2016

Evaluating Key Predictors of Employee Response to Change in the Pharmaceutical Industry

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2016

Abstract

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by

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MPA, New York University, 2004

BS, Hunter College of the City University of New York, 2000

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

Walden University

February 2016

Abstract

This study addressed the factors that predict employee response to large-scale change in the United States pharmaceutical industry. When poorly executed, major organizational changes such as mergers and acquisitions are often disruptive and costly to organizations and demoralizing to employees. Although employee responses to change have been studied in several industries, employee responses during change execution in the pharmaceutical industry have not been subject to study. The purpose of this correlational study was to reduce the knowledge gap related to organizational change in the pharmaceutical industry by evaluating key predictors of employee response to large-scale change. The theoretical framework consisted of transformational leadership, stakeholder, and change management theories. The research questions focused on 4 key predictors (initial change reaction, change communication, involvement in change development, and perceived change success) and their effect on 2 primary dependent variables: reaction to change (*RC*) and support of change (*SC*). Ninety-eight participants completed the survey and multiple regression was used to measure associations between predictor variables and dependent variables. The 4 independent variables in the aggregate predicted *RC* and the championing subscale of *SC*. Individually, none of the independent variables predicted *RC*, *SC*, or any of the *SC* subscales. The study contributes to positive social change by providing leadership with information in guiding creation of a supportive work environment during organizational change and to inspire employees developing medical innovations to fulfill global health needs, while creating skilled jobs and generating profit.

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Dedication

I dedicate this dissertation to my children, Brianna and Ryan. I hope it inspires them to excel in everything they do. I also dedicate it to my parents, Vernon and Pearline, who made sure I got a good elementary and high school education, despite their limited financial means while raising a large family. I would also like to thank my brothers and sisters because they did not complain when our parents were spending all that they had to ensure I got a good education. To my loving wife, supportive friends, coworkers, instructors, and family, this is for you as well.

Acknowledgments

I want to thank Dr. Branford McAllister, my dissertation committee chair, for his sound advice and mentoring in quantitative research methods. Dr. McAllister was especially supportive in helping me navigate the various requirements and processes that must be followed. I especially appreciate his knowledge of what is mandatory and his help in negotiating some of the smaller aspects of the process that did not add much value to the quality of my research. In addition to his review activities, Dr. Walter McCollum provided specific suggestions regarding sampling approach that saved me time and frustration, and I would like to say thanks for his practical advice. I would also like to thank Dr. James Stewart, my former chair, and Dr. Nikunja Swain for all the helpful review feedback.

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Chapter 1: Introduction

Change has become commonplace in organizations in the United States and around the world. According to Bordia, Restubog, Jimmieson, and Irmer (2011) and Jaros (2010), the reasons for this are numerous and include the demands of increasing globalization and deregulation, the results of mergers and acquisitions (M&As), changes associated with restructuring or downsizing, as well as the drive to gain competitive edge and strategic adaptability. These large-scale organizational changes have a significant potential to disrupt business as usual for organizations, and according to Bordia et al., can have profound implications for employees. Deeg (2009) also noted that these disruptions affect organizational performance. Consequently, the study of change initiatives and change management has become important to business and organizational researchers, and caused employee response to change to become an important area of research (Jaros, 2010).

Successful change execution requires some understanding of the factors that predict employee response to change. Multiple researchers such as Goksoy, Ozsoy, and Vayvay (2012); Herscovitch and Meyer (2002); Lau and Woodman (1995); and Oreg and Sverdlik (2011), studied employee response to large-scale change in other industries, but gave little attention to employee response during large-scale change execution in the pharmaceutical industry. Large-scale change is common in the pharmaceutical industry, as it is subject to frequent M&As, a type of large-scale change phenomenon Hornke (2010) and Hornke and Mandewirth (2010) described as a business strategy that pharmaceutical companies have increasingly used to gain and sustain a competitive

advantage. Shibayama, Tanikawa, and Kimura (2011) further noted that M&As are one of the main drivers of change in the pharmaceutical industry and are used as an essential strategic measure.

Employees respond to change, such as M&As, either by supporting or resisting it. An instrument for studying employee response to change is the Behavioral Support for Change Scale (BSCS; Herscovitch & Meyer, 2002). Georgalis, Samaratunge, and Kimberley (2015) studied the effects of Australian employees' feelings of justice and fairness on resistance to change, finding that feelings of justice had a mediating effect on change resistance. Lysova, Richardson, Khapova, and Jansen (2015) also studied employee support of change by examining the relationship with career identity, finding that employees actively engaged in career-seeking behaviors were more likely to display supportive change behaviors than those who were more passive. Oreg (2003) used the Resistance to Change Scale to assess whether a person is inclined to resist change. These approaches are appropriate for understanding employee response to change (i.e., support or resistance). However, these studies focused on organizations outside the pharmaceutical industry.

Research into employee reaction and engagement during large-scale change in the pharmaceutical industry is lacking, in spite of the high-risk nature of the industry and the consequences of poor change execution. For example, a drug costs $1.8 billion from discovery to commercialization (Golec, Hegde, & Vernon, 2010). During the course of this expensive, heavily regulated, and lengthy drug development process, companies often merge to stay competitive (Shibayama et al., 2011). These mergers create a need for

effective change management, which makes it important to understand the key factors that predict employee support of change in the pharmaceutical industry. However, these factors have not been studied in-depth in the research literature on large-scale organizational change in the pharmaceutical industry.

This study was designed to understand and document employee reactions that indicate their level of reaction to change or support of change. Herscovitch and Meyer (2002) identified three operationalized measures of support of change: compliance (minimum supportive behavior), cooperation (more supportive), and championing (the highest level of support). These operationalized measures, along with active and passive resistance, encompass reaction to change and form the full spectrum of employee response to change examined in my study. I addressed the lack of knowledge and understanding about employee response to change by examining whether any of four factors (initial change reaction, change communication, involvement in change development, and perceived change success) predict employee response to large-scale change initiatives. This study was also designed to provide practical information on employee response to change to inform pharmaceutical managers and associated change leaders who are planning and implementing change.

In the remainder of this chapter, I will offer the background of the study, state the research problem and the purpose of the study, lay out the research questions, and outline the theoretical framework for the study, which is a synthesis of transformational leadership, stakeholder, and change management theories. I then describe the nature of

this quantitative, correlational study; offer a definition of key terms and variables; and address assumptions, limitations, and delimitations of the study.

Background

Pharmaceutical research and development (R&D) is the cornerstone of one of the most expensive and high-risk global industries, and plays a crucial role in addressing the world's present and future health needs. In the global pharmaceutical industry, only one in 10,000 discovered compounds make it to market (Cook, Hunter, & Vernon, 2009); because of this, bringing a pharmaceutical compound to market costs an average of $1.8 billion (Golec et al., 2010). Regulatory agencies around the world, such as the United States Food and Drug Administration (FDA) and the European Medicines Agency (EMA), also heavily regulate the industry, and pharmaceutical companies must meet strict requirements before a drug is approved for marketing (Van Doren, 2011; Wechsler, 2009). These challenges create pressure on the pharmaceutical industry to find ways to operate more efficiently. A common approach in the industry is to engage in M&As as a key strategic measure that affects multiple processes, employees, and departments (Hornke, 2009; Hornke & Mandewirth, 2010).

M&As are examples of large-scale change initiatives; all organizations experiencing large-scale change initiatives must manage them well to avoid negative consequences. Deeg (2009) observed that change of this magnitude has the potential to disrupt a company's performance, success, and growth if not handled effectively and efficiently. Barcan (2010) echoed this sentiment by elaborating further on the need for an environment that is conducive to sound decision-making in the pharmaceutical industry.

The expensive and high-risk nature of the pharmaceutical industry suggests that the large-scale organizational changes resulting from mergers and acquisitions have a similar potential to disrupt not only company productivity and revenue, but also employee commitment.

Although research exists on employee response to change in other areas of business and industry, no research exists that specifically identified the factors that predict employee compliance, cooperation, and championing of change in the pharmaceutical industry. Goksoy et al. (2012) and Oreg and Sverdlik (2011), for example, examined the importance of understanding employee response during change implementation, but not in pharmaceutical industry settings. Therefore, in this study, I examined whether several factors predict employee support or reaction to large-scale change initiatives, such as M&As, in the pharmaceutical industry. The specific factors that I investigated were the following:

- change communication,
- initial change reaction,
- involvement in change development, and
- perceived change success.

Employee support was measured in terms of compliance, cooperation, and championing.

Knowledge of these factors is crucial for developing effective change management strategies that minimize the potential disruptive effects on employees and business operations. Effective change management is extremely important in the area of pharmaceutical R&D because of the high stakes involved (Cook et al., 2009). This study

was designed to address the gap in scholarly research on change management in the pharmaceutical industry. The results of this study have practical implications for guiding the creation of a supportive work environment during organizational change—a transitional environment in which employees are motivated and engaged in their jobs to meet health and medical needs globally, while the companies create skilled jobs and generate profit.

Problem Statement

Multiple researchers have sought to understand employee engagement and response during large-scale change initiatives in nonpharmaceutical industries (Goksoy et al., 2012; Herscovitch & Meyer, 2002; Lau & Woodman, 1995; Oreg & Sverdlik, 2011). According to Budhwar, Varma, Katou, and Narayan (2009), 50–80% of M&As fail because of clashing corporate cultures, a lack of clear communication, and a lack of employee involvement in the change. However, employee response to change in the pharmaceutical industry remains understudied and underrepresented. Therefore, the problem addressed by this study was a lack of scholarly research and understanding of the factors that predict employee response to large-scale organizational change such as M&As in the pharmaceutical industry.

Purpose of the Study

The purpose of this quantitative, correlational study was to narrow the knowledge gap on large-scale organizational change in the pharmaceutical industry by evaluating key predictors of employee response to large-scale change. The two primary dependent variables in this research were reaction to change (*RC*), which includes the full spectrum

of reactions ranging from active resistance to championing change; and support of change (*SC*), which was also expressed as three separate measures: compliance (*CM),* cooperation (*CP*), and championing (*CH*). The four independent variables were initial change reaction (*ICR),* change communication (*CHC),* involvement in change development (*ICD),* and perceived change success (*PCS*).

Research Questions and Hypotheses

The key research questions and their respective hypotheses were the following:

1. What is the relationship between *RC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*?

   $H_0$1: No relationship exists between *RC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

   H_a1: A relationship exists between *RC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

2. What is the relationship between *SC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*?

   $H_0$2: No relationship exists between *SC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

   H_a2: A relationship exists between *SC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

Theoretical Framework for the Study

The theoretical basis for this quantitative, correlational survey study consisted of a synthesis of transformational leadership, stakeholder theory, and change management theory.

Transformational Leadership Theory

Burns (1978) defined *transformational leadership* as a relationship between leaders and followers wherein they "raise one another to higher levels of morality and motivation" (p. 20). Bass (1985) further defined transformational leadership as the process through which leaders inspire and motivate people based on collective purposes. Bass also noted that transformational leaders are concerned with a follower's intellectual stimulation, while leading through charisma, inspiration, and motivation.

Wang and Rode (2010) studied transformational leadership as a way to effectively lead change. According to Wang and Rode, transformational leadership involves encouraging, facilitating, and accepting subordinate interests and input relating to organizational concerns and decision-making processes. Similarly, Jaros (2010) found that effective change leadership is crucial to planning, implementing, and managing successful organizational change.

Stakeholder Theory

Freeman (1984) developed stakeholder theory to describe how to address the interests of each stakeholder without unfairly valuing some stakeholders over others. Freeman defined stakeholders as key players or those with stakes in an enterprise, such as employees, owners, financiers, customers, communities, competitors, and government.

This theory was developed for use in establishing equity in value creation, trade, ethics, capitalism, and management's role in dealing with those issues.

