, 1983a). The instrument consists of 21 questions organized into three constructs: intrapersonal conflict, intragroup conflict, and intergroup conflict (Rahim, 2011). These constructs are designed to measure conflict within individuals as well as within and between groups. The ROCI-I uses self-reported responses to statements using a five-point Likert scale. The higher the score, the greater the amount of conflict (Rahim, 1983a). The intrapersonal scale consists of seven items, the intragroup scale consists of eight items, and the intergroup scale consists of six items. The meaning of the conflict score is interpreted on the basis of the theoretical foundation of the instrument (Rahim, 2011).

*Building on previous work.* The instrument has been validated twice since its creation (Rahim, 1983a, Rahim & Psenicka, 1995). In the first validation, data from 1,188 executives who took the ROCI-I in the early 1980s was factor analyzed to extract the three factors. In 1995, Rahim and Psenicka performed a confirmatory factor analysis
on the ROCI-I. For this CFA, they used the same data from the same 1,188 executives from the 1983 validation.

This study continued the work of Rahim (1983a) and Rahim and Psenicka (1995). Further psychometric testing of the ROCI-I for reliability and validity using a different population from a 21st century organizational environment further strengthened the ROCI-I as a tool in the measurement and management of organizational conflict. In addition, since the ROCI-I had never been used to test for perceived conflict in library and IT professionals, psychometric testing provided reliability and validity information for its use with this population.

Statement of the Problem

Moholt (1985) stated, “Within universities, the library and the computing center affect more people more directly and more often than do any other departments or service units” (p. 288). Almost 30 years later, many university administrators would likely still agree with this assessment (Ferguson, Spencer & Metz, 2004). There is anecdotal evidence that merging these two departments will negatively impact the effectiveness of each or their ability to serve the faculty, staff and students of the college (Foster, 2008; Ludwig & Bullington, 2007; Wagner, 2000). Additionally, there is anecdotal evidence that these two occupational groups are extremely far apart in terms of culture, which means that they experience conflict at different levels in different areas (Cain, 2003; Hawkins & Battin, 1997; Renaud, 2006). In order to understand the impact conflict has on their departments, leaders in Merged Information Service Organizations (MISOs) need to be able to determine the level of conflict that exists in their department and
understand how this conflict is perceived by both occupational groups under their direction.

Purpose of Study

This study addressed three separate but related purposes: a) to re-assess the psychometric properties of the ROCI-I, b) to determine the perceived conflict levels of merged library and information services department employees as determined by the ROCI-I, and c) to determine if difference exists between perceived conflict levels of library and IT professionals.

The first purpose of this study was to determine if the psychometric properties of the ROCI-I were still valid. The ROCI-I was last subjected to psychometric testing in 1995 using a 1983 population. In addition, during the 1995 assessment, Rahim and Psenicka used factor loadings of 0.30 or greater, which is significantly lower than the 0.40 to 0.50 factor loadings recommended by Pedhazur and Schmelkin (1991). In this study the ROCI-I was re-assessed using more stringent criteria, outlined in chapter 3. In addition, since the ROCI-I had never been used to test for perceived conflict in library and IT professionals, psychometric testing provided reliability and validity information for its use with this population.

The second purpose of this study was to provide quantitative evidence to determine the perceived conflict levels of MISO departments as measured by the ROCI-I. From the 1980s to the 2000s many articles published in library literature outlined examples of conflict between library and IT professionals. None of these articles, however, took the additional step to quantitatively measure these conflicts to see at what level they existed. According to Rahim (2004), scores typically fall between the 55th and
75th percentile. Scores below the 55th percentile indicate a lower than average level of conflict is perceived. Scores above the 75th percentile indicate a higher than average level of conflict is perceived. This study determined how many library and IT professionals fall into each of the levels of perceived conflict.

The third purpose of this study determined if difference could be established in perceived conflict levels and in which conflict types this difference exists. The ROCI-I measures conflict in three areas: intrapersonal, intragroup and intergroup conflict. These three types of conflict were examined to see if any showed a difference in the perceived conflict levels of the two groups. Individual questions within each of the subscales will also be assessed to determine if there are individual questions that determine difference between the two groups.

Research Questions and Null Hypotheses

Five research questions were used to address the purpose of the study. The first two research questions provided a framework by which to test the psychometric properties of the ROCI-I. The final three research questions filled a gap in knowledge regarding the perceived conflict levels of library professionals and IT professionals and the ability of the ROCI-I to discern where the two occupational groups differ based on survey responses.

RQ1. What are the summary descriptive statistics for the ROCI-I?

RQ2a. Can internal consistency for the ROCI-I and alternate forms be established using Cronbach’s alpha with a reliability of .70 or greater (Field, 2009)?
RQ2b. Can Rahim’s 3-factor model be confirmed using principal component analysis using an eigenvalue of 1.0 or greater or 60% variance explained and Varimax rotation?

RQ2c. If constructs are not confirmed by principal component analysis, can new constructs be identified using factor loading of 0.50 or greater?

RQ2d. Using factor loadings of 0.50 or greater, can the number of items in each construct be reduced (Form A)?

RQ3a. Using three conflict level groups: low conflict level, medium conflict level and high conflict level can difference be determined between the perceived conflict levels of library professionals and IT professionals using the 2-way chi square test of independence?

RQ3a0. No significant difference can be determined in perceived conflict levels between library professional and IT professionals.

RQ3b. Using the categories created in RQ3a, can differences be determined between the observed frequencies of perceived conflict levels and the expected frequencies of perceived conflict levels using the 1-way chi square for goodness of fit?

RQ3b0. No significant difference can be determined between the observed frequencies and the expected frequencies of the two occupational groups.

RQ4. Using the categories created in RQ3a, can group mean difference on the subscales of the ROCI-I be determined between the two occupational groups using a t-test with a p value of 0.05?
RQ4. No significant group difference can be identified between the two occupational groups using the means of the subscales.

RQ5. Using the individual items on the three subscales as dependent variables, can membership in each of the occupational groups be predicted using MANOVA and discriminant function analysis?

Conceptual Underpinnings

The theories that guided this study are twofold. The first, psychometrics, provided a basis from which the instrument used in this study can be deemed reliable in determining conflict levels both in the 21st century organizational environment and in library and IT professional populations. The second, social identity theory, provided a foundation upon which the relationship between two culturally different groups can be analyzed.

Psychometrics

Psychometrics has been proven a reliable measure of cognitive assessment since its inception in 1935 as a measure of intelligence via IQ tests (Browne, 2000). Following the statement from Revelle (2011) that psychometrics remains a valuable tool used by researchers to measure everything from extraversion to batting averages, psychometrics was used with confidence as a conceptual underpinning for this study.

Since the primary concerns of psychometrics are reliability and validity of instruments that measure latent variables, it served as a logical underpinning for this study (Field, 2009). Following the guidelines of Field (2009), Kline (1979) and Revelle (2011) that latent variables cannot be measured directly, the correlations between observed variables and latent variables furnished by psychometrics provided this link.
Additionally, factor analysis provided further foundation upon which to determine whether the factors used measure the latent variables they are intended to measure, (Field, 2009).

*Social Identity Theory*

The second purpose of this study was to determine if difference exists in perceived conflict levels of library and IT professionals. Following the advice of Tajfel and Turner (1979) and Hogg (2006), Social Identity Theory was used to explain group differences. Social Identity Theory has been called one of “psychology’s most significant general theories of the relationship between self and group” (Hogg, 2006, p. 111). This theory attempts to explain the idea of the group in a cognitive way by examining how people see themselves as part of a group (Hogg, 2006).

The conceptual structure of Social Identity Theory is based on the definition of a group. According to Hogg (2006), “From a social identity perspective, the critical factor is that they identify with the group” (p. 117). Following the advice of Hogg, the participants in this survey were asked to identify with either the library or IT occupational group. Group identification creates behavioral norms that prescribe appropriate behavior within the group. Group identification also impacts intergroup relations. Tajfel (1972) stated, “Social comparisons between groups are focused on the establishment of distinctiveness between one’s own group and other groups” (p. 296). Ethnocentrism is common within groups and is credited with creating the “us” versus “them” mentality of intergroup relations (Hogg, 2006).

Much of the literature that has been published on the topic of library and IT mergers has focused, at least in part, on this concept of division. Hawkins and Battin
(1997) and Cain (2003) both provide detailed definitions of each group that accentuate the disparity between them. To date, most of the articles in which these differences have been outlined have treated the existence of difference as an inherently negative characteristic. By quantifying the level of conflict between the two groups, one of the goals of this study was to determine the actual levels of perceived conflict and whether group identification influences the level of perceived conflict.

Limitations, Delimitations and Assumptions of the Study

The assumptions, limitations, and delimitations for this study provided a framework within which this study’s results will be considered replicable.

_Assumptions_. The following are the assumptions of the study: It was assumed that organizational conflict consists of intrapersonal, intergroup, and intragroup conflict. It was assumed that intrapersonal, intergroup, and intragroup conflict are measurable constructs. It was also assumed that intrapersonal, intergroup, and intragroup conflict are present in each respondent’s workplace to some degree. It was assumed that the respondents would be honest in their assessment and that each respondent’s survey responses would be an accurate reflection of the level of intrapersonal, intergroup, and intragroup conflict in their workplace. It was further assumed that all potential respondents had equal access and ability to respond to the survey.

_Limitations_. The following are the limitations of this study. This study was limited by the reliability and construct validity of the instrument. In response to this limitation, psychometric analysis of the instrument was used to re-assess the reliability and validity of the ROCI-I.
Recognizing the limitations of each methodology, following the advice of Field (2009), the T-test was chosen as the methodology’s to measure difference in the perceived conflict levels of the two occupational groups. In order to strengthen the results for the T-test, the p value for this study was set at <.05, a value recommended by Field (2009) as the upper end of the scale for discerning difference. To address this limitation in the factor analysis, Pedhazur and Schmelkin (1991) recommend factor loadings of 0.50 or greater and Nunnally (1978) and Field (2009) recommend a Cronbach’s alpha level of 0.70 or greater be used.

Participation in the survey was voluntary; the study was limited in that the individuals who chose to respond could be unevenly distributed among the conflict continuum. In response to this limitation, Falissard (2011) suggested that confidence levels be set at 95%.

There is no literature to suggest that the ROCI-I survey is still valid after 30 years (Rahim, personal communication 9/9/12). To address this limitation, the researcher administered a content validity test using three academic library directors, and three IT professionals.

**Delimitations.** The following are the delimitations of the study: This study was delimited to the responses from this specific survey instrument, the ROCI-I. This study was delimited to a single nationwide population of library and information professionals in MISO department structures. This study was also delimited to a) differences in perceived conflict levels and b) an analysis of psychometric properties. The results of this study are only representative of the individuals willing to complete and return the survey. This study was delimited to participants in the United States and to the year 2012.
Definition of Terms

Numerous terms and concepts used in this study require definition. The following definitions are included to provide clarity and help establish a conceptual framework.

*Intergroup conflict* – This refers to incompatibility or disagreement between two or more groups within an organization. It is one of the three constructs in the ROCI-I (Rahim, 2011).

*Intragroup conflict* – This refers to incompatibility or disagreement among members within a group. Conflict between a few members in a group is better classified as interpersonal conflict. For the conflict to be defined as intragroup, a large portion of the members of the group must be involved in the conflict. Intragroup conflict is one of the three constructs in the ROCI-I (Rahim, 2011).

*Intrapersonal conflict* – refers to conflict within an individual as the result of incompatibilities in goals, activities or beliefs. This kind of conflict exists when an individual engages in mutually exclusive alternatives in which the achievement of one goal will result in the loss of another goal, or the completion of an activity will result in a violation of a belief system. Intrapersonal conflict is one of the three constructs in the ROCI-I (Rahim, 2011).

*IT Professional* – For the purposes of this study, an IT professional was defined as a person who possesses a degree or certification in information technology and who provides technical support for the selection, creation, application, integration, or administration of computing technologies (Miller & Voas, 2008).

*Library professional* – For the purposes of this study, a library professional will be defined as a person who works in an academic library performing user services,
technical services or administrative services duties (American Library Association, 2001).

*Merged Information Services Organization (MISO)* - For the purposes of this study, a MISO is defined as a merged library and information services department that shares leadership, hierarchy, and reporting structure (Hardesty, 1998).

*Organizational conflict* – Rahim (2011) defined conflict as “an interactive process manifested in incompatibility, disagreement, or dissonance within or between social entities (i.e. individual, group, organization, etc.)” (p. 16).

*Psychometric Theory* – a scientific discipline concerned with the challenges of human behavior measurement. Psychometric theory focuses on both examining the ways measurement problems affect behavioral measurement and developing the methods to overcome or minimize these problems (Raykov & Marcoulides, 2011).

*Social Identity Theory* – a theory that uses the individual’s self-conception as the member of a group to help explain the behaviors of the individual in relation to group membership and group processes (Hogg, 2006).

*The Rahim Organizational Conflict Inventory – I (ROCI-I)* – The Rahim Organizational Conflict Inventory – I (ROCI-I) is designed to measure the amounts of intrapersonal, intergroup, and intragroup conflict perceived by members of an organization (Rahim, 2011).

*The Rahim Organizational Conflict Inventory –II (ROCI-II)* - The Rahim Organizational Conflict Inventory – II (ROCI-II) is designed to measure styles of handling interpersonal conflict with superiors, subordinates and peers (Rahim, 2011).
Importance of the Study

This study addressed two important issues in organizational conflict and library/IT merger practice. First, this study addressed the currently unknown reliability and validity of the ROCI-I for the population of library and IT professionals in 21st century library. According to Rahim (1983a), “To study conflict we must be able to measure it” (p. 189). Currently, the Rahim Organizational Conflict Inventory - I (ROCI-I) is the only instrument that measures the level of conflict that exists within or between populations. Although the ROCI-I was psychometrically tested on a 1983 population, the organizational conflict experienced today is different than that experienced by individuals thirty years ago. The prevalence of computers and the increased amount and methods of interaction allowed by the internet and social media have changed the rules for organizational communication (Cavanaugh & Villasenor, 2010). A re-testing of the psychometric properties of the ROCI-I using a 2012 population, particularly one that resides firmly within the technological climate that is characteristic of the current generation, provides administrators who rely on this instrument with a verification of the instrument’s ability to accurately measure the level of conflict in today’s organizations.

Second, this study created a quantitative measurement of the level of conflict perceived by library and IT professionals in merged information services organizations. To date, literature published on the subject of library/IT professional conflict has been qualitative in nature (Renaud, 2006; Wagner, 2000). There is a gap in the knowledge of library and IT professionals regarding the measured levels of perceived conflict in merged department structures. Additionally, the literature published on this subject treats all conflict between library and IT professionals as negative (Cain, 2003; Hawkins &
Battin, 1998; Wagner, 2000). This study analyzed survey data to compare the perceived conflict reported between these two occupational groups against the norms set forth by Rahim (2004). This analysis fills a gap in knowledge regarding the impact conflict has on merged information service organizations.

**Summary**

Chapter 1 began with an exploration of the impact conflict has on the organization. The background of libraries and technology were explored, including the impact technology has had on libraries and an overview of library/IT mergers. Information on the history of organizational conflict research provided the background on the central concept of this study. Finally, the conceptual underpinnings that guided this study were introduced. Psychometrics provides a means by which the ROCI-I can be tested with this population which is uniquely affected by 21st century technological advances. Social identity theory provided a framework within with the interaction of groups with strong occupational identities can be analyzed.

In addition to background information, Chapter 1 also included the statement of the problem and purpose of the study as well as the research questions that will guide the study. The limitations, delimitations and assumptions were outlined to provide a framework within with this study is bound. Definitions were provided to ensure understanding of important terms. The importance of the study placed this research within the larger context of both library and organizational conflict research.

Chapter 2 includes a literature review beginning with an overview of occupational membership in libraries and IT departments. This is followed by a review of the organizational conflict research that informed Rahim’s creation of the ROCI-I, and a
history of the creation and subsequent use of the ROCI-I by researchers. A literature review of psychometric theory and social identity theory, the conceptual underpinnings upon which this study is based, completes the chapter. Chapter 3 explains the research methodology, including a description of the sample, survey instrument, data collection procedures, and data analysis.
In 1994, the administration at Gettysburg College announced a merger of the library and computing center that went beyond the level of previous mergers at other institutions. It was described by one library staff member as, “a level of integration so complete that all vestiges of the traditional library disappeared” (Wagner, 2000, p. 164). The merger was an attempt to combine budgets while reducing redundancy. The administration also hoped the merger would allow the traditionally-run library to learn from the nimble and technologically-savvy computing center (Wagner, 2000). Both of these reasons are recognized by library researchers as poor reasons to merge the two departments (Hardesty, 1998; Hirshon, 1998).