Change Management Theory

Change management theory falls under the umbrella of social or organizational psychology. It incorporates a 3-stage model of the change process in which organizations move from a position of stasis into a new position or perspective (Lewin, 1947). These stages of change, according to Lewin, involve unfreezing (the undoing of an established mindset or approach), actual change (which involves a certain degree of uncertainty about the future), and freezing (the establishment of a new mindset or position). Researchers, such as Marks and Mirvis (2011), subsequently used Lewin's theories of change and group dynamics in studies of organizational adaptation to change to study the relationship between cultural differences and M&A outcomes. In response to large-scale organizational change associated with corporate mergers, evolving business environments, and increasingly globalized markets, studies began to emerge on how to manage adaptive and organizational change, some of which used change management theory as the theoretical framework. Ruta (2005), for example, demonstrated the use of change management theory in implementation of systems in a multinational corporation.

Nature of the Study

This quantitative, correlational study was designed to explore employee responses to large-scale organizational change such as M&As. It specifically investigated whether employees support or resist such change in the context of the pharmaceutical industry. I obtained data from a random sample of 98 pharmaceutical professionals who had

experienced large-scale organizational change. I collected data from these participants using the BSCS and additional, pharmaceutical industry-specific questions; the survey was administered online, and the survey data analyzed using multiple regression analysis to measure associations between BSCS factors and change response. Permission to use the BSCS instrument is in Appendix A. I conducted one linear regression analysis for Hypothesis 1 and four analyses for Hypothesis 2 (one for each of the individual subscales for support of change and one for the composite index).

The two primary dependent variables in this study were (a) *RC* on a 9-point continuum ranging from active resistance to championing change; and (b) *SC*, comprised of three subscales: *CM*, *CP*, and *CH*. Each of the subscales is a dependent variable for Research Question and Hypothesis 2. For these dependent variables, participants answered the support of change items associated with each subscale on a 7-point Likert-type scale. I then calculated the mean of these subscale responses and combined them into a single, composite index that indicates their overall support of change.

The independent or predictor variables were the four predictors hypothesized to affect the change's implementation: *ICR*, *ICD*, *PCS*, and *CHC*. To answer the key research questions and test the respective hypotheses, I measured the association between the dependent variables and the four predictor variables.

Definitions

The following key terms and definitions were used in this study:

Active Resistance: Opposing the change through clear and deliberate actions (Herscovitch & Meyer, 2002).

Championing: An extreme enthusiasm for change and doing more than is formally required to ensure change success, and promoting the change to others (Herscovitch & Meyer, 2002).

Change communication: The manner and frequency that management conveys information relevant to the proposed change to employees (Herscovitch & Meyer, 2002). Change communication involves the clarity and quality of communication (good, poor) as well as frequency (often, infrequently) of communication. In this study, change communication was measured by averaging the responses to two survey questions related to communication, creating an overall communication score.

Compliance: Demonstrating minimum support for change by acquiescing to change, but doing so reluctantly (Herscovitch & Meyer, 2002).

Cooperation: Demonstrating support for change by putting forth effort in change initiatives and being willing to make modest sacrifices (Herscovitch & Meyer, 2002).

Initial reaction: Participants' responses when first learning about organizational change as either negative or positive, ranging from: *I will lose my job* (negative) to *I will get promoted* (positive) (Herscovitch & Meyer, 2002).

Involvement in change design: The degree to which an employee takes part in the planning and implementation of change (Jaros, 2010). I measured this variable from a single survey question. The range of involvement on this item runs from *very involved* to *not involved*. Employees may be heavily involved in change design to the degree that they willingly cooperate, or even champion the proposed change, or employees may be minimally involved or not involved at all.

Leadership: A series of transactional events between someone in a position of authority and their subordinates, or a process in which an individual influences a group of individuals to achieve a common goal (Bass, 1990).

Management: Allocation and utilization of people and their skills to accomplish goals. It is "working with and through other people [in organizational settings] to accomplish the objectives of both the organization and its members" (Montana & Charnov, 1993, p. 1).

Passive resistance: Subtle, inconspicuous actions intended to oppose a change (Herscovitch & Meyer, 2002).

Perceived change success: The degree to which employees perceive a proposed change as completely and effectively implemented (Goksoy et al., 2012). In the context of this study, this was a study variable measured by a single survey question for which employees chose their agreement on a scale from *a complete failure* to *a resounding success*.

Assumptions

I assumed that all of the participants involved in this survey had a clear understanding of and appreciation for the purpose of this study and provided honest, forthright answers. I supported this assumption by assuring participants of the strict confidentiality and anonymity of the data and information gathered. I also assumed that the methodology for this study was reliable and valid, and that the methods of data collection and analysis were the best options for this study. This is based on Mitchell and

Jolley's (2001) discussion of research methods and the appropriateness of the quantitative design I employed to answer the research questions.

Scope and Delimitations

The scope of this study was limited to pharmaceutical industry employees in the United States who experienced large-scale change, such as M&As. Although the change experiences may be similar in other industries, the data may not be generalizable outside of the pharmaceutical industry. Therefore, readers need to interpret the results with caution.

Limitations

The study could have been limited by the time allocations and cost of resources required for the study. The study could also have been limited by the level of efficiency in collecting and analyzing data; it could have been limited by the level of validity and reliability in analyzing and reporting data, as well. Participants' willingness to disclose information about their perceptions of change and their work environment could have also limited the study. In addition, several limitations are inherent within the scope of any quantitative study. Foremost, I used a quantitative method to address the research questions and hypotheses, but was not able to examine adequately the depth and underlying detail of some responses. For example, I did not examine those responses related to the perceptions of all aspects of the change's implementation as they affect a participant's support of the change, and how participants viewed their experience of the change or what could have been done better. Thus, my study reflects a trade of a degree of richness within the results for a degree of statistical certainty that associations did not

occur by chance alone, and an ability to examine the numerical change in these associations, in accordance with Mitchell and Jolley's (2001) guidelines.

Significance of the Study

Significance to Theory

The significance of this study lies primarily in its potential to contribute to the main mission of the pharmaceutical industry: meeting present and future health and pharmaceutical needs of customers, more effectively realized if managers and change leaders successfully execute inevitable large-scale organizational change. For example, a new medical innovation, such as a cervical cancer vaccine, can result in radical changes to a country's health policy. Additionally, successful change execution can generate profit and create jobs. Still, scholarly research on large-scale organizational change in the pharmaceutical industry from an employee-response perspective is virtually non-existent. This study, therefore, is not only practically significant for pharmaceutical companies managing change but theoretically significant as well, since it has the potential to add to the research literature.

Significance to Practice

A key driver of the significance of this study is the potential to avoid one of the common negative outcomes of change: the costly consequence of losing talented employees. In a study of employee turnover, Tracey and Hinkin (2008) noted that turnover is costlier for higher complexity jobs, such as those in the pharmaceutical industry, than for lower complexity ones. Based on data from the Bureau of Labor Statistics, O'Connell and Mei-Chuan (2007) placed the estimated cost of employee

turnover, averaged for all sectors, at close to $14,000 per employee. O'Connell and Mei-Chuan further illustrated the potential magnitude of this problem by presenting data, which showed that the majority of the 24% of employees who quit their jobs annually did so voluntarily. In the example O'Connell and Mei-Chuan shared, the annual cost of employee turnover at a company with 1,000 employees is over two million dollars. Larger pharmaceutical companies typically employ 10,000 to 100,000 individuals. Therefore, in addition to contributing to the creation of a supportive work environment where employees can operate at their full capacity, a study such as this has significant potential to contribute to cost reduction associated with change-related employee turnover.

Large-scale change initiatives, if executed well, can reinforce an employee's commitment to their work and organization. This study is significant because it may uncover steps pharmaceutical companies can take to minimize distractions during the inherent discontinuity of organizational change, effectively allowing employees to focus on executing their work-related responsibilities. This study, therefore, may uncover useful information not only for clinical professionals, but also for other stakeholders—owners, patients, communities, and government.

Significance to Social Change

Clinical research professionals at pharmaceutical companies are very much involved in creating positive social change. Besides creating profit, the intent of a pharmaceutical company's R&D efforts is frequently to create medicines that meet health needs and improve the quality of life of individuals around the world. In some cases, the

medicines and other scientific innovations are lifesaving, which is the ultimate testament to the potential effect of the company's work on social change. Given the substantial opportunity for social change in this profession, it is important for socially responsible organizations to create an environment in which pharmaceutical employees can have the greatest effect on others. The study is significant because it may uncover strategies organizations can utilize to improve acceptance and support of sound change in the pharmaceutical industry.

Summary

In this chapter, the focus was on large-scale organizational change in the pharmaceutical industry, with particular emphasis on employee response to change. I established, through a thorough review of the literature, that limited scholarly research of this phenomenon exists, and adapted the BSCS with pharmaceutical industry-specific questions to conduct the analysis through a survey. I also listed a number of hypotheses to help assess the associations between four predictor variables (*ICR*, *ICD*, *PCS*, and *CHC*) and employee response to change, as measured through two primary dependent variables (*RC* on a continuum ranging from active resistance to championing change; and *SC* operationalized through the level of compliance, cooperation, and championing of change).

Chapter 1 was a succinct review of the key elements of the study and constituted the foundation to build on in future chapters. Through a synthesis of transformational leadership theory, stakeholder theory, and change management theory, I established the theoretical framework for the study. I also discussed key assumptions, scope, and

limitations in Chapter 1. Chapter 2 examines these three theories in more depth, including an explanation of how other researchers used these theories. I further construct a logical argument laying out the rationale for this study with emphasis on key drivers of pharmaceutical industry change, the expensive and high risk nature of the industry, and the potential contribution to positive social change. In Chapter 3, I provide a detailed description of the methodology to select research participants, collect, and analyze the data using multiple regression.

Chapter 2: Literature Review

This quantitative, correlational study was designed to measure employees' responses to large-scale organizational change within the pharmaceutical industry. While researchers such as Goksoy et al. (2012) and Oreg and Sverdlik (2011) studied employee response to change in other industries, this phenomenon has not previously been explored in the pharmaceutical industry. The study of change management and employee response to change is crucial in the pharmaceutical industry, which is subject to large-scale organizational change caused by federal regulations, market trends, and M&As (Hornke & Mandewirth, 2010; Mehralian & Shabaninejad, 2014; Saranga & Banker, 2009; Vernon, Golec, & Stevens, 2010).

This chapter consists of a review and synthesis of relevant literature and studies. The objective of this review was to critically analyze current change management literature on employee response to change, with the aim to identify and describe a gap in scholarly research on this phenomenon in the pharmaceutical industry. This review is framed by a theoretical framework consisting of change management theory, stakeholder theory, and transformational leadership theory, which are also examined in detail. I further investigate the overall context of this study by reviewing studies on employee support of and involvement in organizational change, and the major drivers of change in the pharmaceutical industry.

Literature Search Strategy

I obtained the literature for this review through comprehensive online search methods. I searched various combinations of the following key terms and phrases:

pharmaceutical merger, *pharmaceutical industry change*, *effect of change on employees*, *employee response to change*, *large-scale pharmaceutical change*, *management and change*, and *leadership and change*. I primarily used Academic Search Complete and Business Source Complete to search for relevant and current, peer-reviewed journal articles, five or fewer years old. I also searched Walden University's online library using Google Scholar to obtain additional full-text articles for this review. Finally, I obtained the titles of several additional studies listed in the bibliographies of key studies on organizational change.

Theoretical Framework

Change Management Theory

Change management theory falls under the umbrella of organizational and social psychology and is associated with Lewin's (1947) ideas on change processes and group dynamics. Lewin, who is often recognized as the founder of social psychology, developed a 3-stage model of the change process that describes moving from a position of stasis into a new position or perspective. These stages of change consist of unfreezing (the undoing of an established mindset or approach), actual change (which involves a certain degree of uncertainty about the future), and freezing (the establishment of a new mindset or position). Researchers, such as Marks and Mirvis (2011), later used Lewin's theories of change and group dynamics in studies of organizational adaptation to change.

In response to large-scale organizational change associated with corporate mergers, evolving business environments, and increasingly globalized markets, studies began to emerge on how to manage adaptive and organizational change. Ruta (2005)

utilized change management theory to study implementation of a human resource system at various subsidiaries in a multinational corporation. More recently, Deeg (2009) noted that because of its ubiquity and inevitability, large-scale change represents potential organizational discontinuity and, consequently, effective change management has become a major component of organizational success. The pharmaceutical industry is especially subject to organizational discontinuity related to large-scale change (Hornke & Mandewirth, 2010; Mehralian & Shabaninejad, 2014; Saranga & Banker, 2009; Vernon et al., 2010). Therefore, examining studies on change management were appropriate for contextualizing and framing this study.

Transformational Leadership Theory

Transformational leadership is often associated with successful major change. Burns (1978) defined *transformational leadership* as a relationship between leaders and followers wherein they "raise one another to higher levels of morality and motivation" (p. 20). Bass (1985) also defined *transformational leadership* as the process through which leaders inspire and motivate people based on collective purposes. Wang and Rode (2010) studied transformational leadership as a way to effectively lead change. According to Wang and Rode, transformational leadership involves encouraging, facilitating, and accepting subordinate interests and input relating to organizational concerns and decision-making processes. Similarly, Jaros (2010) found that effective change leadership is crucial to planning, implementing, and managing successful organizational change. As a bottom-up approach, transformational leadership has the potential to engage employees in the change process because Jaros and Whelan-Berry and Somerville (2010)

demonstrated that employee engagement is a key factor in implementing successful organizational change. Therefore, transformational leaders often bring about desired effects through inspirational motivation, personal charisma, and by considering and motivating followers.

Stakeholder Theory

Stakeholder theory was also used as part of the theoretical framework for this study. Researchers generally credit the origins of stakeholder theory to R. Edward Freeman's 1984 foundational text *Strategic Management: A Stakeholder Approach*. According to Freeman, stakeholder theory is concerned with issues involving key players or those with stakes in an enterprise (i.e., stakeholders): employees, owners, financiers, customers, communities, competitors, and government entities. Freeman used this theory to question the traditional idea that one stakeholder (such as an owner) is automatically more valued than all others are. In a business environment where the main motivation is to make a profit, owners (including shareholders) have been seen as the primary stakeholder, and many business decisions are made based on the interests of this particular stakeholder. However, Freeman argued that the interests and concerns of other parties involved, with stakes in an enterprise, should matter as well when making business decisions. According to the theory, this inclusive approach creates ownership and a sense of belonging for those involved. Like transformational leadership, stakeholder theory relies on a bottom-up approach that has the potential to engage crucial stakeholders, such as employees, in the change process.

Key Variables and Concepts

Employee Involvement in and Support of Change

Employee commitment to and support of change has been the subject of extensive research. Lau and Woodman (1995) examined the causes rather than the consequences of change commitment. Jaros (2010) and Whelan-Berry and Somerville (2010) asserted that effective organizational change management is crucial to how organizations successfully handle large-scale change, and employee participation in and support of change are key factors in successful change initiatives. Jaros (2010) also found that getting employees to commit to new procedures, policies, and goals involving change increases the likelihood of change success. This commitment implies that employees will support the change.

Employee response to change is multidimensional. It involves behavioral and attitudinal components (Jaros, 2012) as well as emotional ones (Mishra & Bhatnagar, 2010), including feelings of ambivalence (Oreg & Sverdlik, 2011). Therefore, I approached employee involvement in change as a multidimensional construct, similar to the approach Herscovitch and Meyer (2002) took. According to Herscovitch and Meyer, Compliance, cooperation, and championing encompass the range of employee support from minimal support of change to enthusiastic promotion or championing of change; the negative aspects of response to change, active and passive resistance, complete the continuum of reaction to change.

Recent studies have shown that the manner and the degree to which employees are included in change implementation enhances their organization’s successful transition to a new working reality. For example, Franckeiss (2012) used a case study approach to

explore change management at a traditional print-based global publishing company fully preparing to embrace digital-age publishing and to implement changes relating to online publication and delivery systems. Franckeiss found that preparing employees for the change through hands-on inclusion techniques caused them to support change implementation and increased the change success. The inclusive, hands-on techniques examined included workshops on leading, implementing, and experiencing the dynamics and expectations of change, as well as pre- and postevent webinars with follow-up activities. Although Franckeiss's study was qualitative and examined a different industry, it had important implications for this research because it showed that employee involvement and inclusion in organizational change increases support for and successful implementation of change.

Researchers and practitioners have also studied and devised formalized approaches to change management in recent years, also highlighting the importance of employee involvement. For example, Goksoy et al. (2012) studied business process reengineering (BPR) as a strategic tool for managing radical organizational change intended to improve an organization's performance. According to Goksoy et al., BPR is "the fundamental rethinking and redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed" (p. 92). High-profile corporations such as Taco Bell, Kodak, IBM Credit Corporation, and Hallmark have successfully employed BPR to improve their existing business conditions and maintain a competitive advantage. Because BPR has become a popular change management approach, Goksoy et al. sought to test and analyze

BPR as a prominent management trend for organizational change as it applied to a multinational electronics and electrical equipment company in Turkey. Goksoy et al. empirically analyzed survey responses of 155 employees and found that the key success factors of BPR included (a) proper and careful implementation, (b) commitment and support from management in terms of resources and leadership, (c) communication, (d) teamwork, and (e) adherence to the overall reengineering or change strategy. The Cronbach Alpha Internal Consistency Co-efficient came out to 0.8768, indicating that the reliability and internal consistency of their five-point Likert scale consisting of 10 variables were high. The researchers recommended collection of information from management and change agents, as well as employees, to obtain accurate information about BPR. Although the researchers focused on a global electronics company, the issues addressed are applicable to the pharmaceutical industry as well. For example, product lifecycles in electronic companies may be short, but pharmaceutical companies must constantly focus on innovation because of the long development timeline needed to bring medicines and therapies to consumers. Therefore, pharmaceutical companies may need to adopt BPR practices to improve operational processes so they can maximize patent life to recoup drug discovery and development expenses for profit. Also relevant to my study is that the researchers also found employee involvement in the change process through teamwork and change communication to be key success factors of change management.

Change Communication

Communication is an integral part of organizational change, as it is the means of disseminating information to stakeholders and receiving feedback. Goksoy et al. (2012)

and Whelan-Berry and Somerville (2010) found that clear communication of change is a key component of effective and successful change. Goksoy et al. (2012) found that 48% of employees surveyed perceived communication with them before and during BPR change implementation to be the overriding success factor of BPR change. In their review and analysis of recent organizational change literature, Whelan-Berry and Somerville (2010) found that communication was the most identified variable associated with both change success and failure. Whelan-Berry and Somerville found that positive communication is linked with successful change, and poor communication led to change failure. They also noted that regular and clear communication was important throughout the entire change process, starting even before initiating the actual change process. Whelan-Berry and Somerville further stated that employees' understanding of the need for change in the first place was crucial, as was communication on both individual and group levels throughout the change process. In addition, Whelan-Berry and Somerville found that good communication was important for both employee adoption and support of change.

Other Key Concepts

The role of change leaders and human resources. Change leaders might overlook the resource requirements and monitoring needed during change implementation. In their theory-building meta-analysis, Whelan-Berry and Somerville (2010) examined the link between major drivers of change and the organizational change process. The researchers observed that while change leaders of an organization may have a clear vision of change, they might not have considered whether the organization was

ready for change. They further observed that change leaders often did not consider how they might measure successful change afterward. Whelan-Berry and Somerville contended that while organizational change can be challenging and complex, it is also mapable and foreseeable. Whelan-Berry & Somerville isolated four key contributors to successful change: (a) a clear vision of change; (b) leaders' change-related actions; (c) change-related communication, training, and employee participation; and (d) aligned human resources practices and organizational structure and processes. Their theory-building article contributed to the research literature by identifying major factors of change and discussing how they relate to the change process in order to manage organizational change more effectively. Furthermore, Whelan-Berry and Somerville found that adequate change planning is crucial for successful change, and that many change efforts fail from lack of adequate resources and planning. They also concluded that it is important to use a mix of change drivers across the key steps of the change process. This article is important and relevant to my study because it has a link demonstrating that employee participation in change is a key factor in effective and successful change management, although none of the settings involved the pharmaceutical industry.

Researchers have also studied the key roles that human resource managers can take on as change agents in change implementation and management. For example, using a mixed-methods case study approach grounded in Gidden's structuration theory, Barratt-Pugh, Bahn, and Gakere (2013) studied organization change associated with the merger of two dissimilar state government departments in Western Australia. Their study

exemplified how human resources departments facilitated and managed change implementation through various mechanisms. The researchers conducted the study in three phases, starting with a survey of 2,000 employees and ending with interviews of employees and of 30 state government executives. Managers used various formal and informal agents of change techniques to encourage support for change. The researchers found that the mode of change management influenced employee experiences of change: positive experiences resulted from informal, relational techniques, while negative experiences largely resulted from more formal, authoritative managerial techniques. The state departments had selected human resource managers based on technical expertise rather than on relational skills, so when change arrived, managers did not have the relational or teambuilding skills to effectively usher their teams down new paths. Consequently, Barratt-Pugh et al. recommended that human resource departments take a strategic approach to change, one that facilitates change by supporting teamwork as organizations work through change and emphasizes relational leadership capabilities in human resource managers in addition to formal technical skills. Like the findings of Goksoy et al.'s 2012 study, the findings of Barratt-Pugh et al.'s study suggested that employee involvement in the change process through teamwork was a key success factor of change management. Furthermore, the study had valuable practical information on the kinds of informal relational skills needed by human resource managers to manage effective organizational change.

The role of transformational leadership. Researchers have studied the connection of transformational leadership to individual adaptive change and

organizational innovation. For example, in their correlational study, Charbonnier-Voirin, El Akremi, and Vandenberghe (2010) hypothesized that transformational leadership is the type required to facilitate individual adaptive performance, as well as a climate of organizational innovation through teamwork. The researchers recognized that transformational leadership may work on both individual and team levels. They used hierarchical linear modeling to analyze data collected from 120 employees and managers of an aerospace industry organization. Their findings confirmed their predictions that a positive link exists between transformational leadership and individual adaptive performance and a climate of team-level innovation. Practical implications included developing leadership practices that encourage self-management and fosters acceptance of team-based decision-making and group goals.

Researchers also examined transformational leadership and follower creativity as they relate to organizational climates of innovation and change. Wang and Rode (2010) looked at transformational leadership in relation to how well employees identified with their leadership and how supportive of innovation the organization was in relation to its employees. They found that the interaction of all three parameters (leadership style, climate of innovative, and identification with leader) fostered employee creativity. The researchers focused on a large number of organizations across multiple industries, including pharmaceutical companies. Pharmaceutical company employees must follow strict protocols to comply with a multitude of regulations associated with research involving human subjects. However, tremendous room exists for creativity and innovation relating to process improvement to accelerate drug development. Therefore,

change management practices that support the interaction of these three elements could have a positive effect on employee reaction to change in the industry. There remains an opportunity to optimize change management effects in an innovative, transformational leadership environment, where employees identify with leaders.

Researchers have also studied transformational leadership as it relates to change management in areas related to the pharmaceutical industry, such as nursing. In one example, Ricke-Kiely and Robey-Williams (2011) explored how transformational leadership could be used to guide and manage change at a South Carolina hospital. The researchers used a qualitative research design to gain insight from a sample of nurses during a Magnet recognition program, which ran from 2003 to 2005. Magnet recognition was a credentialing status designed to attract, recruit, and retain quality nurses. Thirty-five nurses participated in focus groups. Of the 35 nurses, six were managers, 34 were female, and one was male. Over half of the participants achieved at least a bachelor of science in nursing degree and the median experience of the group was 20 years. The researchers based their theoretical framework on Kotter's (1996) change model and the attributes of transformational leadership. Three major themes concerning the perceived change of the hospital emerged from analysis of the data collected: recognition, resources, and culture. All participants were aware of the prestigious value of the Magnet award, and they all identified recognition as the primary result of it. However, nurse managers and staff disagreed on resources. Managers thought the hospital had become a more attractive place to work resulting in less over-time expenses, while staff thought the Magnet recognition had little or no effect on resources. Changes in culture were less

noticeable, as staff expected something radical to happen that did not happen, while nurse managers saw incremental change associated with research, retention, and increased overall quality. Although the study provided valuable information on how employees of differing levels perceive change and its consequences, a key limitation of this study was that other important stakeholders, such as patients, physicians, and family members, were not included in the sample. These stakeholders could have provided useful insight about their experiences and perceptions of change. Additionally, a pre-Magnet survey would have also served as a good baseline comparison.