According to Wagner (2000), the merger was doomed from the beginning due to leadership teams that were detached from the day to day operations of the department and poor communication between the administration and the employees. In fact, the merger at Gettysburg College is regarded in library research as a failure of both communication and culture (Cain, 2000). The detached leadership made decisions that impacted the work of both library professionals and computer technicians in a negative way. The poor communication between the administration and the employees cultivated an atmosphere of distrust, rumors and gossip that resulted in a significant increase in turnover (Wagner, 2000).

The administrators at Gettysburg ignored the warning signs and as a result, conflict was a major impediment to the merger’s success. The lack of communication
allowed each group to retain their stereotypes of the other with no opportunity to come together as a team (Wagner, 2000). The administration did not capitalize on turning negative conflict into positive conflict. As a result, “Small misunderstandings turn into major grudges. Minor suspicions become major issues of mistrust” (Wagner, 2000, p. 174). The merger lasted three years before the departments were separated (Cain, 2000).

While the intent of the Gettysburg College merger was efficiency of manpower and expenses, the actual outcome was not driven by efficiency, but by conflict. The administration eliminated the traditional department structure of both the library and information technology departments and organized employees instead using a process-based structure. In eliminating the traditional department structure, Wagner asserted, the administration failed to understand the strong occupational identity felt by library professionals and the intense differences in culture that existed between library professionals and IT departments. The following literature review examines some of the issues that impacted Gettysburg College and could potentially negatively impact future library and IT mergers.

Chapter 2 begins with an overview of the two occupations on which this study will focus: library professionals and IT professional. This overview is followed by a brief history of organizational conflict literature that led to the creation of the ROCI-I (Rahim, 1983a) to measure levels of organizational conflict. Next the theory and development of the ROCI-I are explored, followed by a review of the research that has used or modified the instrument to analyze conflict in various populations. Psychometrics is introduced as the means by which the ROCI-I will be tested for reliability and construct validity. Social
Identity Theory is introduced as the conceptual underpinning supporting the need to measure differences in conflict levels between the two occupational groups.

Occupational Membership

Scholars who have researched the trend to merge library and IT departments often cite organizational culture as one of the primary factors to be addressed by administration. There is an assumption inherent in this research that individual differences exist between the two groups based on education and the factors that drove them to choose each career. Researchers assert that the needs and motivations of the employees in each department (outlined in Table 1) are significantly different, and in some cases, in direct opposition to one another (Cain, 2003; Favini & Baker, 1997; Hawkins & Battin, 1997; Hughes, 1990; Hwang, 2007).

Table 1

*Occupational Characteristics of Library and IT Professionals*

<table>
<thead>
<tr>
<th>Occupational Characteristics</th>
<th>Library professionals</th>
<th>IT Professionals</th>
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<tbody>
<tr>
<td>service oriented</td>
<td>technology oriented</td>
<td></td>
</tr>
<tr>
<td>fiscally responsible</td>
<td>entrepreneurial</td>
<td></td>
</tr>
<tr>
<td>govern by consensus</td>
<td>governed by creativity</td>
<td></td>
</tr>
<tr>
<td>advocate for free access to information</td>
<td>advocate for secure access to information</td>
<td></td>
</tr>
<tr>
<td>predominantly female and older</td>
<td>predominantly male and younger</td>
<td></td>
</tr>
<tr>
<td>benefit to college is highly visible</td>
<td>benefit to college is largely transparent</td>
<td></td>
</tr>
<tr>
<td>strong professional identity</td>
<td>focus on global information community</td>
<td></td>
</tr>
<tr>
<td>concerned with the well-being of the university</td>
<td></td>
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</tbody>
</table>
Library Professionals

Library professionals have long been stereotyped as old ladies with sensible shoes, glasses on a chain and hair in a bun. They are often portrayed in movies and television shows as obsessively concerned with quiet and order. In interviews with IT professionals, library professionals were described as “idealistic, isolated and impractical” (Hawkins & Battin, 1997, p. 26). In discussing the technological changes that have impacted college campuses across the country, one IT professional described her college librarian as a “deer caught in the headlights, paralyzed by the changes around her” (Renaud, 2001, p. 987). For the most part, library professionals are stereotyped as conservative (Cain, 2003).

In reality, professionals in libraries are service oriented, fiscally responsible professionals who govern by consensus (Cain, 2003). Library professionals typically have at minimum a bachelor’s degree and usually have one, and often two, master’s degrees (Cain, 2003). In many academic institutions, librarians hold faculty status (Renaud, 2006). Today’s library professionals use technology to support the mission of the college as much as IT professionals do (Favini & Baker, 1997). While the job of IT professionals centers around technology, however, technology is usually a means to an end for library professionals (Ross, 1997).

IT Professionals

The field of information technology is significantly younger than that of librarianship (Cain, 2003). As a result, stereotypes are less pervasive than those of librarians. In IT research, the most common adjectives used to describe IT professionals by those outside the profession were ‘geek,’ ‘dirty,’ ‘arrogant’ and ‘nerd’ (Garcia-Crespo,
Colomo-Palacios, Miguel-Gomez & Tovar-Caro, 2008). When library professionals were asked to describe IT professionals, they used terms such as “blue-sky people” and “poor service orientation” (Hawkins & Battin, 1997). One librarian referred to the IT professionals at her institution as “cowboys, lone guns who made changes affecting the whole institutions without consultation” (Renaud, 2001, p. 987). While library professionals are described as conservative, IT professionals are typically stereotyped as independent (Cain, 2003).

IT professionals are technology oriented professionals who are governed by creativity (Cain, 2003). Unlike librarians, they typically possess no degree higher than a bachelors, and certifications carry more weight than degrees (Renaud, 2006). In addition, their work is often invisible, consisting of a framework which enables the creation of other, more visible work. They are, however, typically paid significantly more than librarians, despite the lack of advanced degrees (Renaud, 2006; French, 2006). Possessing a seemingly innate comfort with new technology, IT professionals tend to regard all resistance to new technology as unfamiliarity or unwillingness to change (Fernandez, 2005).

**Relationship between Library and IT Professionals**

The differences between library and IT professionals (outlined in Table 1) have been credited with causing mistrust and resentment in both merged departments and those that have remained separate but must still rely on one another on a regular basis (Dougherty, 1987; Oden, et al., 2001). According to both library and IT researchers, both sides have reason to feel resentment toward the other (Ayers, 2004; Benbasat & Zmud, 2003; Fernandez, 2005; Hawkins & Battin, 1997; Renaud, 2006).
The work of IT professionals is typically only visible when it is not working. Cain (2003) explained library service as adding a new deck to the back of your house. When it is complete, everyone gathers to admire the new deck. IT support, on the other hand “is like replacing a leaky roof. When you’re done, you have…a roof, just like before, except it doesn’t leak. Ask yourself which of those two types of home improvement would give you more pleasure” (p. 178). In addition, IT professionals are increasingly expected to do more than make sure the technology in the building is functioning correctly. In higher education, IT professionals are expected to be both active participants in goal setting and strategic planning for the college and skilled at understanding, and providing service to, the various cultures that exist among faculty, staff and students at their institution (Hawkins & Battin, 1998).

Although IT professionals might feel they are less appreciated than their library counterparts, library professionals resent their dependence on the IT department in order to maintain their websites, databases and remote access to the library’s digital presence (Ross, 1997). When asked to describe IT professionals, librarians often mentioned poor customer service skills as one of the attributes (Hawkins & Battin, 1997; Cain, 2003; Renaud, 2001). Yet this perceived lack of customer service does not hinder IT professionals from commanding significantly higher salaries than library professionals (Renaud, 2006; French, 2006). In addition, the views of the two groups on information access and security are typically in opposition to one another. Librarians promote open access to information, but often find themselves in conflict with the IT professionals who are focused on the security of the network on which the information is housed. As Cain (2003) explained, “There is a natural tension between functionality and security. The
most functional network might be the one that is least secure. The most secure network would block a user from doing anything” (p. 178). Since these two views are mutually exclusive of each other, each side must be willing to compromise their view in order to benefit the institution as a whole.

Library/IT Mergers in Higher Education

Although there are no published numbers stating how many colleges and universities have merged their library and IT departments, the number can be estimated to be fairly small considering the number of institutions of higher education that exist in the United States. Renaud (2006) identified 30 merged department institutions, 27 of which were from liberal arts institutions. Consiglio’s (2010) MISO survey has gathered over 60 participants, although not all institutions in that survey group are merged at a level that meets this study’s definition. This study identified 22 institutions that met the criteria for merger identified in this study. There are many more who are merged to a lesser extent or who collaborate regularly but do not share governance, office space or budget resources.

Qualitative evidence shows that mergers can have both a negative and a positive impact on the conflict perceived by the library and IT professionals in the institution. The Gettysburg case study that opened this chapter provides clear evidence of the negative impact library/IT mergers can have on the institution and the individuals within the department (Wagner, 2000). Other institutions mirror the unease that was reflected in the Gettysburg case study. Hardesty (1998) related the sentiment from an IT manager regarding an upcoming merger at his institution, “You may use the word merger, but many of us [IT professionals] will translate that into ‘takeover’ as you speak” (Hardesty, 1998, p. 35). His library counterpart stated that he and the IT manager “both feel uneasy
about the other’s aspirations and what responsibilities will be left for us in the future. I have a feeling that, in the end, one or the other of us will lose out” (Hardesty, 1998, p. 35)

A library professional at another merged institution felt that the merger resulted in a “loss of identity” for the library (Ludwig & Bullington, 2007). These sentiments show a feeling of resentment caused by fear and mistrust that is difficult to overcome if not addressed early in the merger (Swanepoel, 2005; Stemmer, 2007).

There are, however, many institutions that have found the library/IT merger to have a positive impact on the level of conflict between the two occupational groups. Earlham College’s merger in 2001 resulted in increased trust and confidence to work as a unit to solve problems that require both library and IT expertise (Baker & Kirk, 2007). Dickinson College merged slowly, leaving vestiges of the old system intact at the beginning in order to “allow time to recruit a new leadership team, clarify responsibilities, and build teamwork across departments” (Renaud, 2006, p. 70). This process resulted in a team of library and IT professionals who worked together to exploit the benefits of the merger for the good of the institution (Renaud, 2006).

As with most things, the positive impacts derived from these mergers required significant time and effort in order to be successful. Stemmer’s (2007) survey of CIO’s and academic deans in colleges with merged departments shows that positive impact on conflict requires time and investment in staff development. Hirshon (1998) repeatedly advocated the need to address cultural differences at the early stages of merger planning.

Organizational Conflict

Conflict between two groups, such as library and IT professionals, is inevitable and, to a certain extent, necessary (Tindale, Dykema-Engblade & Wittkowski, 2005).
This section expands on the definition and history of organizational conflict, and the need for leaders to understand the level of organizational conflict that exists among their team.

Definitions of Conflict

There appear to be as many definitions of conflict as there have been articles written on the topic (Kolb & Putnam, 1992). Most of the definitions build upon earlier definitions. While each of these definitions stands on its own, they typically share common threads related to differences, conflicting goals, interdependence and deprivation on some level. Thomas (1992) defined conflict as “the process which begins when one party perceives that another has frustrated, or is about to frustrate, some concern of his (p. 265). Litterer (1966) argued that conflict is “a type of behavior which occurs when two or more parties are in opposition or in battle as a result of a perceived relative deprivation from the activities of or interacting with another person or group” (p. 180). Pondy (1966) argued that conflict can be seen as a social variable, a cognitive variable, a political variable, or a structural variable. In all cases, all four elements are likely to be present in varying degrees.

Treating organizational conflict as a social and political variable narrows significantly the number of competing definitions that exist for conflict. According to Emerson’s (1962) power-dependency model, conflict occurs because one group has power over another group that is dependent upon the power group. Assael (1969) argued that “conflict between organizations is an inevitable outgrowth of functional interdependence and the scarcity of resources” (p. 573). In the case of libraries and IT departments, and even more so in those departments that have merged operations, both of these elements exist and, arguably, add to the level of conflict.
Because this study examines Rahim’s instrument, it is logical that this study operate using Rahim’s definition of conflict. According to Rahim (2011), “Conflict is defined as an interactive process manifested in incompatibility, disagreement, or dissonance within or between social entities (i.e. individual, group, organization, etc.)” (p. 16). Rahim (2011) argued that conflict occurs in the following circumstances: When a person or group is required to “engage in an activity that is incongruent with his or her needs or interests” (p. 17); when the satisfaction of one person’s preferences is incompatible with the implementation of another person’s preferences; when one or more people or groups wants access to a finite resource such that everyone will not have their need or desire satisfied; when a person’s or group’s attitudes, values, skills, and goals are perceived by another to be exclusionary in regard to the attitudes, values, skills and goals of another; when in joint ventures with the other group, a person judges the behavior of the other group against the behavioral norms of his or her own group; when people or groups are dependent on each other to achieve their goals or complete their activities.

History of Conflict Research

Rahim’s development of the ROCI-I was influenced by the conflict research that came before him. The following sections will outline the historical debate in conflict research that provided the framework for the ROCI-I (Rahim, 2011).

Classical view of conflict. Conflict research originated with early organization theory research. Writers like Taylor, Fayol, and Weber addressed conflict through the lens of productivity (Shafritz, Ott & Jang, 2005). Through this lens, typically conflict is viewed as a negative trait in an organization. This opinion began early in organizational studies with writers like Frederick Taylor (1913), who believed his scientific
management approach would mean “the elimination of almost all causes of dispute and disagreement between [workmen and employers] (p. 142). Fayol (1949) agreed with Taylor that conflict was antithetical to productivity. He wrote, “…general opinion is deeply convinced that discipline is absolutely essential for the smooth running of business and that without discipline, no enterprise could prosper” (p. 50). The early proponents of organization theory focused much attention on control of the worker, through bureaucracy, scientific management, or division of labor (Weber, 1958; Gulick, 1937; Taylor, 1913; Simon, 1946).

Litterer (1966) summed it up well when he said, “The writers of classical organization theory viewed conflict as undesirable, detrimental to the organization. Ideally it should not exist. Their prescription was simple. Eliminate it” (p. 178). This view, however, is an oversimplification of the research of the era. Not all early organization theory researchers viewed conflict as inherently negative. Follett (1942) outlined three different ways administrators deal with conflict: domination, compromise, and integration. While many of her contemporaries discussed earlier were advocating domination, Follett recognized, “this is the easiest way of dealing with conflict…but not usually successful in the long run” (p. 31). Instead, Follett advocated integration, in which neither side necessarily gives up ground, rather both sides work together to craft a new solution that integrates both their needs. Follett provided a foreshadowing of future conflict research when she stated, “Conflict as the moment of the appearing and focusing of difference may be a sign of health, a prophecy of progress” (p. 34).

Modern view of conflict. Some more modern researchers also advocated for the elimination of all organizational conflict. Neuhauser (1988) argued that conflict wastes
the administration’s time and the organization’s money, instead advocating that administrators “handle conflict in the quickest way possible, with a minimal number of people involved, and with the best outcome for the organization” (p. 4). Cliff (1987) pointed out that organizational conflict can affect an organization’s bottom line if the conflict cannot be contained to the point of impacting production levels and quality. Other researchers such as Blake and Mouton (1964) and Likert (1961) advised that conflict could be controlled and minimized through proper management styles.

Many researchers now agree with Follett that conflict creates positive opportunities for change (Assael, 1969; Bacal, 2004; Harrison, 1980; Kerr, 1964; Litterer, 1966; Nightingale, 1974). Kerr (1964) expressed concern over the literature that advocated eliminating organizational conflict. Kerr argued in direct opposition to the opinions of Neuhauser, stating that labor costs of conflict have been exaggerated and too little attention has been paid to the benefits of conflict to the organization. Litterer (1966) argued that conflict “initiates a search for some way to resolve or ameliorate the conflict and therefore leads to innovation and change” (p. 180). Litterer went on to say that conflict typically occurs in a part of the organization that is not operating effectively, thus furthering the impetus for change. Bacal (2004) warned that attempting to eliminate conflict in an organization “suppresses any positive outcomes that may arise from disagreement, such as improved decision making and innovation” (p. 21).

Assael (1969) believed that conflict was positive when it resulted in “a more equitable allocation of political power and economic resources by the formation of new countervailing forces, and greater balance and stability within the system” (p. 573).
The Importance of Conflict Levels to Leadership

The need for researchers and organizational leaders to know the level of conflict in an organization is rooted in the literature of organizational conflict. While modern researchers recognize the positive functions of conflict, many recognize that level of conflict is an important aspect of maintaining the benefits conflict can have on an organization (Cliff, 1987; Litterer, 1966; Nightingale, 1974; Rahim 1983a; Rahim, 2011). Litterer (1966) stated, “While doubtless some forms and certain degrees of conflict are dysfunctional…other types, to certain degrees, are useful. The questions then are how much conflict is functional and where are the limits beyond which it becomes dysfunctional” (p. 179). Nightingale (1974) pointed out that while conflict can be beneficial and too much conflict is dysfunctional, there is no defined optimal level of conflict within an organization.