The role of change management. Change is a staple in today's organizations. According to Jaros (2010), as markets became more global, competitive, and de-regulated, change has become the norm for many organizations and businesses. Jaros observed that the globalization and de-regulation of markets, for example, require competitive and strategic adaptability on the part of businesses and organizations, adaptability that often necessitates the implementation of new goals and change initiatives. More and more, organizations must respond to dramatic changes in operations and structure, such as those resulting from M&As, in order to remain viable and competitive (Deeg, 2009; Hornke & Mandewirth, 2010). In this regard, the pharmaceutical industry, in which M&As are seen as essential strategic maneuvers (Shibayama, Kunihiro, & Kimura, 2011), is no exception. Furthermore, laws and regulations involving medicines also affect change in the pharmaceutical industry (Vernon et al., 2010; Whelan-Berry & Sommerville, 2010). Consequently, research on how organizations and their leaders implement and manage change has become

increasingly important according to Deeg (2009), Jaros (2010), and Whelan-Berry and Sommerville (2010). Although researchers have studied organizational change, change management, and employee response to change in the business sector for the past 20 to 25 years, work on organizational change, change management, and employee involvement in change has only recently begun to emerge in relation to the pharmaceutical industry. Budhwar et al. (2009), Jaros (2010), and Whelan-Berry and Sommerville (2010) are examples of researchers who have done work in the industry. Therefore, I will review current peer reviewed studies on change management outside the pharmaceutical industry and discuss how they relate to my study on large-scale organizational change in the pharmaceutical industry.

Based on recent research, the change management history of an organization and its employees' previous experiences of organizational change affect future change management and change implementation. Bordia, Restubog, Jimmieson, and Irmer (2011) observed that change management research has, for the most part, overlooked the role of an organization's change management history in shaping employee attitudes. The researchers studied the effects of prior change management on employees' attitude toward change and proposed that prior experience with change influences how employees react to new changes. They also proposed that individual change-related experiences and the organizational change history of an organization would have significant consequences for developing change-related attitudes in employees. In their correlational study, Bordia et al. hypothesized that an organization's poor change management history (PCMH) related positively to PCMH beliefs in employees. The authors' position, based on a socio-

cognitive model, confirmed that prior change experience influenced employees' reaction to change. Findings from interviews and surveys of employees of a Philippine property and development firm confirmed Bordia et al.'s hypothesis that employees who experienced poor change management in the past are inclined to react poorly to new changes. More specifically, the researchers found that PCMH led to decreased openness to change, job satisfaction, and trust, as well as to increased cynicism and turnover intentions. The findings of this study have significant implications for the pharmaceutical industry. The frequency of organizational change in the pharmaceutical industry suggests that there is a good chance pharmaceutical employees and companies have experienced or will experience change, making the consideration of PCMH on individual and organizational levels important to change implementation and management.

Understanding of organizational change and employee response to it remains an area for further study, especially in the pharmaceutical industry. Deeg (2009) observed that although change was receiving greater critical and scholarly attention, limitations and deficits in the conventional discourse on organizational change were still present. Limitations and deficits in the discourse included lack of theoretical sophistication, lack of realism, and lack of integration. Deeg argued that existing understandings and models of change posit change as incremental and gradual, wherein organizational response is modelled on adaptation and reaction. Current discourse on change also often characterized change as malleable and predictable, rather than more realistically as volatile, sharp, sudden, and radical. Furthermore, Deeg's study of organizational change suffers from "paradigmatic plurality" (p. 197), a lack of integration, a fragmentation of

dispersed discourses leading to difficulties in finding what theories, concepts, and models might have in common. To address these limitations, Deeg forwarded a comprehensive or integrated model of organizational discontinuity, an approach that encompassed various research directions and provided a framework that better mirrors the complexity and plurality of organizational discontinuity. For Deeg, this integrated approach did not necessarily translate to mere eclecticism, but allowed various theories and insights through its inclusive character to find their place in the broader scheme systematically. Deeg's contribution was highly theoretical, and researchers and practitioners have yet to test his theory or put it into practice.

Others have examined change in complex, less-structured environments. Pellissier (2011) discussed the complex nature of innovation and change management from an organization's perspective, specifically when implementing change in complex systems such as those of developing economies. Like Deeg (2009), Pellissier (2011) noted that linear change solutions inevitably missed the mark because it is difficult to predict outcomes with so many variables involved. Pellissier argued that developing economies require non-linear solutions more so than mature economies because the nature of and interplay between variables in developing economies are more unstable. Additionally, the organic nature of competition (wherein change associated with competition is taken as the norm and accepted as practice) calls for non-linear solutions. Pellissier advanced the concept of resilience engineering as a nonlinear innovation model that went beyond simply reporting data to delivering insights and projections that support innovation in technology and change management in complex systems. Again, however, like Deeg

(2009), Pellissier's (2011) contribution was theoretical, and researchers and practitioners have yet to test his theory or put it into practice.

Employees as stakeholders. In short, firms need stakeholders to exist. Parmar et al. (2010) and Duckworth (2014) identified employees as integral to a firm's existence. Duckworth argued that seeing employees as stakeholders can help organizations increase social responsibility and achieve performance improvement. As stakeholders, employees are greatly important to an organization's sense of social responsibility because organizational decisions and actions, including decisions and actions regarding change, intimately affect them. Furthermore, stakeholder engagement and identification are keys to social responsibility because of issues concerning compensation, employment security, and skill development. Consequently, seeing employees as integral to a firm's existence, as stakeholders, may reinforce employees' participation in change endeavors, which Jaros (2010) and Whelan-Berry and Somerville (2010) found is a key factor to successful organizational change implementation. In other words, employees may have an interest in organizational change not only as employees (how the change will affect their day-to-day operations), but also as stakeholders (the overall effect of change on the organization's success and well-being).

Researchers also recently used stakeholder theory to examine organizational change based on the need for organizations to transition to more sustainable paradigms. For example, Valente (2010) noted the struggles of moving from a techno-centric change management paradigm focused on business behavior to one that is more inclusive, which considered multiple stakeholders associated with individual businesses. Valente sought to

understand why after 14 years of advocacy from management researchers for a paradigm shift, the field of management has not been able to shift from a techno-centric paradigm. Valente further sought to understand what was required to move toward an alternative paradigm. Valente employed critical systems theories to develop a 3-phased process model that advocated a more comprehensive approach, which considered the interconnectedness of social and economic factors, as well as associated stakeholders of a particular business targeted for change. The implications of Valente's framework are twofold. First, it addresses interconnectedness of social, economic, organizational, and ecological issues. Second, it recognizes the effects that multiple and diverse agents with little authority can have on change. Although the model does not focus on employees, researchers can consider employees as an important part of the interconnected network of agents that influence change processes.

Others approached the study of stakeholder theory from the perspectives of social capital, sustainability, and trust. For example, Russo and Perrini (2009) investigated the differences in approach to corporate social responsibility (CSR) and treatment of stakeholders based on the size of the organization (large or small to mid-sized). They found that larger organizations focused more on stakeholder theory, while small to mid-sized organizations focused on building social capital. Russo and Perrini noted that CSR has evolved into a service objective of organizations with a genuine interest in doing good for the communities in which they operate.

In a related article, Garvare and Johansson (2010) developed a model to help understand stakeholder management from both an organizational and globally

environmental perspective. Their model shifted focus from simply ensuring the organization's product is the best it could be for customers to ensuring a good working environment for employees as well. They expanded the stakeholder management concept to include not only employees' concerns, but to limiting damage to the environment in which the organization operates as a way to create sustainability, as well. Greenwood and Buren III (2010) argued that organizations have an ethical obligation to treat their stakeholders fairly, but that less powerful stakeholders are at risk of unfair treatment. Greenwood and Buren III discussed the importance of trust in relationships between organizations and their stakeholders. They noted that organizations strive to ensure that stakeholders, such as board members and investors who make significant contributions to the organization's financial success, are treated well. Other stakeholders, such as junior employees whose contributions may not be as closely and directly linked to the company's success, can be neglected, unless the organization is considered trustworthy. Greenwood and Buren III's study has implications for employee involvement in change because it suggested that at lower hierarchical levels, important contributions employees make to a change's success may be neglected or may be missed entirely.

Sustainable organizational change requires a balanced approach that acknowledges stakeholder needs. Change that focuses exclusively on the traditional bottom line of reducing cycle time and operating cost, while increasing productivity and revenue for the business at the expense of stakeholder concerns and social responsibility, may not facilitate an organization's sustainable future (Garvare & Johansson, 2010). Representing the views and concerns of a select group of stakeholders when considering

and managing change, neglects the needs, concerns, and efforts of other stakeholders, including employees (Parmar et al., 2010). Organizations, therefore, must consider influences beyond the immediate business needs of the organization and commit to a shift towards more responsible business practices that balance economic drivers with social and environmental objectives, according to Garvare and Johansson (2010). This shift is necessary for sustainable development implementation, as organizations focus on the system as a whole and not just the manifestations of the underlying business struggles (Valente, 2010). Recent studies (Duckworth, 2014; Parmar et al., 2010; Valente, 2010) indicate that such a shift has begun, but without consideration of the multiple stakeholders and relationships typical of a complex system, this shift to more socially conscious change management is not likely to continue.

Emotional dimensions to employee commitment to change. There appears to be an emotional dimension to employee engagement with organizational change. Recently, Mishra and Bhatnagar (2010) studied the link between emotional dissonance and organizational identification to turnover intention and emotional well-being in the Indian pharmaceutical industry. Mishra and Bhatnagar collected data via a questionnaire for their correlational study about the emotional conflicts of 486 pharmaceutical representatives in the Indian pharmaceutical industry. They characterized this emotional dissonance as the difference between the sales representatives' true feelings and the positive expression the representative must display to customers even if the representative's true feelings are negative. Through hierarchical regression analysis, the researchers found that this emotional conflict, or dissonance, was a predictor of employee

turnover intentions. In addition, they found that an employee's need to display potentially opposite emotions about what they were feeling was a significant source of employee dissatisfaction. They also found that organizational identification and commitment were not always matters of outright support or resistance, and that organizational identification and commitment to change are complex and sometimes ambivalent. However, Mishra and Bhatnagar did not conduct the study in the context of large-scale organizational change, and focused on organizational identification instead of commitment to change. The researchers also did not address whether emotional dissonance of pharmaceutical representatives was greater in the Indian pharmaceutical industry compared to those in western countries. Nonetheless, the study was important for measuring organizational identification in employees in the context of the pharmaceutical industry in general.

Sometimes employees do not have strong opinions about organizational change, and their responses could be misinterpreted. Oreg and Sverdlik (2011) noted that failing to consider ambivalence can lead to misrepresentation of employees' reactions to change. In addition, they noted that employee reaction to change is not unidirectional, and employees' feelings about management can influence their reaction to change. For their correlational study, the researchers reanalyzed data from three previous studies on how employees felt about organizational change and what change agents affected whether employees supported or resisted change. Oreg and Sverdlik found that employees can both resist and support aspects of the same change and that those employees' personal attitudes toward change interact with their attitudes toward the change agent, which can result in ambivalence. In fact, the researchers found that employees with a positive

impression of the change agent could still be ambivalent to organizational change. Oreg and Sverdlik's study was important because it found that by accounting for ambivalence, researchers could offer more nuanced explanations of employees' responses to change.

Drivers of Change in the Pharmaceutical Industry

Mergers and Acquisitions

M&As are common in the pharmaceutical industry. Hornke (2010) and Hornke and Mandewirth (2010) noted that M&As have become a global phenomenon and business strategy pharmaceutical companies increasingly use to gain and sustain a competitive advantage. According to Shibayama et al. (2011), M&As are one of the main drivers of change in the pharmaceutical industry and are evolving as an essential strategic measure. In an industry where heavy investment of time and money is required to bring a promising drug from the laboratories to market, pharmaceutical companies engage in various business practices to reduce competition (Granier & Trinquard, 2010). According to Granier and Trinquard, established pharmaceutical companies often address competitive threat by merging with new entrants to the industry. Shibayama et al (2011). noted that mergers create significant logistical issues associated with bringing two organizations together. Lipworth, Montgomery, and Little (2013) further found that mergers have significant effects on practices and procedures that affect employees, while Lukkari (2011) found that mergers also affect external considerations, such as customer relationship management. These large M&As typically require excellent change management implementation to ensure smooth, successful, and cost-effective transitions, according to Hornke and Mandewirth (2010).

A merger significantly affects the logistical issues associated with bringing two similar organizations together and on practices and procedures that affect employees. Budhwar et al. (2009) observed in their study of Indian pharmaceutical firms that not all M&As are successful. They focused on the role of the human resource department in managing change associated with cross-border M&A processes and why M&As fail. According to Budhwar et al., 50-80% of M&As fail because of clashing corporate cultures, a lack of clear communication, and a lack of employee involvement in change. They noted that the human resources department of both companies involved must be responsible for three critical factors: (a) the blending of organizational cultures, (b) facilitating effective communication, and (c) involving employees in the change process (Budhwar et al., 2009). Using a case study approach, Budhwar et al. examined three major cross-border M&As and interviewed senior executives, human resource department heads, and team members of the companies involved. The findings of the study largely confirmed the findings of the previous literature outlined above. Because of this, Budhwar et al. recommended further integrative study of the role of human resources departments in all three stages of the M&As process: pre-integration, integration, and unification. Budhwar et al.'s study was important for its cross-border focus. Because M&As occur on a global scale, study of cultural differences as they pertain to organizational operations and employees during change is increasingly important. Although this article focused on Indian pharmaceutical companies, it also highlighted the crucial nature of issues concerning cultural differences and their effects on employees.

Marks and Mirvis (2011) also studied the relationship between cultural differences and M&A outcomes. Marks and Mirvis observed that the top priority in the M&A process is getting the financial component of the deal right, while adhering to applicable regulatory requirements. In the pharmaceutical industry, the pipeline of products is next in the line of priorities, while "softer" cultural issues, noted Marks & Mirvis (p. 873) have ranked low on the priority list. Consequently, they created a framework that integrated culture as a core consideration in the M&A process. They proposed the framework to assist human resources departments in managing issues associated with acculturation in the M&A process. For this framework, the researchers used change management theory and highlighted the value of organizations devising a clear "cultural endstate" (p. 859). The four distinct cultural endstates included (a) pluralism (partner companies co-exist), (b) integration (partners blend current cultures together), (c) assimilation (one company absorbs the other), and (d) transformation (partner companies merge key elements and adopt new norms and values). Marks and Mirvis used classic change management theory to propose that human resources must unfreeze extant cultural mind-sets to move people toward the desired cultural endstate, and then refreeze the desired culture. However, the researchers observed that a company should note, early in the M&A process, which entity will take a dominant role in which aspects of the merged organization. Such an approach to M&A-related change could fast track and could optimize the desired cultural endstate, which is important to a successful M&A.

In another study of change, M&A, and organizational culture, Shibayama et al. (2011) examined the management of organizational change associated with the case of the M&A process of two Japanese pharmaceutical companies, which led to the formation of Astellas Pharmaceutical. Shibayama et al. identified that although previous research literature focused on M&A cases in Europe and the United States, studies on M&As in Asia were less common. For their case study, Shibayama et al. drew on information obtained from in-depth interviews of 10 major players involved in the M&A process, including members of senior management. The authors found that the merger was successful because both companies used a hybrid model of change management that employed both a top-down approach led by a core team of managers, as well as a bottoms-up approach supported by employees at all levels of the organization, including the lowest. They noted that while there were inefficiencies associated with inclusion of so many employees at a low level of the organization, the inclusive approach fostered great support for the implemented changes. In addition, the chief executive officers (CEOs) of both companies established a relationship of mutual trust that they strengthened and sustained throughout the merger process. This study, like others (Barratt-Pugh et al., 2013; Budhwar et al., 2009; Franckeiss, 2012; Goksoy et al., 2012; Marks & Mirvis, 2011; Whelan-Berry & Sommerville, 2010), also found that employee involvement in change is a key factor in implementing successful change.

Large-scale change needs good coordination, as they typically affect multiple departments. In an article on the connection between internal culture change and governance policy, Radwan (2010) discussed how large-scale change initiatives, such as

those associated with mergers, affect multiple departments in large organizations, requiring a coordinated whole system approach. According to Radwan, this whole system approach entails examining the change from multiple angles. First, change managers must consider the actual entity requiring change, along with the associated objectives. Next, change managers must consider the process of getting from the current state to the desired state. Last, change agents must understand the provisions to put in place to support these two previous components of organizational change. All this, Radwan argued, requires a whole system approach that may obligate significant change to an organization's governance policy.

Research and Development, Regulations, and Economics

Pharmaceutical regulations change constantly and the industry must respond. According to Whelan-Berry and Sommerville (2010), these regulations are major drivers of change in the pharmaceutical industry and include research and development (R&D) guidance to industry and the regulation and marketing of new and existing products. Changes in drug regulations can affect R&D and marketing decisions, as well as organizational responses leading to change, such as M&As, and offering new lines of products (Cook et al., 2009). For example, established pharmaceutical companies sometimes address competitive threat by producing generic versions of their competitor's products (Granier & Trinquard, 2010). In addition, considering the enormous amount of time and money required to bring new drugs to market, pharmaceutical companies must sometimes act on predicted and forecasted product trends, regulations, and market

effects, according to Cook et al (2009). This balanced approach is a way to mitigate the risk of regulation change while remaining competitive.

The pharmaceutical industry is also sensitive to new laws and can undergo major change as a result. Golec et al. (2009) addressed how government regulations, even anticipated ones, could dramatically affect R&D activity in the pharmaceutical industry. In this article, Golec et al. reviewed the effect of President Clinton's announcement of pharmaceutical price controls through the Health Securities Act (HSA) on stock prices of select pharmaceutical firms. Although the act did not actually pass, significant reductions in R&D investment and corresponding reductions in stock prices occurred. For example, while new drug applications (NDAs) remained steady following the announcement of HSA in 1992, the number of new investigational drug applications (INDs) fell sharply and leveled off before rising again in 1995, following the rejection of HSA. This meant that pharmaceutical companies were afraid to invest in R&D related to innovations. This reduction in spending is understandable, as firms count on the expected right to charge for the years of risk they take on to discover and develop medical innovations. Consequentially, pharmaceutical companies respond quickly to any threats to the company's ability to recoup such investments, as seen in this study.

Changes in sample size requirements and types of research studies also drive change in the industry. Vernon et al. (2010) reviewed the effect of comparative effectiveness research (CER) on innovation in light of the Health Care Reform Act. They noted that CER is rigorous, and typically involves large samples intended to show that the drug or other medical innovation actually made a clinically meaningful difference and

resulted in more efficient and cost effective healthcare delivery. Vernon et al. estimated the cost of bringing a drug to market at $1 billion, with some estimates even higher, and CER usually occurs during phase III clinical trials, where nearly one third of drug development expenses reside (Puig-Junoy, 2010; Scheffer & Kaeb, 2011; Vernon et al., 2010). Such new requirements add to the already high cost of drug discovery and development, placing more pressure on pharmaceutical companies to effect change in order to perform well in an ever-changing industry.

Others have examined the high-risk nature of drug discovery and development. Cook et al. (2009) reviewed the high cost of drug development and detailed the low percentage of potential drugs that actually make it to market. They also discussed the potential value of pharmaceutical innovations, such as pharmacogenomics (using genomic markers to predict drug response), in not only reducing the cost of drug development, but also effectively laying the groundwork for increased revenue from longer patent life associated with faster development timelines. The researchers noted that a drug could take more than 12 years from initial investment at the discovery stage for it to appear on the market and costs over $1.3 billion. Therefore, when a pharmaceutical company identifies a promising drug, speed to market becomes a major consideration. Furthermore, Cook et al. observed that the size of clinical trials is one of the large cost drivers during pharmaceutical development. Since pharmacogenomics is based on targeting specific biomarkers, these types of clinical trials tend to require fewer patients to demonstrate a statistically significant response, which according to Cook et al., represents potential cost and time savings, while reducing the number of patients

exposed to investigational products. Although the value of this type of innovation is promising, the authors did not mention the need to demonstrate a clinically meaningful response nor the changes required to adopt this innovation.

Other Approaches to Understanding Organizational Change

Researchers have used various frameworks and context to explain organizational change. Lau and Woodman (1995) introduced *change schema* as a construct by which to study organizational change. Lau and Woodman defined a schema as a hypothetical cognitive structure that represents how individuals organize knowledge about a kind of stimulus or a given concept. Lau and Woodman identified three general dimensions of individual-level schema from the literature at the time: causality, valence, and inferences. Causality is a frame of reference for connecting people and phenomena, a framework for attributing causes of behavior to self and others. Valence refers to an individual's evaluation of the significance of an event or a relationship. Inferences enable individuals to predict or infer what behaviors or events are likely to occur based on causality frameworks. An individual's schema is based on previous experiences and beliefs that help forecast the possibility of events and behaviors. Lau and Woodman based their change schema construct on individual-level schema to include a general attitude toward change that consisted of locus of control, dogmatism, and organizational commitment. The idea was that an individual's change schema would prove an effective construct to predict commitment to change. The researchers sampled 331 students concerning a major potential change involving a university tradition of building a massive bonfire during a prep rally before a state-rivalry football game. The researchers measured commitment to

change with an 8-item scale designed to target the factors of an individual's change schema. Using cross-sectional structural equation modelling (SEM), Lau and Woodman found that a student's change schema did significantly and positively predict commitment to change (b=.16). The study was important not only for introducing a construct by which to study commitment to organizational change but for focusing on antecedents of change commitment as well.

Researchers have studied employee response to change in the hospitality industry. Hartline and Ferrell (1996) studied the management of customer-contact service employees of a hotel that was implementing improvements to their customer service program. The researchers developed and tested a model of service employee management that involved three formal managerial control mechanisms: empowerment, behavior-based employee actions, and management commitment to service quality. Hartline and Ferrell sought to measure the impact the hotel managers' commitment had on the effort they displayed to ensure that customer-contact workers were implementing the planned changes in hotel services. The researchers surveyed 797 hotel managers and customer service workers in 279 hotel units via an adapted version of the Organizational Commitment Questionnaire (OCQ) and found through cross-sectional SEM analysis that managers who were committed to service quality were more likely to use behavior-based evaluation and to empower their employees. Therefore, managers who were committed to change were likely to use these leadership strategies to motivate their subordinates to support organizational change. The study's findings included important empirical

information on organizational change and suggested ways to study the role of management in employee commitment to change in service sectors.

Herscovitch and Meyer (2002) developed a multi-dimensional construct to study commitment to change based on three dimensions: affective (positive feelings toward commitment), normative (perceived obligation to comply), and continuance (perceived consequences of failure to comply). Herscovitch and Meyer conducted three studies to test their three-component model of workplace commitment to change. Study number one consisted of 224 graduate psychology students to provide preliminary evidence for construct validity; studies two and three involved hospital nurses (N = 157 and 108, respectively) from various medical facilities. For these two studies, the researchers hypothesized that employees experience three commitment-to-change mindsets (affective commitment to change, normative commitment to change, and continuance commitment to change) that could predict change-oriented behavior better than organizational commitment could. Using hierarchical linear modelling across these two studies, Herscovitch and Meyer found that when seen as a behavioral continuum of change-support actions, commitment to change was a better predictor of behavioral support for change than was organizational commitment. More specifically, affective commitment to change positively predicted support in both samples, while normative commitment to change positively predicted support in one sample and not the other. However, continuance commitment to change did not predict change support in either sample. Consequently, they did not find commitment to change a multi-dimensional construct.