Rahim Organizational Conflict Inventory

Administrators who manage conflict on a daily basis in their organizations can benefit from a better understanding of the levels at which conflict ceases to be productive and moves into being harmful to the organization. According to Rahim (2011), most of the literature regarding organizational conflict focuses on minimizing conflict. He argued that the conflict literature contains “no clear set of rules to suggest when conflict ought to be maintained at a certain level, when reduced, when ignored, and when enhanced” (p. 45). He created the ROCI-I to address this question.

Creation of the ROCI-I

Rahim (1983a) stated, “To study conflict, we must be able to measure it” (p. 189).
Since, as Nightingale (1974) stated, there was no baseline level for healthy conflict in organizations, this instrument fills a void in organizational conflict research. In early development of the ROCI-I, Rahim and Bonoma (1979) were clear that their focus was on conflict management rather than conflict resolution. They stated, “The difference is more than semantic” (p. 1324). Conflict resolution focuses on the elimination of conflict. Conflict management focuses effort on using conflict to match goals and expectations with the needs of the organization. Conflict management also focuses effort on “channeling the energies, expertise, and resources” of the members within groups as well as between groups to help the organization as a whole attain its goals (Rahim & Bonoma, 1979, p. 1326).

Theoretical Basis of the Instrument

Rahim (2011) argued the impetus for creating the ROCI-I stemmed from deficiencies in the literature regarding a clear set of rules to suggest when conflict ought to be maintained at a certain level, when ignored, and when enhanced. The ROCI-I stands in direct opposition to those modern researchers who still espouse the classical view that all organizational conflict is negative. Rahim (1983b) based the ROCI-I on the work of modern organizational conflict researchers who argued for the idea of balance in conflict levels. Two types of conflict impact Rahim’s creation of the instrument: affective conflict and substantive conflict.

Affective conflict. Rahim (2011) classifies affective conflict as negative conflict, consisting of such behaviors as sexual harassment, racial disharmony and personal attacks on members of the group. Numerous researchers have outlined the negative effects of affective conflict including diminished group loyalty and decreased job
satisfaction (Amason, 1996; Jehn, 1995). Affective conflict at any level is generally agreed to negatively impact both individual and group performance (Rahim, 2011).

**Substantive conflict.** Rahim (2011) placed substantive conflict at the foundation of the argument for balanced conflict. In this model, substantive conflict is classified as positive conflict, consisting of such behaviors as disagreements about tasks, policies and other business issues. It is substantive conflict that modern researchers argue needs to be present in a balanced approach to organizational conflict (Cliff, 1987; Litterer, 1966; Nightingale, 1974). Rahim (2011) argued “this conflict can improve group performance through better understanding of various viewpoints and alternative solutions” (p. 77). The concept of balance is important, even in the arena of positive conflict. Too high levels of substantive conflict, Rahim argued, can become a detriment to performance, causing the same negative effects as affective conflict. The ROCI-I was created to measure substantive conflict (Rahim, 2011).

**Achieving balance.** Based on Rahim’s research and the work of other organizational conflict researchers, Rahim and Bonoma (1979) hypothesized conflict levels to follow an inverted-U pattern (see Figure 1). The U represents productivity, with the low productivity at each extreme of conflict levels (high and low) and optimal productivity, the highest point of the inverted-U in the center equidistant between the two extremes. This depiction is similar to the research of Blake and Mouton resulting in their managerial grid (1978).

In Blake and Mouton’s model, five styles of handling conflict are outlined. The styles correspond to a grid on which the x-axis is “concern for production” and the y-axis is “concern for people.” One of the elements in the grid is conflict. Within the grid, too
little balance between production and people was equated with negative managerial style (Blake & Mouton, 1978). Rahim (2011), expanding on the ideas set forth by Blake and Mouton, believed that balance in organizational conflict is the key to a successful organization. “A moderate amount of conflict, handled in a constructive fashion, is necessary for attaining an optimal level of organizational effectiveness” (Rahim, 2011, p. 13). Rahim suggested administrators need to know what level of conflict exists in their organization in order to achieve the balance these researchers describe.

In keeping with the research that shows that too little conflict causes stagnation and too much causes dysfunction, Rahim and Bonoma (1979) depicted the conflict level dilemma as an inverted U. Figure 1 shows a curve with the low ends showing both high and low conflict with low organizational effectiveness. The center of the curve shows moderate conflict with optimum organizational effectiveness. Rahim and Bonoma (1979) explain that this inverted U of conflict levels is present in intrapersonal, intragroup and intergroup conflict. Rahim (2011) argued the inverted U design is consistent with activation theory, in which the same inverted U pattern exists between a person’s activation level and their performance.
Figure 1. Illustration of Inverted U Design. This figure illustrates the decrease in organizational effectiveness when conflict levels are too high or too low.

Rahim and Bonoma (1979) also outlined three categories of conflict: intrapersonal, intragroup, and intergroup. These three categories became the basis for the 3-factor model of the ROCI-I (Rahim, 1983a). In later research, Rahim (2011) added interpersonal conflict as a fourth category, but did not include it in the ROCI-I model because “most of the literature on interpersonal conflict deals with styles of handling interpersonal conflict rather than the amount of such conflict” (p. 87). Rahim (2011) argued the three categories included in the ROCI-I are those to which the inverted U design in Table 2 apply.

Intrapersonal conflict. According to Rahim (2011), intrapersonal conflict occurs when an individual is faced with decisions between two or more mutually exclusive decisions. This definition of intrapersonal conflict includes role conflict and role ambiguity. In Rahim’s definition, role conflict exists when an individual is required to take on two or more roles that require contradictory behavior or values. Role ambiguity exists when an individual in a given role does not clearly understand the expectations for
their role. The consequences of role conflict and role ambiguity include anxiety, employee turnover, and lack of organizational commitment (Rahim, 2011). Rahim argued that including intrapersonal conflict in the ROCI-I “should enable a management practitioner or a behavioral science consultant to decide whether the members of an organization…are experiencing too little, too much, or a moderate amount of intrapersonal conflict” (p. 75).

Intragroup conflict. According to Rahim (2011), intragroup conflict exists when members of a group disagree on the goals and activities of the group. In this definition, a “substantial number of the members of the group” must be involved in the conflict for it to be classified as intragroup conflict (Rahim, 2011, p. 117). Rahim argued that the study of intragroup conflict is important because “groups provide the primary mechanism for the attainment of organizational goals” (p. 117). The organizational consequences of high intragroup conflict include burnout, low levels of goal clarity and lower job satisfaction. Conversely, low intragroup conflict can cause groups to be less productive and to fall prey to groupthink (Rahim, 2011). Including intragroup conflict on the ROCI-I is useful to leaders of organizations due to the high level of influence leaders have on intragroup conflict. Rahim (2011) stated, “Leadership can influence other variables, such as task structure, group composition, size, and so on, which affect the amount of intragroup conflict and the styles of handling conflict by the group members” (p. 129).

Intergroup conflict. Rahim (2011) defined intergroup conflict as conflict regarding goals, tasks, resources, etc. that exists between two or more groups or subsystems within an organization. Rahim explained that the interdependence of groups on each other for information, resources, etc. combined with the heterogeneity that exists
within the groups are the basis for many intergroup conflicts. Rahim references social identity theory as a partial explanation for intergroup conflict. Tajfel (1972), the originator of social identity theory, stated, “Social comparisons between groups are focused on the establishment of distinctiveness between one’s own group and other groups” (p. 296). Ethnocentrism is common within groups and is credited with creating the “us” versus “them” mentality of intergroup conflict (Hogg, 2006).

Intergroup conflict has several consequences for the organization. When groups are presented with a win-lose scenario, in which one group will win and one group will lose, the level of intragroup conflict is reduced as members “close ranks, play down their disagreements, and become more loyal to the group so that a united front can be maintained against the outgroup” (Rahim, 2011, p. 141). This temporary period of intense cohesiveness can cause a groupthink mentality within the group. The win-lose nature of the conflict between the groups can cause the groups to apply negative stereotypes to the members of the outgroups and possibly to dehumanize members of the outgroup as a means of justifying increased aggression. In conflicts that are resolved by means of bargaining in which the groups compromise to reach a resolution, both sides may feel that they have lost in the conflict (Rahim, 2011). Intergroup conflict does, however, have some positive organizational outcomes. Intergroup conflict has been found to increase the quality and quantity of output for groups that work in conflict compared to groups that work in cooperation (Julian & Perry, 1967).

Inclusion of intergroup conflict in the ROCI-I will allow researchers and administrators learn where the conflict in their organization lies on the inverted U continuum. Rahim (2011) suggests that researchers who are interested in conflict levels
between specific groups advise the respondents to use the survey to indicate the level of conflict that exists between their department and the other department in question. This targets the subjects responses to a specific intergroup conflict rather than intergroup conflict as a whole between their group and all other groups within the organization. In this study, the respondents were given two group choices. They were instructed to choose membership in one group and use the other group as the focus for questions dealing with intergroup conflict.

Development of the ROCI-I

Rahim created the ROCI-I in 1983. The initial version of the instrument consisted of thirty-nine items, seventeen of which were taken from an earlier organizational conflict instrument designed by Rahim. This instrument was subjected to four factor analyses, three from students (ns: 95, 189, 35) and one from managers (n=1,188). Factor loadings greater than 0.40 were used to create a modified instrument with approximately 92 items (Rahim, 2011).

Factor analysis of these items using the manager data (n=1,188) yielded a final instrument consisting of 21 items. Rahim used principal component analysis and Varimax rotation to derive the factors. In this analysis, Rahim identified four factors, but only three met the criteria of factor loadings greater than .40 and eigenvalues greater than 1.0. The three factors were labeled Intrapersonal, Intragroup, and Intergroup conflicts (Rahim, 2011).

Rahim used confirmatory factor analysis to explore the convergent and discriminant validities of the instrument. The population for this analysis was the same manager data (n=1,188) as was used in the original factor analysis.
Research studies employing the ROCI-I

Numerous studies have used the ROCI-I to assess conflict levels among various populations. Easter (1997) used the ROCI-I to assess faculty perceptions of conflict between the athletics department and the rest of the campus. Gutierrez (2001) administered the ROCI-I to 60 child protective services employees to assess conflict levels within the organization. Young (1996) assessed conflict levels in two-year colleges using the ROCI-I. Kimball (2004) used the ROCI-I to examine levels of conflict and the impact of these conflict levels on employee’s emotional engagement. These are just a few examples of studies published using the ROCI-I. The list is extensive and underscores the need for further psychometric assessment.

Although the instrument has been externally tested for convergent and discriminant validity, it has not been subjected to external assessment of the psychometric properties. The studies that used the ROCI-I, as well as the administrators who use the ROCI-I to assess conflict levels in their organization, will benefit from a greater understanding of the psychometric properties of the instrument.

Other instruments based on the ROCI-I

Another important reason for assessing the psychometric properties of the ROCI-I is to provide a more solid foundation for instruments that are based on the ROCI-I. Several studies analyzed the ROCI-I and found it did not exactly measure the constructs that applied to their research. These researchers chose to use the ROCI-I as a foundation for a new instrument that more closely aligns with their theoretical framework. Since a house is only as solid as its foundation, assessing the psychometric properties of the ROCI-I may serve to strengthen these new instruments.
The National Institute for Occupational Safety and Health (NIOSH) created the Generic Job Stress Questionnaire to measure psychosocial stress at work (Hurrell & McLaney, 1988). This questionnaire measured numerous constructs, including interpersonal conflict. The instrument’s source for its 16 items measuring interpersonal conflict was the ROCI-I. NIOSH based their measurement criteria on three factors: 1) scales with acceptable psychometric properties, 2) scales that do not confound the description of stressors and strains and 3) scales that have been used extensively in prior research. The ROCI-I was listed in their rationale as having acceptable psychometric properties despite an absence of external assessment (Hurrell & McLaney, 1988).

Fakhry and El Hassan (2011) created two instruments. One instrument seeks to measure causes of conflict and the other to measure resolution strategies as these relate to differing cultures. The authors stated, the questionnaire measuring causes of conflict, “was derived mainly from the Rahim Organizational Conflict Inventory – I (ROCI-I), which has proved construct, criterion, and convergent validity as well as internal consistency” (p. 809). An external analysis of the psychometric properties of the ROCI-I may further legitimize the studies that use Fakhry and El Hassan’s instrument.

Cox (2004) developed the Cox Intragroup Conflict Scale to measure “views of conflict and measures of affective stated and behaviors that occur in the core process of conflict” (p. 134). Although Cox did not use the ROCI-I as a starting point for the new instrument, the ROCI-I and other conflict scales were used to assess the construct validity of the instrument.
Conceptual Underpinnings

The conceptual underpinnings for this study serve to support the two purposes outlined in the research questions: to re-assess the psychometric properties of the ROCI-I, and to determine the levels of intergroup, intragroup and intrapersonal conflict that exists in library and IT professionals. Psychometrics provides a basis by which the ROCI-I can be evaluated for reliability and validity with a new, untested population. Social Identity Theory provides a foundation for understanding the group identity of each of these occupational groups and how these group identities could shape how each group interacts with the other.

Psychometrics

Psychometrics was the basis for this study’s second research question. The psychometric methods that were used in this study are covered in the methodology section of Chapter 3. This section deals with the theoretical aspects of psychometrics that make it a reliable process. The psychometric properties that were employed in this study are Cronbach’s alpha, principal component analysis, and Varimax rotation.

Development of psychometrics. Browne (2000) stated that “psychometrics may be regarded as the discipline concerned with the quantification and analysis of human differences” (p. 661). The field of psychometrics was created by L. L. Thurstone in 1935 with the creation of the Psychometric Society. At the first meeting, Thurstone (1959) outlined the society’s purpose “to encourage the development of psychology as a quantitative rational science” (p. 227). Researchers in this field recognize the difficulty of measuring behaviors and attitudes (Nunnally, 1978; Thurstone, 1959; Raykov &
Marcoulides, 2011). Thurstone (1959) also recognized this difficulty and, in 1928, outlined the use of scales to measure factors that make up the unobserved construct.

*Cronbach’s Alpha.* Field (2009) refers to reliability in the realm of factor analysis as a test of whether the instrument measures the constructs it purports to be measuring. Internal consistency is superior to the other measures of reliability because it only requires that a survey be given once, rather than twice for test-retest and alternate methods. According to Ravid (2010), “the reliability estimates obtained by internal consistency methods are usually similar to those obtained by correlating two alternate forms” (p. 195). Cronbach (1951) advocated for a reliability coefficient, which “demonstrates whether the test designer was correct in expecting a certain collection of items to yield interpretable statements about individual differences” (p. 297).

Cronbach’s Alpha is the most widely used reliability coefficient among researchers (Peterson, 1994). Nunnally (1978) advised that Cronbach’s alpha “should be applied to all new measurement methods. Even if other estimates of reliability should be made for particular instruments, coefficient alpha should be obtained first” (p. 230). A high alpha level indicates a reliable scale. A low alpha level indicates an unreliable scale. (Field, 2009; Nunnally, 1978; Cronbach, 1951). In a literature review of alpha levels used by researchers from 1960 to 1992, Peterson (1994) determined the median alpha was .79. Nunnally (1978) and Field (2009) advocated using an alpha coefficient of .70 to .80 as the criteria for reliability for basic research.

*Principal Component Analysis.* Principal component analysis is concerned with reducing the data into as few factors as possible (Raykov & Marcoulides, 2011). Field (2009) stated, “Principal component analysis is concerned only with establishing which
linear components exist within the data and how a particular variable might contribute to that component” (p. 638). Raykov & Marcoulides (2011) described principal component analysis as a mathematical procedure rather than a statistical method. Nunnally (1978) presented principal component analysis as “an optimum approach to condensation prior to rotation” (p. 357).

**Varimax Rotation.** Factor rotation is a method of clarifying the factors with which each variable is associated. It is common for variables to load on more than one factor, which makes it difficult to clearly interpret the factor loadings (Field, 2009). Nunnally (1978) explained the mathematical justification for rotating factors. Since the common variance is the same in both the rotated and unrotated matrices, Nunnally argued “the rotated factors are ‘just as good’ as the unrotated factors. Thus if rotated factors are more easily interpreted than unrotated factors, the investigator has every right to rotate” (p. 371).