The study was important, however, for introducing compelling evidence that researchers might effectively study commitment to change as a multi-dimensional construct.

In the law enforcement industry, researchers have also been active studying change. Ford, Weissben, and Plamondon (2003) examined police officers' attitudes and receptivity to newly implemented changes in community policing procedures and the impact of organizational commitment and strategy commitment on commitment to change. The researchers hypothesized that managerial support, job experience, and organizational commitment would positively influence community policing strategy commitment. The researchers collected data from 432 police participants—363 officers and 69 sergeants from 11 different police departments and used a modified OCQ as a measurement tool. Using cross-sectional SEM analysis, Ford et al. found that managerial support, job experience, and organizational commitment did positively predict commitment to change, which in turn predicted community policing strategy commitment. Consequently, the findings of the study suggested that work experience factors, supervisory support, and organizational commitment could be important factors of commitment to change strategies. In addition, the study was important for showing that organizational and strategy commitment could be conceived as two distinct, albeit related, levels of commitment.

What distinguished Fedor, Caldwell, and Herrold's study (2006) was the theoretical innovation of approaching organizational change as a multi-level phenomenon. The researchers observed that previous studies on organizational change measured the impact of change at the individual and organizational level, but did not

consider that change may have different impacts and effects within and across various organizational levels (e.g., upper, divisional, managerial, unit). Fedor et al. studied individuals' commitment to the change itself as well as their organizational commitment in 34 different public and private organizations. Fedor et al. collected data from 806 managers and office workers via questionnaires. The researchers posited that both kinds of commitment were best approached as a three-way interaction between an individual's favorableness to the change, the extent of change, and the impact of change on the individual's job. To study these variables at the group level, Fedor et al. split their sample so that half of the participants who shared the same group-level effects would provide group-level data. Fedor et al. used multi-level hierarchical linear modelling and computed RWG scores (.90) to assess agreement among group members and ICC coefficients to examine how much group membership accounted for individual member ratings to ensure group membership reliability. They found that considering change at multiple levels was necessary to gain a better understanding of individual employees' reactions to change and concluded that assessments of change at different organizational levels may help to explain individual level responses to change.

Undesirable employee turnover is an inherit risk in organizational change. Cunningham (2006) sought to expand research on organizational change that focused on employee cognitions, attitudes, and behaviors by adding consideration of how employees cope with change and their turnover intensions. Cunningham operationalized coping as employee perception of how well they handled changing circumstances. Cunningham used Herscovitch and Meyer's (2002) multi-dimensional construct involving affective,

normative, and continuance dimensions to study employees' commitment to change and test his hypotheses that coping with change and turnover intentions were related to commitment to change. Cunningham (2006) collected data via questionnaire from 299 employees of 10 National Collegiate Athletic Association (NCAA) programs undergoing change initiated by incoming athletic directors. Using cross-sectional SEM, Cunningham found that (a) the connection between turnover intentions and affective commitment to change was mediated by coping with change, (b) the connection between turnover intentions and continuance commitment to change was partially mediated by coping with change, and (c) normative commitment to change directly affected turnover intentions. Cunningham concluded that affective commitment may increase when employees participate in the change process, as involvement helps them cope with change. However, the alpha coefficient for the coping with change measure was .63, suggesting that this mediating construct was below the customarily acceptable level of reliability.

Others have used psychological concepts to explain employee reaction to change. Chen and Wang (2007) attempted to assess psychological reactions to change using the concept of locus of control in relation to Herscovitch and Meyer's (2002) ideas of an individual's affective, normative, and continuance commitments to change. Locus of control refers to a person's perception of their ability to exercise control over contextual elements of a situation, and individuals are referred to as being either internals or externals. Those who consider themselves internal believe they have control over their situations (i.e., that the locus of control is within them), and those who consider themselves external believe that situational factors control their lives (i.e., that the locus

of control resides outside of them). Chen and Wang (2007) surveyed 256 customs workers in a service department at a border city in Southern China. The organization was implementing a new employee performance review system. Chen and Wang employed Herscovitch and Meyer's (2002) 18-item scale as a measurement tool, and using cross-sectional hierarchical regression analysis, found that locus of control was positively related to affective and normative commitment to change (r = -.22, p < .01; r = -.19, < .01, respectively) and negatively related to continuance commitment to change (r = .24, p < .01). In addition, those with high internal locus of control showed higher affective and normative commitment to change than those with high external locus of control did, but those with high external locus of control were higher in continuance commitment to change. Chen and Wang (2007) concluded that internals would commit to change out of personal desire (affective) or obligation (normative), while externals would commit to change because of their perception of the costs associated with failure to support change (continuance). The study was important for four reasons: (a) it showed that locus of control could predict employees' commitment to a specific change, (b) it increased understanding of the psychological mechanisms through which people with different loci of control react to change, (c) the results provided support for Herscovitch and Meyer's model of workplace commitment, and (d) the study extended the three-component model of change commitment to a non-Western context.

Gap in the Literature

All these critical studies in the change management literature serve to highlight important research done to understand employee engagement with organizational change.

Yet, the settings for these studies were not the pharmaceutical industry. Goksoy et al. (2012), Hartline and Ferrell (1996), Oreg and Sverdlik (2011), Seo et al. (2012), Stensaker and Meyer (2008), and Tyler and De Cremer (2005) specifically studied employee response to change in other industries, including nursing, law enforcement, college, sports, and business, leaving a gap in scholarly research on employee response to change in the pharmaceutical industry.

There is a need to narrow this gap, as pharmaceutical research and development is the cornerstone of one of the most expensive and high-risk industries and crucial for addressing the world's unmet medical needs. Golec et al. (2010) estimated the cost of bringing a drug from discovery to market at $1.8 billion, while Cook et al. (2009) noted that only 1 in 10,000 discovered compounds make it to market. In addition, this industry frequently engages in M&As, a type of large-scale organizational change. Since 50-80% of M&As fail according to Budwar et al. (2009), it is even more important to study this phenomenon in such an important and high-risk industry. Budwar et al. cited lack of clear communication and a lack of employee involvement in the change among the reasons M&As fail. These are among the variables I will examine in this study of employee response to large-scale change in the pharmaceutical industry.

Summary and Conclusions

Based on this synthesis of the literature, it appears that inclusion of employees in organizational change implementation increases their support of change (Barratt-Pugh et al., 2013; Budhwar et al., 2009; Franckeiss, 2012; Goksoy et al., 2012; Marks & Mirvis, 2011; Shibayama et al., 2011; Whelan-Berry & Sommerville, 2010). Viewing employees

as stakeholders concerned with an organization's overall success may help establish a bottoms-up approach to including employees in the change process (Duckworth, 2014; Greenwood & Buren III, 2010). In addition, researchers found that employees can have a nuanced reaction to change, that they do not always outright support or resist change (Mishra & Bhatnagar, 2010; Oreg & Sverdlik, 2011). Employees can both resist and support aspects of the same change, and their personal attitudes toward change interacts with their attitudes toward the change agent, which can result in ambivalence (Mishra & Bhatnagar, 2010; Oreg & Sverdlik, 2011). Such findings encourage researchers to more accurately measure employees' response to change (Oreg & Sverdlik, 2011).

Additionally, effective change management also includes clear communication of change before and during implementation, as well as employee and organizational change histories as other key factors in successful organizational change (Budhwar et al., 2009; Goksoy et al., 2012; Whelan-Berry & Sommerville, 2010). As Barratt-Pugh et al. (2013), Budhwar et al. (2009), and Marks and Mirvis (2011) demonstrated, the role human resources departments and change managers play in successful change and how they can facilitate the blending of organizational cultures is key. In addition, transformational leadership, an inclusive leadership style that includes the concerns and views of subordinates, has proven effective in organizational change because it can include employees in the planning and implementation of change (Charbonnier-Voirin, El Akremi, & Vandenberghe, 2010; Ricke-Kiely & Robey-Williams, 2011; Wang & Rode, 2010). Although these studies focused on organizational change and some specifically on employee response to change, the settings were not in the pharmaceutical industry.

The major shortcoming is that research on employee support of change in the pharmaceutical industry is virtually nonexistent. Given the high stakes nature of the pharmaceutical industry (Golec et al., 2010) and the pervasiveness of change in the industry (Bordia et al., 2011), such work is clearly needed. In my study, I sought to contribute to needed research on employee response to change in the pharmaceutical industry. Because employee response to change in other areas of study involves behavioral and attitudinal components (Jaros, 2010), as well as emotional ones (Mishra & Bhatnagar, 2010), including feelings of ambivalence (Oreg & Sverdlik, 2011), I approached employee involvement in change in the pharmaceutical industry as a multidimensional construct, similar to Herscovitch and Meyer's (2002) approach. Compliance, cooperation, and championing should encompass the range of employee support from minimal support of change to enthusiastic promotion of change, with active and passive resistance completing the full spectrum of employee reaction to change. With this study, I offer a starting point for future research on employee response to large-scale organizational change in the pharmaceutical industr**y.**

In Chapter 3, I provide a detailed description of the methodology I used. This chapter includes the selection of research participants, the quantitative, correlational research design and rationale, population and sampling procedures using SurveyMonkey's participant pool, as well as data collection and analysis. It also includes a discussion of threats to validity.

Chapter 3: Research Method

The purpose of this study was to reduce the knowledge gap in scholarly research on large-scale organizational change in the pharmaceutical industry by evaluating key predictors of employee response to large-scale change. These key predictor variables were *ICR*, *ICD*, *PCS*, and *CHC*. Using a synthesis of transformational leadership, stakeholder theory, and change management theory as the framework, I statistically examined which of these variables predicts *RC* (continuum ranging from active resistance to championing) and *SC* (*CM*, *CP*, and *CH*). *RC* and *SC* were the two primary dependent variables. *CM*, *CP*, and *CH* (subscales of *SC*) were also dependent variables. By providing information on employee response to change, this study has practical implications for pharmaceutical managers and change leaders planning and implementing change.

In this chapter, I outline the methods enacted in the study, as well as the specific procedures to test the hypotheses associated with the two primary research questions and three additional research questions related to the subscale of *SC*. This chapter also includes acknowledgement of the limitations of the design, and potential issues of validity to the study, while giving special regard to methods used to remedy these issues.

Research Design and Rationale

I used a quantitative, correlational design in this study. This was the most appropriate method because the aim of the research was to examine statistically the effects of quantifiable concepts (Howell, 2012). The focus of this research was to investigate the effects of *ICR*, *PCS*, *ICD*, and *CHC* on *RC*, *SC*, and the subscales of *SC*.

Each of these variables was measureable through numerical responses to a survey instrument. I therefore utilized a research design that allowed for an objective view of the variables of interest, and which permitted a relatively higher level of certainty while forfeiting the richness of detail associated with qualitative research (Bansal & Corley, 2011).

Qualitative research has no standard measures, and instead relies on the researcher's interpretations (Bansal & Corley, 2011). This would have been an appropriate research method if, for example, I was interested in an in-depth exploration of the participants' emotional responses to M&As in the pharmaceutical industry. Thus, I rejected the qualitative methodology. By contrast, the mixed methods approach requires a comprehensive data collection process (Crosbie & Ottmann, 2013; Heyvaert, Maes, & Onghena, 2013). This would have required a pilot study followed by the main study, and would have involved both quantitative and qualitative methods. Since my focus was on determining key predictors, without the need for rich, qualitative details, the quantitative method fully satisfied the objectives of my research. Therefore, I rejected the mixed method approach as well and utilized a quantitative design.

Methodology

My research study followed a correlational approach, which was appropriate because the scope of the research was to determine the effect of one or more measureable variables on a measureable outcome variable, in alignment with the guidelines provided by Creswell (2005). With correlational research, the researcher's aim is to determine links among several variables. In my study, I used these links to provide a predictive

formula to express a potential relationship where *ICR*, *ICD*, *PCS*, and *CHC*, affect *RC*, *SC,* and the subscales of *SC* (Mitchell & Jolley, 2001). This approach resulted in five regression analyses aligned with the two research hypotheses. The first analysis, conducted to test Hypothesis 1, was to predict the continuum of *RC*, which includes both positive and negative reactions, ranging from active resistance to championing change. The remaining analyses, conducted to test Hypothesis 2, were to predict *SC*, operationalized through *CM*, *CP*, and *CH*. Measures for *ICR*, *ICD*, *PCS*, and *CHC* were the independent, or predictor variables.

Population

The population examined in this research was comprised of pharmaceutical industry employees with various years of experience. These individuals worked at traditional pharmaceutical companies that discover and develop investigational medicinal products (IMPs). The participants also worked at biotechnology companies that discover IMPs, but outsource development to contract research organizations (CROs), which were also a population of interest. In order to be eligible, the participants must have also experienced some large-scale change in their company, such as an M&A, to be included in the study sample. This change had to have occurred at their current employer or at a previous organization where the participant worked.

Biotechnology companies, smaller CROs, and small pharmaceutical companies have a few to several hundred employees. However, larger CROs can have more than 10,000 employees, while larger pharmaceutical companies can have up to 100,000

employees (Masri, Ramirez, Popescu, & Reggie, 2012). I targeted these and other types of pharmaceutical industry employees for my study.

Sampling and Sampling Procedures

To gather sample participants from this population, I contacted pharmaceutical industry employees who recently experienced a large-scale change using SurveyMonkey's sample selection service. A collector at SurveyMonkey contacted employees from qualifying companies who had already provided consent to be contacted for surveying, and requested their participation in the study. I instructed SurveyMonkey to collect participants based on the following criteria:

- Participants must have been either employees at pharmaceutical companies, including CROs and biotechnology companies, or organizational change experts within the pharmaceutical industry.
- Participants must have had experience with the pharmaceutical industry, though varying amounts of experience are acceptable.
- Participants must have experienced some large-scale change in their company. I provided participants with an informed consent statement on the front page of the survey, requiring consent to participate in the study before continuing.

The sampling method used was stratified sampling, because I gathered a purposive, targeted sample representing a diverse mix of industry experience and inclusion of at least one change expert, as recommended by Howell (2012). This approach led to a sample of participants who had previous experience with large-scale change and a sample that was approximately proportionally representative of the

employee mix at a pharmaceutical company. Through SurveyMonkey's participant pool, I ensured targeting of a diverse sample representing various levels of experience and job categories, including change management experts.

For my study, I used multiple linear regression as the statistical analysis technique. Using G*Power version 3.1.9 (Faul, Erdfelder, Buchner, & Lang, 2013), I calculated the necessary sample size to achieve empirical validity. For a regression analysis with a generally accepted power of 0.80 (Cohen, 1992), an alpha of 0.05, and four predictor variables, the multiple linear regression requires a minimum of 85 participants to detect a medium effect, or $f^2 = 0.15$ (Cohen, 1977; Herscovitch & Meyer, 2002). I chose a medium effect size as the expected result of a generic statistical finding, which is typical when the specific effect size is not well known, according to Faul, Erdfelder, Buchner, and Lang (2012). At the time of the survey, the possibility of a regression analysis with four predictor variables existed. Thus, to assess a relationship with 95% certainty that it did not occur by chance, I sought to assemble a sample of at least 85 participants. With only three predictor variables in any one of the linear regression analyses performed, the minimum sample size would be 77. Thus, the sampling was performed with a conservative approach and any valid samples greater than 77 would have the effect of simply increasing power and confidence in the hypothesis tests.

To achieve a final sample of at least 85 participants, I sent 170 surveys to prospective participants. This sampling frame allowed for a 50% return rate while still meeting the minimum computed sample size, as previous research indicated that this is an

average response rate for academic studies (Baruch, 1999). If the main sample had not met the minimum size of 85 participants, I would have disseminated additional surveys, which I did and ended up with 98 completed surveys.

Procedures for Recruitment and Informed Consent

I used an informed consent document as the discussion framework for obtaining consent from study participants (see Appendix B). In establishing the relationship with the study participants, I introduced the study to the participant by explaining the purpose of the study, describing the procedures, disclosing the risks and benefits, establishing the role of the participant, and estimating the time involved. I informed all participants that participation was voluntary. I also informed participants that I would not use any identifiable data in the study and that they could drop out of the study at any time without penalty.

Participants in this study received a copy of the informed consent document at the front of the survey. This document included the contact information for me, my dissertation advisor, and Walden's IRB (approval number 07-02-15-0136499 with an expiration date of July 1, 2016; see Appendix C). I did not allow prospective participants to take part in the study without first indicating that they consented to be participants in the study. Only those who selected that they read the informed consent document and agreed to participate were allowed to continue to the survey questions. Thus, agreement to continue and completion of the survey constituted voluntary participation.

Data Collection

For participants who agreed to participate in the study and provided informed consent, SurveyMonkey provided a link to the survey. Through the online survey, I administered the BSCS (Herscovitch & Meyer, 2002) supplemented with industry-specific questions, as well as a few questions to better understand the characteristics of the population. I labeled participants using a confidential identifier so that their data may be identified if they later choose to opt out of the study. I stored data on the survey host server until it was time to download and store it on a thumb drive for access and analysis. I did not follow up with participants in any way.

Operationalization of Constructs

The four independent variables in this quantitative, correlational study were *ICR*, *PCS*, *ICD*, and *CHC* (including considerations of the quality and frequency of communication). *RC* and *SC* were the two primary dependent variables. *RC* was represented on a continuum ranging from a negative reaction of active resistance to a positive reaction of championing change. *SC* was a composite index computed by combining the dependent variables representing the subscales of *CM*, *CP*, and *CH*. The following section is a discussion of how I operationalized these variables.

Dependent Variables

Reaction to change (*RC*). The way in which an employee reacts to large-scale organizational change fell on a continuum ranging from a negative reaction of active resistance to a positive reaction of championing change, represented by a 9-point Likert scale. Each participant selected one of nine responses from the BSCS instrument that lie

on the continuum on Question 10 of the survey, as represented in Figure *1*. The continuum of possible responses on the reaction to change continuum. I converted this continuum to an index ranging from 0-100, for the sake of consistency among the dependent variables, as follows:

$$RC = 12.5\ (L) - 12.5 \text{ where } L = \text{the raw Likert scale response.}$$

Thus, I converted a response of 1 to 0, and a response of 9 to 100.

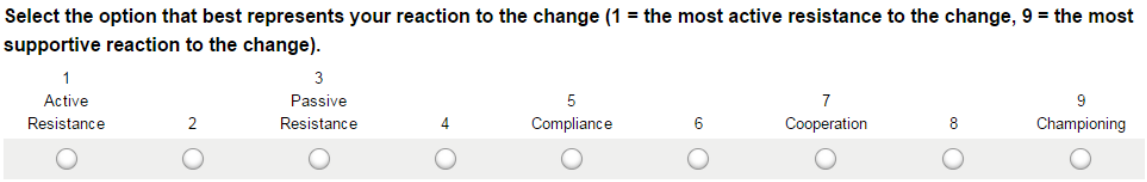

Figure 1. The continuum of possible responses on the reaction to change continuum.

Support of change (*SC*). The manner in which an employee supports large-scale organizational change involves three levels of support: *compliance* (*CM*, 3 survey questions), *cooperation* (*CP*, 8 survey questions), and *championing* (*CH*, 6 survey questions). Much like *RC*, these represent a spectrum of increasing support of a change initiative. Participants answered the items associated with each category on a 7-point Likert-type scale from the BSCS instrument. I calculated subscales of support as the mean of responses to the corresponding survey questions, and each of these subscales represented a dependent variable for one test of Hypothesis 2, with the intention of capturing detail on each specific facet of support. The instrument's developers, Herscovitch and Meyer (2002), support this scoring scheme, where the specific subscales should be measured. Herscovitch and Meyer also indicated that the overall score, taken as the average of all three subscales, is representative of the degree to which a respondent

supported the change overall. Higher scores indicate a greater degree of support of change. A composite index for *SC* was also a dependent variable, with higher values indicating greater support of change. *SC* was simply the average of the converted values for the three subscales, *CM, CP, and CH*, as follows:

$$SC = (CM + CP + CH) \div 3.$$

Compliance (CM). This construct of support measured the extent to which employees accepted a change. This involves how much employees agree to accept role changes and adjust their workplace habits to comply with those changes. I measured this variable as the mean of Survey Questions 11–13 on the measures of behavioral support for change portion of the survey, where higher scores corresponded to greater compliance with change. I converted the mean response to a subscale for compliance (*CM*) that ranged from 41 to 60, as follows:

$CM = 3.167\ (L_{CM}) + 37.833$ where L_{CM} = the mean Likert response for compliance.

Cooperation (CP). This construct of support measured the extent to which employees assisted in changing the company. This construct defined how well employees engaged in change-related behaviors, avoided former practices, and tolerated temporary disruptions caused by the change. I measured this variable as the mean of Survey Questions 14–21 on the measures of behavioral support for change portion of the survey, where higher scores corresponded to greater cooperation with change. I converted the mean response to a subscale for cooperation (*CP*) that ranges from 61 to 80, as follows:

$CP = 3.167\ (L_{CP}) + 57.833$ where L_{CP} = the mean Likert response for cooperation.

Championing (CH). This construct of support measured the extent to which employees encouraged others to cooperate with and accept the change. This construct gauged how actively employees spoke positively about the change, overcame resistance to the change, and persevered with the change in order to reach goals. I measured this variable as the mean of Survey Questions 22–27 on the measures of behavioral support for change portion of the survey, where higher scores corresponded to greater championing of the change. I converted the mean response to a subscale for championing (*CH*) that ranged from 81 to 100, as follows:

$CH = 3.167\ (L_{CH}) + 77.833$ where L_{CH} = the mean Likert response for championing.

Independent Variables

The independent variables of the study measured the participants' perceptions of the change's implementation. These perceptions included *initial change reaction, involvement in change design, perceived change success,* and *change communication*. I measured these through responses to the pharmaceutical industry questions portion of the survey.

Since I developed this portion of the survey, I ran it through a brief field test. For this, I targeted three respondents to assess the survey for face validity, and to determine if the survey was clear and the responses comprehensive and logical. I asked these

respondents to provide feedback on any areas of the assessment they felt needed improvement, with the intent to make changes as appropriate.

Initial change reaction (*ICR*). This item asked participants to rank their response to first learning about the organizational change as either positive or negative. The range of initial reactions ran from "I am going to lose my job" = 1 to "I may get promoted" = 7. Thus, lower scores on this variable corresponded with a negative opinion of the change, while higher scores corresponded with a positive opinion of the change. I used a single survey question to assess this independent variable.

Involvement in change design (*ICD*). *Involvement in change design* refers to the degree to which an employee takes part in the planning and implementation of change. The range of involvement ran from "not involved" = 1 to "very involved" = 7. Employees may be heavily involved in change design to the degree that they willingly cooperate, or even champion the proposed change. Alternatively, employees may be minimally involved or not involved at all. As such, a higher degree of involvement corresponded with higher scores.

Perceived change success (*PCS*). *Perceived change success* refers to the degree to which employees perceived the proposed change to be completely and effectively implemented. Employees chose on a scale from "a complete failure" = 1 to "a resounding success" = 7. As such, higher scores indicated perceptions of an increased amount of success.

Change communication (*CHC*). *Change communication* refers to the manner in which management conveys information relevant to the proposed change to employees,

as well as the frequency. Change communication involves the clarity and quality of communication, where “Very bad” = 1, and “Very good” = 7. Frequency described how often the change was communicated to employees, and ranged from “Rarely” = 1, to “Very often” = 7. I calculated the change communication score as the average of these two measures. Thus, this variable ranged from 1 to 7, where higher scores corresponded with a frequent, high quality level of communication about the change.

Data Analysis

I entered data into SPSS version 22.0 for Windows and used descriptive statistics to better understand the sample characteristics and the research variables used in the analysis. I calculated frequencies and percentages for any nominal (i.e., categorical) variables of interest, such as job function and highest level of education completed. For any continuous data (i.e., scale or ratio), I calculated means and standard deviations.