In factor rotation, the axes are literally rotated “so that the nature of the underlying constructs becomes more obvious to the researcher” (Thompson, 2004, p. 38). There are two kinds of factor rotation: orthogonal and oblique. Oblique rotation is used for correlated factors. Orthogonal rotation assumes that prior to rotation, the factors are independent. The process of orthogonal rotation maintains the independence of the factors (Field, 2009). There are three kinds of orthogonal rotation: Varimax, quartimax, and equamax. Varimax rotation, the method used in this study, “searches for a rotation of the original factors such that the variance of the loadings is maximized” (Abdi, 2003, p. 3).
Factor Analysis. Since the unobserved construct is not being directly measured, researchers cannot have absolute confidence in the factors used to define the construct. This problem created the need for factor analysis, a method of analysis within the larger field of psychometrics (Browne, 2000). Nunnally (1978) stated that factor analysis is “a broad category of approaches to conceptualizing groupings, or clusterings, of variables and an even broader collection of mathematical procedures for determining which variables belong to which groups” (p. 327). Pedhazur and Schmelkin (1991) recommend factor loadings of 0.50 or greater.

Social Identity Theory

Research questions 3-5 in this study were guided by Social Identity Theory. Social Identity Theory is a logical choice as a foundation for this study. As Hogg (2006) stated, Social Identity Theory “has become accepted around the world as one of mainstream psychology’s most significant general theories of the relationship between self and group” (p. 112). Rather than focusing on the group as the entity under examination, Social Identity Theory places the focus on the individuals within the group and how membership in the group contributes to their concept of self (Ellemers, 2010).

Tajfel and Turner (1979) based Social Identity Theory on three main variables: social categorization, social comparison, and social identification. First, the individual must recognize that individuals can be categorized in terms of group membership. Second, their group membership must allow for comparison with other groups. Finally, comparison with a comparable outgroup affects how the individual perceives themselves and members of the outgroup (Ellemers, 2010). In this section, each of these variables
will be explored and examples from merger literature will be used to illustrate the relevance of the variables to this study.

**Social categorization.** The first variable in Social Identity Theory addresses how individuals understand group membership. In order for group membership to effect an individuals’ behavior and beliefs, the individual needs to identify with the group to the extent that their concept of who they are, at least in some part, is defined by membership in the group (Hogg, 1990). Group identification provides individuals with “a strong sense of self, social location, and belonging” (Hogg, 2006). This idea of group membership also applies to observations of others as defined, at least in some part, by their membership in a group (Ellemers, 2010).

**Social comparison.** Social categorization enables the second variable in Social Identity Theory, comparison with other groups. Hogg (2006) argued that social categorization is based on prototypes that serve to magnify the similarities among group members while at the same time distinguishing between members of the group and those outside the group. These prototypes typically describe the ideal rather than the typical group member in order to enforce positive group identity and maximize intergroup differences.

**Social identification.** The third variable in Social Identity Theory is the use of social identity and social categorization to inform self-perception. According to Tajfel and Turner (1979), the aim of differentiation between groups is “to maintain or achieve superiority over an outgroup on some dimensions” (p. 41). According to Hogg (2006), once an individual defines himself with a group, the status of the group becomes the status of the individual. Therefore, it is in each individual’s interest to identify with a
group whose categorization is interpreted by the individual as superior to that of the outgroup. Since, according to Social Identity Theory, group status effects individual status, and differentiation between groups is intended to achieve superiority, it follows that these processes cause conflict between groups (Hogg, 2006). Superiority is a zero-sum game; in the eyes of the individual one group has to lose for the other to win, even if the other side does not acknowledge the loss (as is often the case).

Summary

The purpose of this study was twofold: to assess the psychometric properties of the ROCI-I and to determine the levels of conflict that exist within and between library and IT professionals in merged departments. This was accomplished by surveying the staff of 22 merged information service organizations on college campuses across the United States.

Chapter 2 began with an overview of both library and IT professionals as well as an exploration of the differences that exist between the two groups. Next, conflict was defined and followed by a historical review of the major research in the field of organizational conflict from the age of Taylor’s scientific management to current opinion. This review supports the study’s assertion that intrapersonal, intragroup and intergroup conflict levels are variables that influence organizational effectiveness.

Next, the creation and development of the ROCI-I were examined. The three factors, intrapersonal, intragroup and intergroup conflict were presented. The methodology used to create the ROCI-I was also explained. The importance of increasing researcher confidence in the instrument was emphasized by the presentation of several studies that have either used or based new instruments on the ROCI-I.
The two conceptual underpinnings, psychometrics and Social Identity Theory, were then examined. The two theories were presented as integral to the purpose of this study. Psychometrics was presented as the process by which the ROCI-I would be analyzed for reliability and validity. Social Identity Theory presented explanations for the dynamics of group identification and group competition.

Chapter 3 presents the research design and methodology that will be used to conduct this study. The purpose of the study is reviewed as are the research questions. Instrumentation, selection of participants, data collection and data analysis are also discussed.
Chapter 3 describes research methodology used for this research study. The statement of problem and purpose of study are reviewed as well as research questions designed to guide the study and corresponding null hypotheses. The research population is described, as well as the instrumentation, data collection methods, and data analysis procedures that will be employed.

Statement of the Problem

The most common higher education departmental merger is that of the library and the information technology department (Hardesty, 1998). Unfortunately, the merger of these two departments has been cited as a source of conflict within the organization (Renaud, 2001; Wagner, 2000). No quantitative evidence existed regarding the actual levels of perceived conflict between these two groups or the degree to which levels of conflict differ between the two groups. It was further unknown whether the instrument used to measure conflict levels still possessed adequate reliability and validity given that the last psychometric tests involved data from 1983. In addition, this study also verified the reliability and validity of the ROCI-I in assessing perceived conflict levels among library and IT professional populations.

Purpose of Study

This study examined how mergers impact the perceived conflict levels of two occupational groups, library and IT professionals. The outcomes were: a) to re-assess the psychometric properties of the ROCI-I, b) to determine the perceived conflict levels of
merged library and information services department employees as determined by the ROCI-I, and c) to determine if difference exists between perceived conflict levels of library and IT professionals.

The first purpose of this study was to test the psychometric properties of the ROCI-I. Because it has been 30 years since the ROCI-I has been psychometrically tested, the instrument needed to be re-verified and reliability re-established for current and future populations. In addition, since the ROCI-I had never been used to test for perceived conflict in library and IT professionals, psychometric testing provided reliability and validity information for its use with this population (Field, 2009).

The second purpose of this study was to sort the responses of the participants into three categories based on where they fall on the percentage scale set forth by Rahim (2004) and measure the frequency of these responses against the expected frequencies. According to Rahim (2004), scores for the ROCI-I typically fall between the 55th and 75th percentile. Scores below the 55th percentile indicate a lower than average level of conflict is perceived. Scores above the 75th percentile indicate a higher than average level of conflict is perceived.

The third purpose of this study was to measure differences in perceived conflict levels between the two occupational groups. Once perceived conflict levels were determined for the population as a whole, a 2-way Chi Square was used to determine difference in frequencies between the two occupation groups. Then T-test was used to test for difference in the mean scores between the two occupational groups. Discriminant function analysis was used to determine if specific questions could be used to categorize the populations.
Research Questions and Null Hypotheses

Five research questions were used to address the purpose of the study. The first two research questions provided a framework to test the psychometric properties of the ROCI-I. The final three research questions filled a gap in knowledge regarding the perceived conflict levels of library professionals and IT professionals and the ability of the ROCI-I to discern if the two occupational groups differ based on survey responses. Table 2 shows the research questions along with the purpose and the methods that were used to answer them and the expected outcomes.

RQ1. What are the summary descriptive statistics for the ROCI-I?

RQ2a. Can internal consistency for the ROCI-I and alternate forms be established using Cronbach’s alpha with a reliability of .70 or greater (Field, 2009)?

RQ2b. Can Rahim’s 3-factor model be confirmed using principal component analysis using an eigenvalue of 1.0 or greater or 60% variance explained and Varimax rotation?

RQ2c. If constructs are not confirmed by principal component analysis, can new constructs be identified using factor loading of 0.50 or greater?

RQ2d. Using factor loadings of 0.50 or greater, can the number of items in each construct be reduced (Form A)?

RQ3a. Using three conflict level groups: low conflict level, medium conflict level and high conflict level can difference be determined between the perceived conflict levels of library professionals and IT professionals using the 2-way chi square test of independence?
RQ3a. No significant difference can be determined in perceived conflict levels between library professional and IT professionals.

RQ3b. Using the categories created in RQ3a, can differences be determined between the observed frequencies of perceived conflict levels and the expected frequencies of perceived conflict levels using the 1-way chi square for goodness of fit?

RQ3b0. No significant difference can be determined between the observed frequencies and the expected frequencies of the two occupational groups.

RQ4. Using the categories created in RQ3a, can group mean difference on the subscales of the ROCI-I be determined between the two occupational groups using a t-test with a p value of 0.05?

RQ40. No significant group difference can be identified between the two occupational groups using the means of the subscales.

RQ5. Using the individual items on the three subscales as dependent variables, can membership in each of the occupational groups be predicted using MANOVA and discriminant function analysis?
Table 2

*Statistical Techniques Applied to Research Questions 2-5*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Purpose</th>
<th>Strategy</th>
<th>Anticipated Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ 2a: Can internal consistency for the ROCI-I and alternate forms be established using Cronbach’s alpha with a reliability of 0 .70 or greater?</td>
<td>To determine if the ROCI-I is still reliable 30 years after its initial psychometric testing.</td>
<td>Cronbach’s alpha will be calculated to measure internal consistency.</td>
<td>Internal consistency will be measured and reliability will be established with a Cronbach’s alpha level of 0.70 or higher.</td>
</tr>
<tr>
<td>RQ 2b: Can Rahim’s 3-factor model be confirmed using principal component analysis using an eigenvalue of 1.0 or greater or 60% variance explained and Varimax rotation?</td>
<td>To determine if the ROCI-I is an efficient model for measurement of perceived conflict among the two occupational groups in this study.</td>
<td>Use principal component analysis with Varimax rotation to identify interpretable components. Evaluate factors based upon Kaiser’s criterion and corresponding scree plot.</td>
<td>Identify main components using generated factor loadings from SPSS.</td>
</tr>
<tr>
<td>RQ 2c: If constructs are not confirmed by principal component analysis, can new constructs be identified using factor loading of 0.500 or greater?</td>
<td>To test for new constructs that may better measure perceived conflict levels for the two occupational groups.</td>
<td>Use the factor loadings from RQ1b to build refined forms of the ROCI-I.</td>
<td>Factor loadings of 0.500 or higher will be identified as strong items within their designated component. Weak items with a factor loading below 0.500 will be rejected.</td>
</tr>
<tr>
<td>RQ 2d: Using factor loadings of 0.500 or greater, can the number of items in each construct be reduced (Form A)?</td>
<td>To determine if the ROCI-I’s model can be further refined to be more efficient at measuring perceived conflict.</td>
<td>Use factor loading to further refine the ROCI-I.</td>
<td>Factor loadings of 0.500 or higher will be identified as strong items within their designated component. Weak items with a factor loading below 0.500 will be rejected.</td>
</tr>
<tr>
<td>RQ3a: Using three conflict level groups: low conflict level, medium conflict level and high conflict level can difference be determined between the perceived conflict levels of library professionals and IT professionals using the 2-way chi square test of independence?</td>
<td>To determine if levels of perceived conflict differ between the two occupational groups.</td>
<td>The data will be converted to percentages and matched to the criteria set by Rahim (2004).</td>
<td>Scores below 55% will be categorized as low, scores between 55% and 75% will be categorized as mid-range, and scores above 75% will be categorized as high. A p value of &gt;0.05 will be used to determine significant difference.</td>
</tr>
<tr>
<td>RQ3b: Using the categories created in RQ3a, can difference be determined between the perceived conflict levels and the expected frequencies of perceived conflict levels?</td>
<td>To determine if levels of perceived conflict between the two occupational groups differ from the expected levels of perceived conflict.</td>
<td>The data will be subjected to one-way chi square to measure the observed frequency of the category frequencies against the expected category frequencies</td>
<td>A p value of &gt;0.05 will be used to determine significant difference.</td>
</tr>
<tr>
<td>RQ 4: Using the categories created in RQ3a, can group mean difference on the subscales of the ROCI-I be determined between the two occupational groups using a t-test with a p value of 0.05?</td>
<td>To determine if subscale mean levels of perceived conflict significantly differ between the two occupational groups.</td>
<td>T-test will be used to determine the significance of the mean difference between the perceived conflict levels of each occupational group on each of the subscales.</td>
<td>A p value of &lt;0.05 will be used to determine significant difference.</td>
</tr>
<tr>
<td>RQ5: Using the individual items on the three subscales as dependent variables, can membership in each of the occupational groups be predicted based on the participants’ answers?</td>
<td>To determine if significant difference in perceived conflict exists at the item level and if there is enough discrimination to assign group membership within these two occupational groups.</td>
<td>MANOVA will be used to test for significant difference at the item level. Discriminant function analysis will be used to look for items that discriminate between the two occupational groups.</td>
<td>MANOVA: A p value of &lt;0.05 will be used to determine significant difference. Discriminant function analysis: Wilks’ lambda will be used to determine how separated the groups are within items.</td>
</tr>
</tbody>
</table>
Research Methodology

The survey data for this study was analyzed using the IBM Statistical Package for Social Science (SPSS) version 21. The sections below outline the methods that were used to answer the five research questions above. Table 2 also illustrates these methods.

*RQ1. What are the summary descriptive statistics for the ROCI-I?*

Because the intent is to summarize rather than analyze the population, this study provides summary statistics (Nunnally, 1978). The mean scores and standard deviations for the entire population and each occupational group were reported for each of the three subscales of the ROCI-I. These statistics are provided in table form in Chapter 4.

*RQ2a. Can internal consistency for the ROCI-I and alternate forms be established using Cronbach’s alpha with a reliability of .70 or greater?*

Based on the recommendation of Peterson (1994) and Nunnally (1978), this study utilized an alpha level of 0.70 or greater in order to determine the internal consistency of the ROCI-I. This measure was used to determine the degree to which all of the items on the ROCI-I measure a single construct, organizational conflict. In addition, Cronbach’s alpha was also used on each of three subscales to determine the degree to which all of the items within the subscales measured the constructs of intrapersonal conflict, intergroup conflict and intragroup conflict.

*RQ2b. Can the 3-factor model be confirmed using principal component analysis (principal component analysis) using an eigenvalue of 1.0 or greater or 60% variance explained and Varimax rotation?*

In answering research question 2b of this study, principal component analysis was used in an attempt to confirm that the ROCI-I three-factor model is the most efficient
way to determine the level of organizational conflict that exists in the sample. Nunnally (1978) argued that since principal component analysis maximizes the sum of squares loadings of each factor this method explains more variance than other methods.

Eigenvalues. This study followed the recommendation of Kaiser’s criterion, stating that factors with eigenvalues of greater than 1.0 should be retained (Field, 2009). This study also employed a scree plot based on research stating that the scree plot is a more accurate method of determining the number of factors to retain (Costello & Osborne, 2005). The use of both eigenvalues and scree plot is based on Field’s (2009) recommendation that the scree plot should not be the only determinant of factors to retain. In an attempt to utilize the most accurate method of retaining factors, this study used both a scree plot and eigenvalues greater than 1.0.

Percentage of variance explained. Following the advice of Field (2009) and Nunnally (1978), this study used the sum of squares of factor loadings of a specific variable to determine the percentage of variance for that factor. In the process of factor analysis, the loadings considered statistically meaningful were determined.

Varimax rotation. Research question 2b also determined if factor rotation could be used to further refine the factors that were retained using eigenvalues and scree plot. Because the factors are independent in this study, the researcher will use orthogonal rotation. Abdi (2003) advised that Varimax rotation is preferable for this study because it tends to associate each variable with one factor.
RQ2c. If the constructs are not confirmed by principal component analysis, can new constructs be identified using factor loading?

Research question 2c in this study sought to define new constructs using factor loading. If the three-factor model was not confirmed by principal component analysis in research question 2b, the factor loadings would be examined to see if a new model could be created. Pedhazur and Schmelkin (1991) recommend using factors loadings as an estimate of the relationship between each variable and a factor.

RQ2d. Using factor loadings of 0.50 or greater, can the number of items in each construct be reduced (Form A)?

Rahim and Psenicka (1995) conducted a confirmatory factor analysis for the ROCI-I using the 1983 data set which established validity using factor loadings greater than .30. In research question 2d, the researcher sought to reduce the numbers of items in each factor by using a higher factor loading criteria than the original study. Research question 2d uses a factor loading significance criteria of 0.50 to determine significance based on the advice of Pedhazur and Schmelkin (1991). Data was reported using the format in Table 3.
Table 3

*Sample Factor Loading Coefficient Matrix*

<table>
<thead>
<tr>
<th>Item #</th>
<th>Component 1</th>
<th>Component 2</th>
<th>Component 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item #1</td>
<td>0.753</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item #2</td>
<td>0.5054</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item #3</td>
<td>0.672</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item #4</td>
<td>0.054</td>
<td></td>
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<tr>
<td>Item #5</td>
<td>0.698</td>
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<tr>
<td>Item #6</td>
<td>0.715</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item #7</td>
<td>0.756</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item #8</td>
<td>0.824</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item #9</td>
<td>0.649</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Factor loading criteria equal to 0.50 or greater*

RQ3a. *Using three conflict level groups: low conflict level, medium conflict level and high conflict level can difference be determined between the perceived conflict levels of library professionals and IT professionals using the 2-way chi square test of independence?*

This research question determined if the conflict levels within MISOs fall within or outside the range of healthy conflict as determined by Rahim. According to Rahim (2004), previous psychometric evaluation determined national norms for three levels of conflict. Rahim identified norms for three groups: managers, MBA students and undergraduate college students. Due to the professional nature of the work that library and IT professionals perform, this researcher deemed the managerial norms to be most
applicable to this population. Table 4 outlines the national managerial norms for each of
the three scales of the ROCI-I.

Table 4

National Managerial Norms for the ROCI-I

<table>
<thead>
<tr>
<th>Level</th>
<th>Intrapersonal Norms</th>
<th>Intragroup Norms</th>
<th>Intergroup Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Below 2.15</td>
<td>Below 2.30</td>
<td>Below 2.6</td>
</tr>
<tr>
<td>Level 2</td>
<td>2.15 to 2.6</td>
<td>2.30 to 2.65</td>
<td>2.6 to 3.05</td>
</tr>
<tr>
<td>Level 3</td>
<td>Above 2.6</td>
<td>Above 2.65</td>
<td>Above 3.05</td>
</tr>
</tbody>
</table>

The data was scored according to the criteria outlined in the ROCI-I manual to
determine the levels of actual perceived conflict in each of the three subscales. Each
question is answered using a 5-point Likert scale. Each subscale was scored by adding
the numbers from each question answered and dividing this total by the total number of
questions answered. This process yielded a mean between 1.00 (the lowest possible
score) and 5.00 (the highest possible score) (Rahim, 2004). These scores were divided
into categories based on where they fall on the percentile continuum, as shown in Table
4. This process was repeated for each of the three subscales in the ROCI-I.

Table 5

Sample Conflict Category Table for ROCI-I Data

<table>
<thead>
<tr>
<th>Department type (1=IT; 2=Library)</th>
<th>Mean Score</th>
<th>Level (1-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.97</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2.35</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3.12</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>2.54</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>2.96</td>
<td>3</td>
</tr>
</tbody>
</table>
Additionally, this research question used a two way chi square to test the relationship between perceived conflict levels and occupation (Field, 2009). The independent variable for this test will be occupational group (IT professionals and library professionals). The frequencies were arranged in a 2 x 3 table, as shown in Table 6. Since the table has 2 rows and 3 columns, using the formula df = (2-1) x (3-1) = 2, the degrees of freedom were 2 (Ravid, 2010). Using SPSS to calculate the expected frequencies, significance was determined if the observed frequencies exceeded the expected frequencies calculated for a p value of 0.05 (Field, 2009). This test was repeated for each of the three subscales in the ROCI-I.

Table 6

Sample Table of Observed Frequencies: ROCI-I Perceived Conflict Level

<table>
<thead>
<tr>
<th></th>
<th>Library Professionals</th>
<th>IT Professionals</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Conflict Level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Conflict Level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Conflict Level</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RQ3b. Using the categories created in RQ3a, can difference be determined between the observed frequencies of perceived conflict levels and the expected frequencies of perceived conflict levels?

In RQ3a, the data was divided into three levels of perceived conflict, high perceived conflict level, medium perceived conflict level, and low perceived conflict level. RQ3b used the one way chi-square goodness of fit test to test for equal expected frequencies, based on the assumption that an equal number of participants should fall into each category (Ravid, 2010). The independent variable for this test was occupational
group (IT professionals and library professionals). Since there are two categories in the independent variable, the degrees of freedom were 1. Following Field’s (2009) recommendation, this study rejects the null hypothesis if the critical value exceeded that for a p value .05. Each of the three subscales in the ROCI-I was analyzed for goodness of fit using the above model.

RQ4. Using the categories created in RQ3a, can group mean difference on the subscales of the ROCI-I be determined between the two occupational groups using a t-test with a p value of 0.05?

The means of the three subscales in the ROCI-I were analyzed for difference using the t-test for independent means. The t-test was used to determine the difference in group means between the two occupational groups. Since this researcher was not predicting the direction of the difference between the two groups, this t-test was two-tailed (Field, 2009). In keeping with requirements of the t-test, the populations in this sample are independent of one another, as each participant had to choose either library professional or IT professional at the beginning of the survey. Following the advice of Ravid (2010) and Field (2009), a p value greater than 0.05 was used to determine that the F value was not statistically significant.

RQ5. Using the individual items on the three subscales as dependent variables, can membership in each of the occupational groups be predicted based on the participants’ answers?

This question planned to use MANOVA based on Field’s (2009) recommendation that MANOVA is useful for studies in which there is are multiple dependent variables which could interact with the independent variable in varying degrees (Field, 2009). In
this case, each of the individual questions within the ROCI-I (n=21) would be a dependent variable so that difference can be ascertained on the individual question level. This question also followed Field’s (2009) recommendation to use a p value less than .05 as the significance level for determining difference between the occupations on individual questions.

In addition to the MANOVA, this researcher also chose to perform a discriminant function analysis, as recommended by Norman and Streiner (2003). In this study, discriminant function analysis was used to determine if the differences found in the previous research questions provides enough discrimination between the two population groups to allow for prediction of group membership based on the answers to questions in the ROCI-I. The individual items within the subscales were the dependent variables. The Wilks’ lambda value was analyzed to determine where it falls between 0 and 1. Following the recommendation of Cramer (2003), a Wilks’ lambda close to 0 and a p value less than or equal to 0.05 will be used to determine significant separation between the groups.

Instrumentation

Rahim’s Organizational Conflict Inventory-I is the survey that was used to conduct this research study. Permission was granted by Dr. M. Afzalur Rahim to reprint the survey and use it for research purposes. The ROCI-I was created by Rahim to measure levels of conflict within organizations. The survey consists of 21 questions organized into three constructs designed to measure conflict within and between organizations: intrapersonal conflict, intragroup conflict, and intergroup conflict (Rahim, 2011).
The ROCI-I uses self-reported responses to statements using a nominal, five-point Likert scale. The intrapersonal scale consists of seven items, the intragroup scale consists of eight statements and the intergroup scale consists of six statements. The higher the score, the greater the amount of conflict (Rahim, 2011).

The ROCI-I has not been modified since its creation in 1983. According to Rahim (2011), the ROCI-I was “designed on the basis of repeated feedback from respondents and faculty and an iterative process of factor analysis of various sets of items” (p. 175). According to Field (2009), an instrument will only be valid as long as the items within the instrument are the correct items to measure the construct in question. The ROCI-I has not been re-validated on a post-1983 population. This researcher hoped to enhance the validity of the instrument for use within the cultural, technological and organizational changes that have taken place since 1983. To establish content validity of the ROCI-I the survey will be reviewed by three academic library directors and three IT professionals from Missouri institutions of higher education. These practitioners were asked to validate that the instrument consists of appropriate items to measure intrapersonal, intragroup and intergroup conflict within their occupation and between the two occupations (Lawshe, 1975).

Selection of Participants

In 2002, administrators at Bryn Mawr College created a survey instrument to measure service effectiveness of MISOs as determined by constituents at each MISO institution (Consiglio, 2010). As of 2012, 61 institutions have participated in the annual survey. This list of participating institutions provided a useful starting point for identifying MISOs for inclusion in this study. Although the MISO was created to survey
effectiveness following the merger of Bryn Mawr’s campus library and IT departments, not all of the institutions on the MISO Survey list have merged library/IT departments. Some have merged to some extent, but do not fit this study’s definition of a MISO institution. Of 61 institutions that have participated in the MISO survey, 22 meet the criteria for this study’s definition of a MISO.

A random sample of participants for this study was chosen from a list of self-identified MISO institutions that participate in the Bryn Mawr MISO survey and fit this study’s definition of a MISO. For the purpose of this study, sample members were limited to library and IT professionals at merged institutions. Approximately 550 library/IT departments’ employees from MISO Survey institutions were invited to participate. The contact e-mail addresses for each participant are freely available online at each institution’s public website.

There is an average of 60 employees per department at these 22 institutions for a total population size of 1,320. A random sampling strategy will be used to invite participants from 11 of the 22 institutions for a total of 552 potential participants (StatTrek.com, 2012). Figure 2 shows the process that was used to generate the random sample. For a confidence level of 95% and a confidence interval of 5, a sample size of 298 participants was needed from the population of 1,320, which allowed for a 45% return rate (Creative Research Systems, 2012).
Figure 2. Random Sampling Flow Chart. This flow chart outlines the procedures this study will use to select a randomized, confidential survey.

Data Collection

The Institutional Review Board (IRB) at the University of Missouri – Columbia granted this study IRB approval for exempt status. The exemption was based on the fact that this study does not gather any individual data, and that the data for this study will be analyzed and reported as aggregated scores. Even though data was collected from individual colleges and universities, data was not broken down by institution.

Confidentiality. Surveys were anonymous; names of individuals and schools were not collected in the course of this study. The survey website chosen for use allows investigators to choose not to save IP addresses. This study used that option.

Consent. In keeping with best practices as suggested by Fink (2009), an informed consent form preceded the survey instrument. This letter (Appendix A) included the purpose of the survey, survey instructions including how much time the survey should
take to complete, an explanation of confidentiality measures that would be taken with the survey data including online privacy, the deadline for the return of the survey and a note from the researcher explaining how their participation would advance the field of organizational conflict. The form also provided the name and contact information for the researcher and dissertation advisor for the study. In the informed consent form, recipients were advised that by submitting their completed survey they were issuing their consent. Participants were provided with a link to the survey on a survey website.

Summary

Chapter 3 outlined the research design and methodology for this study. The problem was explained and the purpose of the study was presented. The five guiding research questions were reviewed. Research design, including instrumentation, participant selection, and data collection methods were also explained. The chapter ended with a detailed explanation of the data analysis procedures that will be used in this research study.
CHAPTER 4
PRESENTATION AND ANALYSIS OF DATA

The five research questions in this dissertation sought to find answers to two overarching questions. The findings from these data analyses add to the limited knowledge of the psychometric properties of the ROCI-I. The findings add also quantitative data to the exclusively qualitative research of library and IT conflict.

The first purpose of this study was to establish the psychometric properties of the ROCI-I for this population in this time period. To accomplish this purpose, the ROCI-I was subjected to reliability testing, principal component analysis, and factor loading analysis for the three scales that have been identified by the creator of the instrument.

The second purpose of this study was to quantitatively determine the levels of conflict perceived by the two occupational groups in the study, filling a void in the literature that has been solely qualitative in nature. This purpose was accomplished by surveying a sample of the population of each occupational group using the ROCI-I to determine the levels of perceived conflict in three conflict scales: intrapersonal, intragroup and intergroup. Once the levels were determined for each participant, the overall levels of perceived conflict for each of the three scales were determined.

The final two research questions sought to determine if any level of difference existed between the perceived conflict levels of IT professionals and the perceived conflict levels of library professionals. A 2-way Chi Square was used to determine difference in frequencies between the two occupation groups. The T-test was used to test for difference in the mean scores between the two occupational groups. Discriminant
function analysis was used to determine if specific questions could be used to categorize the populations.

Review of Survey Instrument

Rahim’s Organizational Conflict Inventory-I is the survey used to conduct this research study. The survey consists of 21 questions organized into three constructs designed to measure conflict within and between organizations: intrapersonal conflict, intragroup conflict, and intergroup conflict (Rahim, 2011). The ROCI-I uses self-reported responses to statements using a nominal, five-point Likert scale. The intrapersonal scale consists of seven items, the intragroup scale consists of eight statements and the intergroup scale consists of six statements. The higher the score, the greater the amount of conflict (Rahim, 2011). The instrument was psychometrically evaluated at its creation in 1983 (Rahim, 1983a) and the discriminant and convergent validity were evaluated in 1995 using the data from the 1983 evaluation (Rahim & Psenicka, 1995). The findings in research question 1 (a-d) have been compared to the results found in these earlier analyses in order to highlight any similarities or differences.

Data Analysis

All data came from individual responses to the Rahim Organizational Conflict Inventory – I (ROCI-I). Each research question has been analyzed using SPSS version 20.

Research Question 1.
What are the summary descriptive statistics for the ROCI-I?

With permission from the instrument’s creator, the ROCI-I was uploaded to an online survey website and emailed to 552 librarians and IT professionals from institutions
that were determined to have a merged department structure that fit the definition of this study. The survey was completed by 191 respondents for a response rate of 34.6%, although only 158 completed the ROCI-I portion of the survey for a usable response rate of 28.6%. Thirty one of the respondents (16 library professionals and 15 IT professionals) exited the survey after choosing their occupational group and one person exited the survey after the consent form. Of the 191 respondents, 45.5% (87) identified themselves as library professionals and 54.5% (104) identified themselves as IT professionals. No demographic data for the respondents was gathered beyond their occupational group identification. Additionally, no identifying information was gathered that would enable the researchers or future researchers to determine the answers of the individuals who participated in the survey.

Table 7 shows the summary descriptive statistics for the survey conducted in this study. For the majority of the items in the instrument, the mean scores settled between 2.00 and 2.73. Three questions had means outside that range. The mean for Question 4, which concerned bickering over tasks, was 1.79 (SD=0.892), indicating a lower than average level of conflict in regards to that question from all participants. The mean for Question 10, measuring “difference of opinion” within a group, was 3.11 (SD=1.071), indicating a higher than average level of conflict among participants. Question 18 had the highest mean score for this survey. This question (There is friendliness among the members of my group.) rated a mean score of 4.30 (SD=0.780), well above the average for this survey, indicating a higher than average level of conflict.

According to Rahim (2004), the scores for the certain items needed to be reversed before computing the means. In reviewing the items that were reversed, all the reversed
items were positive statements. Question 18, although it is a positive statement, was not among those to be reversed according to Rahim’s (2004) scoring guide. If Q18 had been reversed, the mean score would have been 1.70, which would have been more in keeping with the scores of the other items that measure harmony within the occupational group and more reflective of the intent of the participants when answering this question.
### Table 7

**ROCI-I Descriptive Statistics by Subscale and by Item**

#### Intrapersonal Scale

<table>
<thead>
<tr>
<th>Q</th>
<th>Statement</th>
<th>n**</th>
<th>M</th>
<th>SD</th>
<th>S.E.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>There is a good match between the tasks that I perform and my initial preferences when I took this job.</td>
<td>156</td>
<td>2.07</td>
<td>0.971</td>
<td>0.078</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>155</td>
<td>2.28</td>
<td>0.972</td>
<td>0.078</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>155</td>
<td>2.02</td>
<td>0.983</td>
<td>0.079</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>154</td>
<td>2.03</td>
<td>0.970</td>
<td>0.078</td>
</tr>
</tbody>
</table>

#### Intragroup Scale

<table>
<thead>
<tr>
<th>Q</th>
<th>Statement</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>S.E.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>There is friendliness among the members of my group.</td>
<td>158</td>
<td>2.13</td>
<td>0.949</td>
<td>0.076</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>157</td>
<td>1.79</td>
<td>0.892</td>
<td>0.071</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>158</td>
<td>3.11</td>
<td>1.071</td>
<td>0.085</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>154</td>
<td>2.39</td>
<td>1.173</td>
<td>0.095</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>156</td>
<td>2.06</td>
<td>0.896</td>
<td>0.072</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>158</td>
<td>2.73</td>
<td>1.166</td>
<td>0.093</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>157</td>
<td>4.30</td>
<td>0.780</td>
<td>0.062</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>156</td>
<td>2.04</td>
<td>0.868</td>
<td>0.069</td>
</tr>
</tbody>
</table>

#### Intergroup Scale

<table>
<thead>
<tr>
<th>Q</th>
<th>Statement</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>S.E.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>There is agreement between my group and the other group.</td>
<td>158</td>
<td>2.59</td>
<td>1.003</td>
<td>0.080</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>158</td>
<td>2.15</td>
<td>1.066</td>
<td>0.085</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>158</td>
<td>2.54</td>
<td>1.038</td>
<td>0.083</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>157</td>
<td>2.42</td>
<td>1.069</td>
<td>0.085</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>156</td>
<td>2.32</td>
<td>0.997</td>
<td>0.080</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>155</td>
<td>2.19</td>
<td>1.043</td>
<td>0.084</td>
</tr>
</tbody>
</table>

* The use agreement for the ROCI-I allows only one question per subscale to be published. **not every participant answered every question
Research Question 2

The problem and purpose of this study outlined the need to psychometric testing of the ROCI-I. The instrument needs to be analyzed using a modern population in order to ensure that it remains reliable in the technology driven organizational environment. The instrument also needs to be analyzed using the population of librarians and IT professionals to ensure that it is a reliable measure of perceived conflict in these two groups. Research question 2 employs Cronbach’s alpha, principal component analysis and factor analysis to determine the reliability and construct validity of the ROCI-I.

Research question 2a. Can internal consistency for the ROCI-I and alternate forms be established using Cronbach’s alpha with a reliability of 0.70 or greater (Field, 2009)?

The ROCI-I was analyzed using Cronbach’s alpha in 1983 (Rahim, 1983a). In this analysis, the ROCI-I was administered to a population of business executives (n=1188). The 1983 Cronbach’s alpha for the Intrapersonal Scale was 0.82. The alpha for the Intragroup Scale was 0.81 and the alpha for the Intergroup Scale was 0.79. The mean Cronbach’s alpha for all three scales in the 1983 analysis was 0.81, above the standard minimum level of 0.70 recommended by Field (2009). Research question 2a re-analyzed the ROCI-I using a 2012 population of library and IT professionals to determine if the instrument maintains alpha levels above 0.70.

The individual subscales of the ROCI-I were analyzed using SPSS version 20. Rahim (2004) identified specific questions that aligned with each of the three subscales. Each of the questions resulted in scale scores for each respondent. For each subscale, the scores for the questions associated with that subscale were entered into SPSS and
analyzed for reliability, resulting in a Cronbach’s alpha score. According to Field (2009), alpha levels above 0.70 are considered to be reliable. This study followed Field’s recommendation and tested for Cronbach’s alpha levels of 0.70 or above.

Statistical analysis of the ROCI-I revealed that the Cronbach’s alpha for each of the three subscales in the ROCI-I is above the limit of 0.70 recommended by Field (2009). As shown in Table 8, the Intrapersonal Scale yielded a Cronbach’s alpha of 0.845, the Intragroup Scale yielded Cronbach’s alpha of 0.718, and the Intergroup Scale yielded a Cronbach’s alpha of 0.868. Therefore all three subscales possess reliability for this population and time. This researcher concludes that the Intrapersonal and Intergroup Subscales both have very strong reliability. Additionally, this researcher concludes that the Intragroup Scale, while it has met the minimum alpha level recommended by Field (2009), does not possess the same strength of reliability as the Intrapersonal and Intergroup Scales for this population and time. Research question 3 will further analyze the three constructs to determine any weaknesses.

The Intrapersonal and Intergroup Scales both yielded higher alpha levels in this study than were yielded in the 1983 analysis. The higher alpha level indicates that these two scales are more reliable for this population and time period than for the population in the 1983 analysis. The Intragroup Scale, however, yielded 0.718, which is 0.09 less than alpha of the 1983 analysis. The Intragroup Scale is deemed less reliable for this population and time than for the population in the 1983 analysis.

Unlike Rahim’s (1983a) earlier reliability analysis, the alpha levels of the three groups in this population are not nearly as similar, despite the fact that both analyses yielded a mean alpha of 0.81. In Rahim’s 1983 analysis, the alpha levels for all three
subscales were within 0.03 of a point from each other. In this study’s analysis, the
difference between the highest and the lowest alpha level is 0.15, five times that of the
1983 analysis. The Intrapersonal and Intergroup Scales in this study both have similar
alpha levels, differing from each other by 0.02, which is 0.01 less difference than in the
1983 analysis. The mean alpha level for all three subscales in this study is 0.81.

Table 8

Summary of Cronbach’s Alpha Levels for the ROCI-I and the Three Subscales

<table>
<thead>
<tr>
<th>Subscale Name</th>
<th>Cronbach’s alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROCI-I</td>
<td>0.866</td>
<td>21</td>
</tr>
<tr>
<td>Intrapersonal Scale</td>
<td>0.845</td>
<td>7</td>
</tr>
<tr>
<td>Intragroup Scale</td>
<td>0.718</td>
<td>8</td>
</tr>
<tr>
<td>Intergroup Scale</td>
<td>0.868</td>
<td>6</td>
</tr>
</tbody>
</table>

The SPSS analysis included Item-Total statistics tables that identified what the
alpha level would be if each individual question was removed. In both the Intrapersonal
and Intergroup Subscales, these tables indicated that the alpha level would decrease with
the removal of any question within the subscale. This result indicates that each question
with the Intrapersonal and Intergroup Scales contributes to the reliability of the scale.
Since the Item Level Reliability tables for these two scales did not indicate any unreliable
questions, these tables were not reproduced in this chapter. The Item Level Reliability
(Table 9) for the Intragroup Scale, however, shows that not all questions in this scale
positively impact the reliability of the scale. The removal of question 18 (*There is friendliness among the members of my group*) would increase the Cronbach’s alpha for the scale to 0.846, which would make it more consistent with the reliability levels of the other scales in the ROCI-I.

Table 9

*Item Level Reliability for the Intragroup Conflict Scale of the ROCI-I*

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2.</td>
<td>0.661</td>
</tr>
<tr>
<td>Q4.</td>
<td>0.664</td>
</tr>
<tr>
<td>Q10.</td>
<td>0.658</td>
</tr>
<tr>
<td>Q12.</td>
<td>0.594</td>
</tr>
<tr>
<td>Q14.</td>
<td>0.631</td>
</tr>
<tr>
<td>Q16.</td>
<td>0.637</td>
</tr>
<tr>
<td>Q18.</td>
<td>0.846</td>
</tr>
<tr>
<td>Q20.</td>
<td>0.705</td>
</tr>
</tbody>
</table>

*Research question 2b. Can Rahim’s 3-factor model be confirmed using principal component analysis using an eigenvalue of 1.0 or greater or 60% variance explained and Varimax Rotation?*

In Rahim’s (1983a) original psychometric analysis of the ROCI-I, the instrument underwent a principal component analysis process in which he used eigenvalues of 1.0 or greater. In the 1983 analysis, the three factors identified accounted for 91% of the total
variance. Research question 2a re-analyzed the ROCI-I using a 2012 population of library and IT professionals to determine if the 3-factor model could be confirmed for this population and time.

The raw scores for all 21 question of the ROCI-I were entered into SPSS as ratio data. This study followed the recommendation of Kaiser’s criterion, stating that factors with eigenvalues of greater than 1.0 should be retained (Field, 2009). This study also employed a scree plot based on research stating that the scree plot is a more accurate method of determining the number of factors to retain (Costello & Osborne, 2005). The use of both eigenvalues and scree plot is based on Field’s (2009) recommendation that the scree plot should not be the only determinant of factors to retain. In an attempt to utilize the most accurate method of retaining factors, this study used both a scree plot and eigenvalues greater than 1.0.

The scree plot in Figure 3 indicates four factors with eigenvalues well above 1.0. Three of the factors appear to account for a significant amount of the variance. The fourth factor does not appear as strong, but is still above this study’s minimum eigenvalue. These results are consistent with Rahim’s original analysis, in which four factors were extracted, but since the first three factors explained 91% of the variance, he did not retain the fourth factor.
Figure 3. Scree plot for ROCI-I. This figure illustrates the factors identified by the principal component analysis sorted by eigenvalue.

The information in Table 10 provides a more specific look at the eigenvalues for the extracted factors as well as information about the percentage of variance explained by these factors. The first three factors extracted in this study’s principal component analysis accounted for only 57.61% of the variance. In contrast, the three factors extracted during Rahim’s 1983 analysis accounted for 91% of the variance. Adding the fourth factor increases the percentage of variance to 64.16%, which is still a smaller percentage of variance than Rahim found, despite the addition of an extra factor.

Based on the eigenvalues, this analysis found four factors, which is consistent with Rahim’s earlier analysis. However, the percentage of variance explained by the factors differs from that of Rahim’s earlier study. Based on these percentages, this researcher was unable to confirm Rahim’s 3-factor model. Instead, a 4-factor model is
recommended. Research question 1c further analyzed the factors to determine the nature of the fourth factor.

Table 10

*Summary of Eigenvalues and Percentage of Variance for the ROCI-I (Form A)*

<table>
<thead>
<tr>
<th>Factor Number</th>
<th>Eigenvalue</th>
<th>% of Variance Explained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1</td>
<td>7.092</td>
<td>33.77%</td>
</tr>
<tr>
<td>Factor 2</td>
<td>2.655</td>
<td>12.64%</td>
</tr>
<tr>
<td>Factor 3</td>
<td>2.350</td>
<td>11.19%</td>
</tr>
<tr>
<td>Factor 4</td>
<td>1.377</td>
<td>6.56%</td>
</tr>
</tbody>
</table>

*Research Question 2c.*

*If constructs are not confirmed by principal component analysis, can new constructs be identified using factor loading of 0.5 or greater?*

Pedhazur and Schmelkin (1991) recommend using factors loadings as an estimate of the relationship between each variable and a factor. Fabrigar and Wegener (2011) recommend factor loadings of 0.40 or greater. They state that 0.40 is the lowest threshold of what they call “moderately good conditions” (p. 26). In Rahim’s 1983 analysis, the threshold for factor loadings was set at 0.40. In an attempt to strengthen the loadings for each factor, the threshold for factor loadings for this study was set at 0.50. The purpose of research question 2c is to determine if the three original factors of Rahim’s 3-factor
model and the new fourth factor identified in research question 1b can be identified using the higher factor loadings of 0.50 or greater.

Table 11 indicates that there are strong factor loadings for all four factors using the threshold of 0.50 for factor loadings. The first component identified mirrors the items currently included in the Intrapersonal Conflict Scale of the ROCI-I. The second factor identified in Table 11 differs from the current Intragroup Conflict Scale of the ROCI-I. This component retains only four of the eight items currently included in the Intragroup Conflict Scale. The fifth item (Question 14, on the topic of support for ideas within the group) also loads onto a fourth factor so the item is discarded as a doublet (P. Messner, personal communication, February 28, 2013). The third component identified mirrors the items currently included in the Intergroup Conflict Scale of the ROCI-I.

Two questions are loaded onto the new fourth factor, identified in research question 1b, with loadings greater than 0.50. Question 2 and Question 20, both regarding group harmony, were highly loaded onto the new construct and would not have loaded onto another factor using the 0.50 loading threshold. Question 18 (*There is friendliness among the members of my group.*) loaded on both component two and component four and was discarded as a doublet (P. Messner, personal communication, February 28, 2013).

The strong factor loadings on the fourth factor appear to strengthen the argument for a 4-factor model for the ROCI-I. The two questions loaded onto this component relate to the harmony within a group and could be labeled the Intragroup Harmony Scale. These questions differ from the questions in the current Intragroup Conflict Scale in that they all deal with positive interactions within the group, whereas those questions that remained
loaded on the Intragroup Conflict Scale component all deal with negative interactions within the group.

Table 11

*Rotated Component Matrix for the Items within the ROCI-I*

<table>
<thead>
<tr>
<th>Question</th>
<th>Intrapersonal Conflict</th>
<th>Intragroup Conflict</th>
<th>Intergroup Conflict</th>
<th>Intragroup Harmony</th>
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</thead>
<tbody>
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</tr>
<tr>
<td>Q11</td>
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<tr>
<td>Q6</td>
<td>0.543</td>
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<tr>
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<td></td>
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<td>Q14</td>
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<td>0.641</td>
<td>0.501</td>
<td></td>
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<tr>
<td>Q20</td>
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<td>0.763</td>
<td>0.501</td>
<td></td>
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<tr>
<td>Q18</td>
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<td>-0.526</td>
<td>-0.633</td>
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<td>Q2</td>
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<td>0.501</td>
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</tbody>
</table>
Research Question 2d.

*Using factor loadings of 0.5 or greater, can the number of items in each construct be reduced (Form A)?*

The results of the factor analysis show an amended form for the ROCI-I. This new 4-factor model is titled Form A in this study. Table 11 provides a visualization of the original ROCI-I constructs and questions and the new Form A ROCI-I constructs and questions. As Table 11 outlines, Factor 1 (Intrapersonal Conflict) and Factor 3 (Intergroup Conflict) remain unchanged from Rahim’s original 3-factor model. Factor 2 (Intragroup Conflict) was cut from eight items to four items. The new construct, Factor 4 (Intragroup Harmony) received two items from the Intragroup Conflict factor. The other two items in the original Intragroup Conflict factor were discarded as doublets.

Table 12

*Summary of ROCI-I Factors Before and After Factor Analysis*

<table>
<thead>
<tr>
<th>3-Construct ROCI-I</th>
<th>4-Construct Form A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1 - Intrapersonal Conflict (Questions 3, 6, 7, 11, 15, 17, 21)</td>
<td>Factor 1 - Intrapersonal Conflict (Questions 3, 6, 7, 11, 15, 17, 21)</td>
</tr>
<tr>
<td>Factor 2 – Intragroup Conflict (Questions 2, 4, 10, 12, 14, 16, 18, 20)</td>
<td>Factor 2 – Intragroup Conflict (Questions 4, 10, 12, 16)</td>
</tr>
<tr>
<td>Factor 3 – Intergroup Conflict (Questions 1, 5, 8, 9, 13, 19)</td>
<td>Factor 3 – Intergroup Conflict (Questions 1, 5, 8, 9, 13, 19)</td>
</tr>
<tr>
<td>Factor 4 – Intragroup Harmony (Questions 2, 20)</td>
<td></td>
</tr>
</tbody>
</table>

Questions 14 and 18 were discarded in Form A due to significant loading on two factors
Research Question 3

In addition to the psychometric analysis, the problem and purpose of this study also outlined the need to quantitatively measure the perceived conflict levels among library and IT professionals within MISO organizations. To date, no published research has quantifiably measured these levels. To this end, Research Question 3 employed the 1-way chi square goodness of fit test and the 2-way chi square test of independence to determine if the levels of perceived conflict in these two groups differ from the expected frequencies. This research question also determined if the two groups perceived differing levels of conflict.

Research question 3a. Using three conflict level groups: low conflict level, medium conflict level and high conflict level can difference be determined between the perceived conflict levels of library professionals and IT professionals using the 2-way chi square test of independence?

According to Rahim (2004), previous psychometric evaluation determined national norms for three levels of conflict. Rahim identified norms for three groups: managers, MBA students and undergraduate college students. These norms identified a mid-range mean score for each of the original three subscales. Rahim’s norms did not explicitly identify a low and a high range; these ranges have been created using the range below the mid-range as the low range and the range above the mid-range as the high range. Due to the professional nature of the work that library and IT professionals perform, this researcher deemed the managerial norms to be most applicable to this population. These range breakdowns were provided in Chapter 3 in table format. The purpose of research question 3a is to use Rahim’s managerial norms to organize the raw
ROCI-I data from this study into three distinct categories for the four identified subscales in the ROCI-I Form A.

The categories for this study are IT1, IT2, IT3, LB1, LB2, and LB3. IT denotes information technology professionals and LB denotes library professionals. The numeric categories start with 1 for the lowest level of conflict, 2 for the middle level of conflict and 3 for the highest level of conflict. Table 13 provides both the numeric and percentage frequencies for each of the scales. The data in the table indicates that both groups had more individuals in the lowest conflict level on the Intrapersonal and Intergroup scales. In both cases, the percentage in the lowest conflict level was over 60% of the total participants in that occupational group. The Intragroup Harmony scale shows 73.6% of the IT professionals and 50.6% of the library professionals in the lowest conflict level.

The Intragroup Scale frequencies indicated some differences from the frequencies shown in the other three scales. The frequencies in this scale were more evenly spread among the lowest and highest conflict levels with fewer participants in the middle conflict level. The largest percentage gap of the three scales was found in the Intragroup Harmony scale, with IT professionals totaling 73.6% in the lowest conflict level (IT1) and library professionals totaling 59.2% in the lowest conflict level (LB1). This gap of 14.4% difference appears to indicate that IT professionals more often perceive a higher level of intragroup harmony than do library professionals. The remainder of the participants’ frequencies in all four scales were spread fairly equally between the middle and high levels of conflict.

Research question 3a used a two way chi square to test the relationship between perceived conflict levels and occupation (Field, 2009). The independent variable for this
test was occupational group (IT professionals and library professionals). Using SPSS to calculate the expected frequencies, significance was determined if the observed frequencies exceeded the expected frequencies calculated for a p value of 0.05 (Field, 2009). This test was repeated for each of the four subscales in the new form of the ROCI-I.

Table 13 shows the results for this research question. Using a p value less than 0.05 as recommended by Field (2009), none of the four subscales shows significant difference in frequencies among the two groups in the three conflict level categories. Therefore this researcher failed to reject the null hypothesis for this research question.

While none qualify as significant, it is interesting to note, however, the wide disparity between p values for the four scales. The Intrapersonal Conflict scale shows a p value of 0.916, which indicates that frequencies among the three conflict levels for the two populations are nearly identical. Both the Intragroup Conflict scale and the Intergroup Conflict scale show a p value between 0.35 and 0.40, indicating that the frequencies among the two groups in the three conflict level categories are still highly similar, but not to the point of being identical as we saw in the Intrapersonal Conflict Scale. The Intragroup Harmony scale, however, shows a p value of 0.06. This p value indicates that while the two groups did not score differently enough to be deemed statistically significant, there is still a large gap between the two groups when compared to the frequency differences found on the other three subscales.
<table>
<thead>
<tr>
<th>Conflict Level</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>X²</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrapersonal Scale</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>53 (60.9%)</td>
<td>14 (16.1%)</td>
<td>20 (23.0%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LB</td>
<td>43 (60.6%)</td>
<td>13 (18.3%)</td>
<td>15 (21.1%)</td>
<td>0.175</td>
<td>2</td>
<td>0.916</td>
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<tr>
<td><strong>Intragroup Conflict Scale (Form A)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>42 (48.3%)</td>
<td>13 (14.9%)</td>
<td>32 (36.8%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LB</td>
<td>33 (46.5%)</td>
<td>6 (8.5%)</td>
<td>32 (45.1%)</td>
<td>2.060</td>
<td>2</td>
<td>0.357</td>
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<tr>
<td><strong>Intergroup Scale</strong></td>
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<tr>
<td>IT</td>
<td>55 (63.2%)</td>
<td>14 (16.1%)</td>
<td>18 (20.7%)</td>
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<td></td>
<td></td>
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<tr>
<td>LB</td>
<td>43 (60.6%)</td>
<td>17 (23.9%)</td>
<td>11 (15.5%)</td>
<td>1.848</td>
<td>2</td>
<td>0.397</td>
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<tr>
<td><strong>Intragroup Harmony Scale (Form A)</strong></td>
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<tr>
<td>IT</td>
<td>64 (73.6%)</td>
<td>9 (10.3%)</td>
<td>14 (16.1%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LB</td>
<td>42 (59.2%)</td>
<td>17 (23.9%)</td>
<td>12 (16.9%)</td>
<td>5.619</td>
<td>2</td>
<td>0.060</td>
</tr>
</tbody>
</table>

IT=Information Technology Professional/LB=Library Professional
Research question 3b. At the individual item level, can differences be determined between the observed frequencies of perceived conflict and the expected frequencies of perceived conflict using the 1-way chi square for goodness of fit?

Research question 3b used the one way chi-square goodness of fit test to test for equal expected frequencies, based on the assumption that an equal number of participants should fall into each category (Ravid, 2010). This scale is also useful for analyzing the frequencies of responses among the five Likert options for each item. While it does not differentiate between occupational groups, it is helpful to know if the frequencies fall outside the range of chance. It is further helpful to understand which questions gathered significantly low conflict responses and which questions gathered significantly higher conflict responses. The data in Research Question 3c grouped the overall responses into category based on their mean scores. The purpose of this research question is to analyze the data at the item level to look for more information that can inform conclusions about perceived conflict levels in this population.

With the exception of Question 3, all expected N values were between 30.5 and 31.5. Question 3 had no responses in the fifth Likert options so the answers were distributed among only four answer options. As Table 14 shows, the p values for all items are .000, indicating the 1-way chi square is significant for all items. This result indicates that the frequencies for all 19 questions fall outside the range that could be predicted by random chance (Field, 2009). The null hypothesis was rejected for this research question.

For the most part, the answers to the questions were weighted in the first two Likert options. Questions 3 and 4 had over 80% of the responses fall in the first two Likert options. For Question 3, regarding satisfaction with job duties, 89% of the
responses fell in the first two Likert options and for Question 4, which measured intragroup bickering, 86% of the responses fell in the first two Likert responses.

One question had responses that weighted toward the higher end of the Likert scale. Question 10 (There is difference of opinion among the members of my group.) had 44% of the respondents choose Likert options 4 or 5, indicating a higher level of perceived conflict for this question. None of the questions weighted highest at Likert option 3, which would indicate a medium level of conflict.

The frequencies represented in Table 14 are reflective of the information found in Table 13. Each table indicated a weighting of perceived conflict levels toward the lower end of the continuum. The frequencies indicated for Question 10 (There is difference of opinion among the members of my group.) were not reflected in the category frequencies in Table 13. These frequencies indicated a higher than average level of conflict. This result could stem from the nature of the question. The question uses the term “difference of opinion” which can be characterized as a softened word for conflict. Other terms for conflict in the instrument include “bickering” (Q4), “withholds information” (Q5), “lack of mutual assistance” (Q9) “dissension” (Q12), and “clashes” (Q16), all of which connote a more confrontational tone. It is possible that the less confrontational term “difference of opinion” was more inclusive of both confrontational conflict and healthier disagreements, thus producing a higher Likert score.
Table 14

Summary of ROCI-I (Form A) 1-Way Chi Square Goodness of Fit Frequencies by Subscale and by Item

<table>
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<tr>
<th>Subscale</th>
<th>Exp. N</th>
<th>Total*</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>X²</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrapersonal Conflict</strong></td>
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<td><strong>Intergroup Conflict</strong></td>
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<td>156</td>
<td>28</td>
<td>77</td>
<td>29</td>
<td>17</td>
<td>5</td>
<td>96.18</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>19</td>
<td>31.0</td>
<td>155</td>
<td>44</td>
<td>62</td>
<td>29</td>
<td>16</td>
<td>4</td>
<td>67.36</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td><strong>Intragroup Harmony</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>31.6</td>
<td>158</td>
<td>37</td>
<td>84</td>
<td>22</td>
<td>10</td>
<td>5</td>
<td>127.89</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>20</td>
<td>31.2</td>
<td>156</td>
<td>40</td>
<td>82</td>
<td>23</td>
<td>9</td>
<td>2</td>
<td>130.47</td>
<td>4</td>
<td>.000</td>
</tr>
</tbody>
</table>

*not every participant answered every question

** No participants chose 5 in Question 3, leaving 4 answer options which translated to 3 degrees of freedom
**Research question 4.** Using the categories created in RQ3a, can group mean difference be determined between the two occupational groups using a t-test with a p value of 0.05?

The impetus for this research question is the same as for research question 3c; there is a gap in library and IT merger literature regarding quantifiable data measuring conflict levels among the two occupational groups. Research Question 3c sought to inform the library and IT merger literature as to whether differences exist between the perceived conflict levels of the two groups at the frequency level. Research question 4 sought to answer the same question at the mean score level. In scoring the ROCI-I, Likert responses were tabulated into overall mean scores for each participant on each scale. While frequency difference informs the research in terms of how many individuals experienced conflict at the three levels, mean difference provides a more detailed look at the difference between the two groups at the overall mean score level.

The four subscales of the ROCI-I Form A were analyzed for difference using the t-test for independent means. The t-test was used to determine the difference in group means between the two occupational groups. The independent variable for this test was occupational group (IT professionals and library professionals). Each participant had to choose to identify themselves as either a library professional or an IT professional at the beginning of the survey, ensuring that the populations in this sample are independent of one another. Following the advice of Ravid (2010) and Field (2009), a p value greater than 0.05 was used to determine that the F value is not statistically significant.

The mean scores for both occupational groups in all scales falls below 3.00, which is consistent with the data is Research Question 3b and 3c. The p values for all
four scales fall well above the required 0.05, indicating that there is no significant
difference between the two occupational groups on any of the subscales. The researcher
failed to reject the null hypothesis for this research question.

The results shown in Table 15 serve to further underscore the data from the
previous analyses in Research Question 3. The conflict levels fall below the average
perceived conflict level in both frequency and mean. To complete the analysis of
difference between the two groups, Research Question 5 determined if mean difference
existed at the item level and if any of the items could be used to predict occupational
membership.

Table 15

*Summary of ROCI-I (Form A) T-Test Data by Subscale with Descriptive Statistics*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>S. Dev.</th>
<th>St. Error Mean</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>Mean Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrapersonal Conflict Scale</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>87</td>
<td>2.083</td>
<td>0.734</td>
<td>0.079</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LB</td>
<td>71</td>
<td>2.056</td>
<td>0.688</td>
<td>0.082</td>
<td>0.235</td>
<td>156</td>
<td>0.814</td>
<td>0.027</td>
</tr>
<tr>
<td><strong>Intragroup Conflict Scale</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>87</td>
<td>2.476</td>
<td>0.853</td>
<td>0.091</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LB</td>
<td>71</td>
<td>2.539</td>
<td>0.860</td>
<td>0.102</td>
<td>-0.458</td>
<td>156</td>
<td>0.648</td>
<td>-0.627</td>
</tr>
<tr>
<td><strong>Intergroup Conflict Scale</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>87</td>
<td>2.390</td>
<td>0.892</td>
<td>0.096</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>LB</td>
<td>71</td>
<td>2.352</td>
<td>0.700</td>
<td>0.083</td>
<td>0.293</td>
<td>156</td>
<td>0.770</td>
<td>0.038</td>
</tr>
<tr>
<td><strong>Intragroup Harmony Scale</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>87</td>
<td>2.034</td>
<td>0.773</td>
<td>0.083</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LB</td>
<td>71</td>
<td>2.141</td>
<td>0.708</td>
<td>0.084</td>
<td>-0.893</td>
<td>156</td>
<td>0.373</td>
<td>-0.106</td>
</tr>
</tbody>
</table>

IT=Information Technology Professional/LB=Library Professional
Research Question 5.

Using the individual items on the three subscales as dependent variables, can membership in each of the occupational groups be predicted using MANOVA and discriminant function analysis (DFA)?

In both Research Question 3 and Research Question 4, no significance was found among the conflict level frequencies or the mean scores. The results in these earlier research questions showed that the two groups are more similar than different and none of the data gathered in the previous data analysis indicated that a MANOVA would indicate significance. Therefore, the MANOVA was not run.

Although there was no significant mean or frequency difference between the occupational groups, it was still possible for one or more of the questions to have the ability to predict group membership. In order to determine if any of the items could predict group membership, discriminant function analysis was run for all four subscales of the ROCI-I (Form A). Table 16 indicates that one question of the 19 questions in Form A of the ROCI-I could be used predict group membership. Question 15 (There is a good match between the tasks that I perform and my initial preferences when I took this job.) is the only question in the ROCI-I that yielded a significant Wilks’ Lambda. In spite of a Wilks’ Lambda that is 0.953, the value that indicates no difference between groups, the F value for Question 15 indicates it is below 0.05, which indicates significance in predicting membership between the two groups.
Table 16

Summary of ROCI-I (Form A) Discriminant Function Analysis

<table>
<thead>
<tr>
<th>Step</th>
<th>Entered</th>
<th>Statistic</th>
<th>df1</th>
<th>df2</th>
<th>df3</th>
<th>Wilks’ Lambda</th>
<th>Statistic</th>
<th>df1</th>
<th>df2</th>
<th>df3</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Q15</td>
<td>0.953</td>
<td>1</td>
<td>1</td>
<td>136</td>
<td>6.775</td>
<td>1</td>
<td>136</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The number line shown in Figure 4 indicates variation of the mean scores of the two occupational groups on Question 15. According to Field (2009), “groups with values opposite in sign are being discriminated by that variate” (p. 621). In this case, the library and IT groups have values opposite in sign, indicating that Question 15 does discriminate between the two occupational groups. In Table 7, the mean for Question 15 was 2.07 (SD=0.971), a value within the range of the majority if the mean scores.

![Number line showing mean difference between library and IT professionals on Question 15, with -0.238 and 0.206 as the mean difference values.](image)

*Figure 4. Functions at Group Centroids. This number line shows the mean difference between library and IT professionals on Question 15.*

Summary

The purpose of this study was to determine the psychometric properties of the ROCI-I and to determine the levels of perceived conflict among library and IT professionals in merged information services organizations. An additional purpose was to
determine if difference existed in levels of perceived conflict between library and IT professionals.

The ROCI-I was the instrument for this study. Data was gathered by electronically sending the ROCI-I to 552 library and IT professionals from institutions that were determined to have a merged department structure that fit the definition of this study. A useable response rate of 28.6% provided the data that was used to determine the answers to the research questions.

Overall, the ROCI-I was determined to be a reliable instrument for this population and time period. The eigenvalues indicated that a four-factor model was recommended and the factor analysis and factor loadings supported the recommendation. The new fourth factor was named the Intragroup Harmony Scale due to its focus on harmony within a group setting.

Analysis of the data established that conflict levels, as defined and measured by Rahim (2011) are below average for both library and IT professionals based on the managerial norms set by Rahim (2004). Most frequencies fell into the low conflict category and there were very few differences in the frequencies for the two occupational groups. At the item level, most responses fell in the low end of the Likert response options. The mean scores indicated no significant difference between perceived conflict levels of library and IT professionals on any of the subscales. The MANOVA was not run due to a lack of significance in the previous two research questions. The discriminant function analysis, however, did find one item that could be used to predict group membership. Chapter 5 will provide conclusions and recommendations as a result of this study.
This study was conducted for two purposes. The first purpose was to provide researchers with a higher level of confidence in using the ROCI-I in assessing the perceived conflict levels between two distinct groups. In order to accomplish this purpose, the ROCI-I was subjected to psychometric testing in the form of Cronbach’s alpha, principal component analysis and factor analysis. The second purpose of this study was to understand the level of perceived conflict that exists among library and IT professionals in organizations that have merged these two groups into a single department. In addition, the second purpose of this study served to determine if significant differences existed in the levels of perceived conflict at either the subscale or item level. In order to accomplish this purpose, the ROCI-I was administered to library and IT professionals in MISO departments nationwide and the responses were tested using one and two way chi square, t-test, MANOVA and discriminant function analysis.

This chapter presents a brief summary of findings organized by research question with conclusions about the study. In addition, limitations of the research and recommendations for further study are included.

Conclusions

The discussion of conclusions is organized by the five research questions which guided the study. Each research question is presented and discussion is included based on the data analysis provided in Chapter 4.
Research Question 1

The descriptive statistics for the ROCI-I provided important information regarding the individuals who responded to the survey and the mean scores for the items within the instrument. Most of the mean scores fell within a range of 2.00 and 2.73. Of the three questions that fell outside that range, two had a higher than average mean and one had a lower than average mean. Question 4 (*In our group, we do lots of bickering over who should do what job.*) indicated a mean of 1.79 indicating that the respondents felt less conflict over this scenario than those reflected in other items. Question 10 (*There is a difference of opinion among the members of our group.*) and Question 18 (*There is friendliness among the members of my group.*) indicated that individuals perceived a higher level of conflict in these areas.

The higher mean score for Question 18 is likely attributed to the fact that this score was not reversed. In the Likert scale, 1 was Strongly Disagree and 5 was Strongly Agree. Since this question was not reversed, a high score actually indicates a high level of friendliness rather than a high level of conflict. The higher mean score for Question 10 is likely attributable to the lower level of confrontation attributed to the phrase “difference of opinion” which could likely be more inclusive of higher and lower level conflict situations.

Research Question 2a

Research Question 2a sought to affirm the internal consistency of the ROCI-I using a Cronbach’s alpha of 0.70 or greater. In this analysis, all three of the original subscales yielded a Cronbach’s alpha greater than 0.70. The Intrapersonal Conflict Scale did not possess the same strength as the Intrapersonal Conflict Scale and the Intergroup
Conflict Scale. The inclusion of Q18 (There is friendliness among the members of my group.) resulted in a decreased the alpha level for the Intragroup Conflict Scale.

In comparison to the 1983 analysis done by Rahim (1983a), both the Intrapersonal and Intergroup Conflict Scales yielded higher alpha levels in this analysis than in the earlier analysis. The alpha level for the Intragroup Conflict Scale dropped almost one tenth of a percentage, making it less reliable in this study than in the 1983 analysis, likely due to the effects of Question 18. In addition, the alpha levels for all three subscales in the earlier analysis were grouped tightly together, all scoring within three tenths of a percentage. In this analysis, the alpha levels for all three scores differed by 0.15, also likely caused by the inclusion of Question 18. These differences indicate that portions of the ROCI-I are less reliable than they were in the 1983 analysis. Specifically, the Intragroup Conflict Scale shows decreased reliability.

Research Question 2b

This research question sought to determine if the three-factor model created by Rahim could be confirmed. This analysis used principal component analysis with eigenvalues greater than 1.0 and 60% of variance explained. In this analysis, four factors were extracted. These four factors accounted for 64.16% of the variance, as opposed to 91% for the original three factors in Rahim’s 1983 analysis. Based on these percentages, this researcher is unable to confirm Rahim’s 3-factor model. Instead, a 4-factor model is recommended.

Research Question 2c and 2d

This question subjected the ROCI-I to principal component analysis in order to further explore the 4-factor model originally uncovered in Research Question 2b. The
principal component analysis confirmed the Intrapersonal Conflict Scale and the Intergroup Conflict Scale with factor loadings greater than 0.50. The analysis also supported the 4-factor model by identifying two questions that firmly loaded onto the new factor. Question 2 (There is harmony within my group.), and Question 20 (There is a ‘we’ feeling among the members of my group.) were highly loaded onto the new construct and would not have loaded onto another factor using the 0.50 loading threshold. Since both of these questions related to a feeling of harmony within the group, this researcher named the fourth construct the Intragroup Harmony Scale.

In creating the Intragroup Harmony Scale, the Intragroup Conflict Scale was reduced by the two items that moved to the new construct. In addition, two items from the original Intragroup Conflict Scale were discarded as doublets. Rahim’s original analysis used factor loadings of 0.40 or greater, so the assumption was that several of the items in the instrument would be discarded due to the higher factor loadings in this study. The results, however, showed that none of the items would have been discarded due to the higher factor loadings.

Research Question 3a

This research question first served to sort the frequencies of responses for each of the occupational groups into three categories: low conflict level, medium conflict level and high conflict level for each of the three subscales. For the Intrapersonal Conflict Scale, the Intergroup Conflict Scale and the Intragroup Harmony Scale, the frequencies were weighted toward the low conflict level category, with at least 60% of the participants in each occupational group falling into that category. This indicates that in these areas, the occupational groups perceived lower than average levels of conflict.
For the Intrapersonal, Intragroup and Intergroup Conflict Scales, the frequencies for both occupational groups were within a few percentage points of each other. This indicates that the occupational groups perceive conflict equally in these areas. The exception was in the Intragroup Harmony Scale, which showed a disparity among the two occupational groups at the low and medium conflict levels. The results indicate that IT professionals show a higher level of Intragroup Harmony than do library professionals.

The 2-way chi square analysis showed no significant difference in the conflict level frequencies for members from each occupational group. In fact, the Intrapersonal Conflict Scale indicated that both groups were practically identical in regards to conflict level frequencies. On the opposite end of the spectrum, the Intragroup Harmony Scale showed difference, but was one tenth above the level of significance set for this study. Although none of the frequency differences were significant, the level of difference between the two groups in Intragroup Harmony is higher than the level of difference in Intrapersonal Conflict.

*Research Question 3b*

The analysis in Research Question 3b allowed for further analysis of the responses at the item level. Research Question 3a sorted the frequencies into three categories. Research Question 3b analyzed frequencies at the item-level in order to view response patterns. The responses in this research question served to reinforce the indications from Research Question 3a. None of the questions weighted on Likert response option 3, which would indicate a medium range of conflict. Most of the questions garnered responses in the first two Likert categories, indicating a low level of perceived conflict. Question 3 (*I like the tasks I perform relative to the other tasks that*
are performed in my organization.) and Question 4 (In our group we do lots of bickering over who should do what job.) both gathered at least 80% of the responses in the low level of perceived conflict. Question 10 (There is difference of opinion among the members of my group.) was the only question with responses weighted on the higher level of perceived conflict. This result could be attributed to the wording of the question, since it used the least combative conflict language in the instrument, thereby opening the responses to include lesser conflict incidents that could have been dismissed in the other questions with more combative language.

Research Question 4

This research question served to discover whether mean difference existed between the two occupational groups on the four subscales. The results for this question mirrored those of Research Question 3 in that no significance was found. The mean scores for each of the occupational groups fall below the average, indicating a low level of conflict across all four subscales for both occupational groups.

Research Question 5

Since no significant differences were identified in Research Questions 3 and 4, this researcher determined that the MANOVA would yield similar results, as the variables and data were the same as they were in the previous questions. The discriminant function analysis was run in order to determine if any of the items could predict group difference. The decision to run the discriminant function analysis in the absence of the MANOVA was based on the existence of item level outliers in both Research Question 1 and Research Question 3b. The discriminant function analysis determined one question that could be used to predict group membership. Question 15 (There is a good match
between the tasks that I perform and my initial preferences when I took this job.)
indicates that IT professionals score more highly on the perceived conflict scale for this item than do library professionals.

New Learning

This analysis of the five research question in this study provided new learning in the areas of ROCI-I psychometrics and library/IT conflict measurement. First, the study indicated that the ROCI-I in its original state possesses adequate reliability and can be used with confidence by leaders and researchers. Second, the results of the principal component analysis strongly confirmed two of the ROCI-I’s original constructs, Intrapersonal Conflict and Intergroup Conflict. The principal component analysis did not confirm the third construct, Intragroup Conflict. The results of this analysis led to the removal of several items from the Intragroup Conflict construct and the creation of a fourth construct, The Intragroup Harmony Scale.

Third, the results of the ROCI-I created a quantitative measure of the level of conflict each occupational group perceived in each of the three constructs. This knowledge was previously unknown. Additionally, the chi-square, t-test, and discriminant function analysis determined that there are very few differences in perceived conflict between the two groups, with a few slight exceptions. This information serves to fill several gaps in the published research regarding the psychometric properties of the ROCI-I and the perceived conflict levels between library and IT professionals.
Limitations

This study, like all studies of its kind, had several limitations. The scope of the study was narrowed to the 22 small liberal arts colleges that have merged their library and information technology departments into one unified department structure. Of those school districts, 11 colleges were surveyed and, due to the lack of demographic information gathered in the survey process, it is unknown how many of those institutions actually participated. While some wider generalizations may be inferred from the data obtained, the study and its findings were bound by this narrowed scope.

The primary limitation to this study was the reliability and construct validity of the instrument. Research Question 2 addressed this limitation and found the Cronbach’s alpha to be within the range of reliability set for this study. The construct validity of the original form of the ROCI-I was not validated, but a new 4-factor form was created. All of the items in the new form of the ROCI-I scored above the 0.50 factor loadings, lending construct validity to the new form of the instrument.

Other limitations of the study involved the inherent limitations of each methodology chosen to determine the differences in conflict levels between both occupational groups. In order to address these limitations, p values for the chi squares and t-test and discriminant function analysis were set on the low end at 0.05 or less in order to ensure that significance was only reported if it existed in keeping with these stringent values.

As participation in the survey was voluntary, the study was limited in that the individuals who chose to respond could have been unevenly distributed among the
conflict continuum. In order to address this limitation, confidence levels were set at 95% for all parametric tests in this study.

The quantitative focus of this study also served as a limitation for this study. This methodology was chosen due to the lack of quantitative data on the subject of conflict among library and IT professionals. This quantitative focus, however, limits the ability to understand the conflict levels among the reporting institutions on a qualitative level, which could provide a more holistic picture of the conflict levels perceived by these two groups.

Implications for Practice

Published accounts of extreme cultural differences (Cain, 2003; Hawkins & Battin, 1997) have painted a picture of disagreement and conflict between library and IT professionals. Account of mergers such as the one at Gettysburg (Wagner, 2000) have indicated that merging these two disparate cultures together presents a recipe for disaster. Due to the lack of quantitative evidence of the conflict levels between these two groups in merged department structures, these accounts have driven the literature and likely hampered potential mergers in some academic institutions.

The results of this study have presented several implications for practice in conflict measurement research and merged library and information services organizations. First, leaders in higher education institutions and researchers in conflict measurement should feel confident using the ROCI-I as it has been found to have adequate reliability. Researchers in conflict measurement should, however, explore the four factor model to see if it has reliability and content validity when used with other groups in other settings.
The ROCI-I does, however, possess some potential weaknesses that should be explored. The issues presented with Question 18 lead one to believe that this item should be reversed on the ROCI-I original form as well as the new four factor model. This researcher is recommending that the creator of the instrument explore reversing the scores on this item in order to increase the reliability of the three factor model. The high level of conflict reported by both groups on Question 10 (There is difference of opinion among the members of my group.) indicates that the wording of this question should be reviewed in order to determine if the low level of combativeness in the language of this question is causing it to gather higher Likert responses.

Second, the instrument provides a quantitative voice in the currently qualitative literature of library and IT culture and conflict. Regarding perceived conflict levels between groups, leaders in higher education institutions should feel more confident merging the two departments based on the findings of this study. The results from all of the research questions in this study indicate that merging these two departments does not result in a higher than average conflict level in either group. Additionally, the results also indicate that merging the two departments does not result in significantly disparate conflict levels between the two groups. The results of the study are not meant to dismiss quantitative accounts such as those found in Hardesty (1998) as invalid. Instead, higher education leaders who are considering this merger should use both the quantitative and the qualitative information available in order to make an informed decision.

Although no significance was found in perceived conflict levels between the two groups, leaders in merged information services organizations should be aware of two areas where difference was found. These are presented not as warnings but merely to
provide information to these leaders so they can be aware of the potential differences between the two groups. First, the new Intragroup Harmony Scale indicated that IT professionals in merged department structures perceived a greater amount of intragroup harmony than did library professionals in these departments. This indicates that leaders should consider addressing the issue of intragroup harmony with library professionals when merging the two groups into a single department structure.

Second, higher education administrators should be aware that both groups reported a higher than average amount of conflict on Question 10 (There is a difference of opinion among the members of my group.). Due to the non-confrontational wording of this question, however, this statement could be sorted into a healthier conflict category than the other more confrontationally-worded conflict questions on the ROCI-I. This question reflects the kind of conflict that researchers like Litterer (1966) and Bacal (2004) would classify as healthy conflict.

Finally, higher education administrators should not necessarily view the low conflict levels reported in this study as a sign that all systems are functioning perfectly in their merged information services department. Too little conflict could indicate a stagnant environment. In the review of literature in Chapter 2, modern conflict researchers advised leaders to strive for a balanced conflict level in their organizations. Bacal (2004) and Litterer (1966) argued that healthy conflict helps to find new solutions to old problems and helps to spur innovation. Rahim’s (2011) inverted U model also referenced the need for a moderate level of conflict within and between groups in order to maximize organizational effectiveness. Leaders in these departments should intentionally create
opportunities for both library and IT professionals to question the status quo and suggest
alternatives to current organizational methodologies.

Recommendations for Future Research

This study has been intentionally limited in scope. In order to fully explore both
the psychometric properties of the ROCI-I and the conflict levels that exist between
library and IT professionals, several recommendations for further research on these topics
are detailed below.

Psychometric Recommendations

This study determined that the original three-factor model of the ROCI-I
possessed adequate reliability with subscale Cronbach’s alpha levels above the 0.70
lower limit and an overall alpha level of 0.866. This study also determined that a new
four-factor model possessed construct validity, but this new model has not been testing
for reliability. This new four-factor model should be tested for reliability to determine the
Cronbach’s alpha levels for each of the four new subscales.

The low reliability of the original Intragroup Conflict Scale spotlights the need to
re-evaluate the treatment of the scores on Question 18. This question lowered the alpha
level of the Intragroup Conflict Scale by over one tenth. No empirical evidence has been
found to justify using non-reversed values for this question. The ROCI-I should be
psychometrically re-evaluated using reversed scores for Question 18 in order to
determine what effect this has on the ability of the instrument to predict conflict levels.

Conflict Research Recommendations

The research conducted in this study provided a glimpse into the wealth of data
that could be obtained in the study of library and IT conflict. This study was limited to
library and IT professionals in merged department structures. The literature in this area would benefit greatly by expanding this research methodology to test the perceived conflict levels of all library and IT professionals regardless of department structure. This type of analysis could provide important information about the perceived conflict levels of library and IT professionals in non-merged department structures. Additionally, it could provide information about difference in perceived conflict between merged and non-merged department structures as well as providing a stronger quantitative measure of perceived conflict levels among and between the two occupational groups on a larger national scale.

Another recommendation for further research involves follow-up research with the participants in this study. The information gathered in this study is quantitative and served to provide useful data in the library and IT conflict research arena. However, quantitative data rarely tells the whole picture of a phenomenon. A qualitative research study using the participants in this study would provide a clearer view into all of the variables that contributed to the low levels of conflict reported in this study. Although the data from each survey was collected anonymously and no email addresses or names can be linked to specific survey responses, the survey website does retain a list of the email addresses of those participants who did respond, so this follow-up study could be undertaken rather easily.

Summary

This study determined that the ROCI-I as currently published possesses adequate reliability. The construct validity of the original model could not be confirmed, however, and a new four-factor model was created as a result of the psychometric analysis
performed in this study. The ROCI-I had not been psychometrically evaluated since 1995 using data from a 1983 population. This lack of current psychometric evaluation left a gap in the research regarding the reliability and construct validity of the instrument. This study was designed to psychometrically evaluate the ROCI-I in order to provide information that allowed conflict researchers and higher education administrators to use the ROCI-I with confidence.

This study further determined that library and IT professionals in the merged institutions that participated in this study perceived lower than average levels of intrapersonal, intragroup, and intergroup conflict. Previous research has suggested that combining these two occupational groups into one department would be like mixing oil and water (Scanlon, 1990). The data also suggested that the cultural difference that existed between the two groups would contribute to higher conflict levels when merged into a single department. As the previous data was exclusively qualitative in nature, little was known about the quantitative levels of perceived conflict between the two groups. This study was designed to provide quantitative data regarding the perceived conflict levels of library and IT professionals in merged departments in order to provide additional data by which higher education administrators could make merger decisions.
APPENDIX A

Informed Consent Letter Preceding the ROCI-I Survey

Dear Participant:

My name is Stephanie DeClue and I am a doctoral student at the University of Missouri-Columbia. For my dissertation, I am conducting research to examine the relationship between library professionals and IT professionals in merged library and information technology departments. Because you are an employee in a merged library and information services department, I am inviting you to participate in this research study by completing the linked survey.

If you decide to participate, please complete the linked survey. Your return of this survey is implied consent. It will take less than 10 minutes to complete. No benefits accrue to you for answering the survey, but your responses will be used to measure relationships among library professionals and IT professionals in merged department structures. Any discomfort or inconvenience to you derives only from the amount of time taken to complete the survey.

There is no compensation for responding nor is there any known risk. In order to ensure that all information will remain anonymous, please do not include your name. Copies of the project will be provided to my University of Missouri dissertation adviser. If you choose to participate in this project, please answer all questions as honestly as possible and submit the completed questionnaire promptly using the submit button at the end of the survey. Participation is strictly voluntary and you may refuse to participate at any time.
Thank you for taking the time to assist me in my educational endeavors. The data collected will provide useful information regarding relationships between library professionals and IT professionals in merged department structures. If you would like a summary copy of this study please email me at sdgxf@mail.missouri.edu. If you require additional information or have questions, please contact me at the number listed below. If you are not satisfied with the manner in which this study is being conducted, you may report (anonymously if you so choose) any complaints to Dr. Phillip Messner at pemday@nwmissouri.edu or the University of Missouri Campus Institutional Review Board at umciresearchcirb@missouri.edu or (573) 882-9585.

Sincerely,

Stephanie DeClue

660-287-7371/sdgxf@mail.missouri.edu

Dr. Phillip Messner

660-541-1818/pemday@nwmissouri.edu
Appendix B

Email to Potential Survey Participants

To: [Email]

From: "mobrarian@gmail.com via surveymonkey.com" <member@surveymonkey.com>

Subject: XXXX Information & Library Services employee survey

Body: Dear XXXX Information & Library Services employee,

I am a doctoral student conducting research to examine relationships between librarians and IT professionals in merged library and information services organizations. Your participation in this survey would assist me greatly in my research.

Your participation is voluntary and all information gathered in the survey will remain anonymous. The survey will take no more than 5 minutes.

If you choose to assist me in my research, please click on the link below to participate.

Here is a link to the survey:
https://www.surveymonkey.com/s.aspx

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

Sincerely,
Stephanie DeClue
University of Missouri Doctoral Student
Department of Education, Leadership and Policy Analysis

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
https://www.surveymonkey.com/optout.aspx
References


Publishing.


Books.


VITA

Stephanie and her family moved numerous times during her childhood, finally settling in Huntsville, Alabama where Stephanie attended middle and high school. In 1987 she entered Mississippi State University. She graduated in 1991 with a Bachelor’s of Arts degree in Communication. Subsequent to this degree, she has received a Master’s of Arts in English from the University of Memphis and a Master’s of Library and Information Science from the University of Tennessee. In 2013, Stephanie earned a Doctorate in Education in Educational Leadership and Policy Analysis from the University of Missouri-Columbia.

Stephanie has worked in all types of libraries, public, military, and academic, in both Tennessee and Missouri. She is currently the Library Director at William Jewell College in Liberty, Missouri. Stephanie and her husband Gene have three daughters, one neurotic beagle and one very low maintenance fish.