I screened the data for accuracy, missing data, and outliers. I calculated descriptive statistics and frequency distributions to determine that responses were within a possible range of values, and that outliers did not distort data. I tested for the presence of outliers by calculating *standardized values*. Standardized values represent the number of standard deviations an individual score falls from the mean of those scores. According to Tabachnick and Fidell (2012), participants with scores more than 3.29 standard deviations from the mean are considered outliers, and as a result, that participant’s survey should be removed from the data set. Additionally, I examined cases with missing data for non-random patterns and excluded participants with large portions of non-random missing data from the sample.

After screening the data, I conducted the necessary analyses to test the hypotheses and to inform the research questions of interest, restated here for reference. I conducted one regression analysis to address Research Question and Hypothesis 1 and four regression analyses for Research Question and Hypothesis 2.

Multiple regression is an appropriate analysis when the goal is to assess the extent of a relationship among a set of dichotomous or interval and ratio predictor variables on an interval and ratio criterion variable. I used the following regression equation (main effects model):

$$\hat{Y} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k$$

where $\hat{Y}$ = the predicted value for the response variable, β_0 = constant, β_1 = first regression coefficient, β_2 = second regression coefficient, β_k = k^{th} regression coefficient, and X_i = predictor variables (Tabachnick & Fidell, 2012). I did not assess any interaction terms because my goal was not to determine moderating effects of any of the research variables.

1. What is the relationship between *RC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*?

   $H_0$1: No relationship exists between *RC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

   $$\beta_1 = \beta_2 = \ldots = \beta_k = 0.$$

   H_a1: A relationship exists between *RC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

   At least one $\beta_j \neq 0$.

2. What is the relationship between *SC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*?

   $H_0$2: No relationship exists between *SC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

   $\beta_1 = \beta_2 = \ldots = \beta_k = 0$

   H_a2: A relationship exists between SC and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

   At least one $\beta_j \neq 0$

Multiple Linear Regression

To examine the two research questions, test the hypotheses, and assess how well the four perceptions of a change predict employee response to change, I conducted two sets of multiple linear regressions. The first multiple linear regression tested Hypothesis 1, assessing the collective effect of the four independent variables (*ICR*, *ICD*, *PCS*, and *CHC*) on *RC* (Stevens, 2009).

The next set of three multiple linear regressions tested Hypothesis 2, assessing the collective effect of the four independent variables (*ICR*, *ICD*, *PCS*, and *CHC*) on each of the three sub-construct dependent variables individually (*CM*, *CP*, and *CH*) that comprise *SC* (the second of the two primary dependent variables). Following these three regression analyses for the support of change, I conducted a fifth and final overall regression. In this final regression analysis, I used the same four independent variables, but calculated the results using a single dependent variable (*SC*). This single dependent variable was the mean of the three *SC* sub-scales.

I used the *F* test to assess whether the set of independent variables collectively predicted the dependent variable. I reported R^2, the multiple correlation coefficient of determination, and used it to determine how much variance in each dependent variable the set of independent variables can account for. I used *t*-tests within the regression model to determine the significance of each predictor and used beta coefficients to determine the extent of prediction for each independent variable, while controlling for the other included predictors. Regarding significant predictors in the final regression model, for every one unit increase in the predictor, the dependent variable was predicted to increase or decrease by the unstandardized beta coefficient.

Prior to analysis, I assessed the assumptions of multiple linear regression. The assumptions of multiple linear regression include linearity, homoscedasticity, and absence of multicollinearity. Normality assumes that error term in the model is normally distributed, while homoscedasticity assumes that error terms have equal variance. I assessed normality and homoscedasticity by examination of scatter plots, used a normal probability plot to assess normality, and a residual scatterplot to assess homoscedasticity (Tabachnick & Fidell, 2012). The absence of multicollinearity assumes that predictor variables are not too closely related, and I assessed this assumption using Variance Inflation Factors (VIF). VIF values over 10 suggest the presence of multicollinearity and a violation of the assumption (Stevens, 2009).

Threats to Validity

Causal inference is usually a potential issue regarding internal validity. However, my goal in this study was not to demonstrate cause and effect; it was to show correlation.

Causal inference is only applicable when the cause precedes the effect (Tabachnick & Fidell, 2012). In this study, it was difficult to determine that the predictor variables were the de facto cause of response to change. In some cases, participants may have been supportive of the cause, and inadvertently responded in a more positive manner regarding the communication and success. In addition, involvement with the change may have been linked with support or a positive reaction because of confounding factors such as personal pride. I noted these as limitations, and Creswell (2005) recommended exercising caution while interpreting results where this issue may be present.

External validity refers to the ability of the general population to extrapolate a study's findings. The results of my study may not be generalizable to a population of employees in organizations outside of the pharmaceutical scope. Such organizations were not my focus, and are thus irrelevant to the findings. In addition, the allowance of participants to take the survey assessments online presented the concern of situational validity. Participants may have been in an uncomfortable area, or under conditions that may have altered their responses. This was compounded by the cross-sectional nature of the study, wherein a single opinion was gathered at one point in time. Potential issues arise if a participant was in an extreme mood, or was suffering from any maladies, which may detriment the accuracy of the responses (Mitchell & Jolley, 2001). However, I encouraged participants to take their time, and provide broad, honest responses.

Ethical Procedures

A researcher who conducts studies involving human subjects has a responsibility to inform and protect participants (Bloomberg & Volpe, 2012). In conducting this

research study, I adhered to the ethical and moral guidelines prescribed by federal regulations and Walden University's Institution Review Board (IRB). I interacted with human subjects during this study. My data collection approach entailed the use of a single compiled survey instrument, administered at only one point in time. The compiled survey included two sets of questions. These included the pharmaceutical industry questions and the measures of behavioral support for change questions. Additionally, I used notification memoranda to invite participation. The following section entails the approach to informed consent and a brief discussion on data storage, retention, and destruction to protect confidentiality.

The survey instrument for this study was designed to minimize the need to collect identifiable data. In accord with IRB and federal guidelines, I safeguarded all data and information to protect confidentiality. The safeguard measure for data storage was a locked file in my residence where I will retain the data securely for a period of 5 years after the research was completed. Upon expiration of the 5-year retention period, I will permanently destroy all research-related data and information pertaining to this study.

Summary

In this chapter, I outlined the quantitative design, as well as rationale for the use of this research method. I also described the stratified sampling method used to gather participants from the population of pharmaceutical industry professionals who had experienced at least one large-scale organizational change. Additionally, I operationalized the variables of interest, and included the instrumentation and procedures for data collection. I explained the treatment of such data and statistical procedures used

in addressing the hypotheses, and included a rationale for the analyses and the presentation of results. Finally, I addressed limitations and ethical concerns, with special consideration of methods that may remedy these potential difficulties or harms. I adhered strictly to these procedures in gathering and analyzing data to cleanly and efficiently address the research problem at hand.

Chapter 4: Results

The purpose of this quantitative, correlational study was to narrow the knowledge gap on large-scale organizational change in the pharmaceutical industry. Researchers have sought to understand employee engagement and response during large-scale change initiatives in nonpharmaceutical industries (Goksoy et al., 2012; Herscovitch & Meyer, 2002; Lau & Woodman, 1995; Oreg & Sverdlik, 2011). However, employee responses to change in the pharmaceutical industry remain understudied and underrepresented. In the study, I tested four factors that I hypothesized affect the change's implementation: *ICR*, *ICD*, *PCS*, and *CHC*; these factors functioned as independent/predictor variables in this study. The dependent variables were *RC*, which included the full spectrum of reactions ranging from active resistance to championing change and operationalized measures of *SC* (*CM*, *CP*, and *CH*). One additional dependent variable, *SC*, represented a composite index of support of change, and was calculated as the mean of the three subscales (*CM*, *CP*, and *CH*).

This chapter describes the pre-analysis data screening that I performed prior to conducting the multiple regression analyses to explore the two research questions. In it, I review demographic information and descriptive statistics prior to presenting the detailed analyses ordered by research question. For each analysis, I assess the assumptions of normality, homoscedasticity, and absence of multicollinearity before accepting or rejecting the appropriate hypotheses based on the results. I also include a summary of the results and of the full chapter.

Field Test and Pre-Analysis Data Screening

I used the first 11 completed responses as a field test to assess the quality of the responses and to determine whether the right participants were responding to the survey. A few respondents listed job roles, such as cashier, that did not appear consistent with those in the pharmaceutical industry. Three respondents selected *other* and wrote *not applicable* as their pharmaceutical industry job category. Based on these initial responses, I decided to add a screening question that specifically asked participants if they work in the pharmaceutical industry. Those who answered *no* were disqualified, and those who answered *yes* were allowed to complete the survey. These first 11 completed surveys were therefore not included in the final analysis, as it was hard to determine with certainty that the respondents worked in the pharmaceutical industry.

Data Collection and Sample Characteristics

I collected data over a 2-week time frame in July 2015. A total of 914 people attempted to access the online survey. Of these, 816 either did not fit the inclusion criteria or did not consent to the survey and were removed from the dataset. I then assessed the data for nonrandom missing cases and did not find any. I further checked for univariate outliers by examination of standardized values, which indicate the distance a participant's score falls from the mean, and is measured in standard deviations. I considered any cases 3.29 standard deviations away from the mean as outliers to be removed (Tabachnick & Fidell, 2012). As I did not find any outliers in the data, the final dataset contained a total of 98 participants.

Of the 98 participants in the final data set, 45% were male (n = 44) and 55% were female (n = 54). Many were between 30 and 44 years of age (42, 43%) and reported household earnings between $50,000 and $74,999 per year (15, 15%). The largest proportion of participants came from the mid-Atlantic region of the United States (20, 20%). Of the pharmaceutical industry job category options, the largest group of participants was researchers (18, 18%). Many of the participants' highest level of education was a Bachelor's degree (38, 39%). A large portion of the participants' companies underwent a merger or acquisition as a large-scale organizational change (35, 36%). This mix of participants approximately represents the employee mix at a typical pharmaceutical company. The frequencies and percentages of demographic information are presented in Table 1.

Table 1

Frequencies and Percentages of Demographics

Demographic	*n*	%
What is your gender?		
Male	44	45
Female	54	55
What is your age range?		
18 – 29 years	12	12
30 – 44 years	42	43
45 – 59 years	32	33
60 + years	12	12
How much total combined money did all members of your household earn last year?		
$10,000 to $24,999	2	2
$25,000 to $49,999	14	14
$50,000 to $74,999	15	15
$75,000 to $99,999	13	13
$100,000 to $124,999	8	8
$125,000 to $149,999	11	11
$150,000 to $174,999	4	4
$175,000 to $199,999	1	1
$200,000 and up	14	14
Prefer not to answer	16	16
United States Region		
New England	16	16
Middle Atlantic	20	20
East North Central	15	15
West North Central	7	7
South Atlantic	12	12
East South Central	4	4
West South Central	3	3
Mountain	9	9
Pacific	10	10
Prefer not to answer	2	2
Select the pharmaceutical industry category that best describes your job role?		
Executive (e.g., Vice President)	7	7
Management (e.g., Manager, Director)	17	17
Professional (e.g. Project management, Marketing)	10	10
Support (e.g., Information technology)	12	12
Research (e.g., Scientist)	18	18
Change Management Professional (e.g., Six Sigma Expert)	1	1

Other	33	34
What is the highest level of education you have completed?		
High school or equivalent	24	25
Bachelor's Degree	38	39
Master's Degree	17	17
Doctorate or other advanced degree (e.g., PhD, MD, PharmD)	19	19
What best describes the large-scale organizational change you experienced?		
Merger or acquisition	35	36
Major process redesign	17	17
Restructuring	22	22
Downsizing	12	12
Upsizing	7	7
Other large-scale change	5	5

Note. Due to rounding errors, not all percentages may sum to 100.

Participants in the sample demonstrated a wide range of years spent in the pharmaceutical industry, where the minimum was one year and the maximum amount of time spent was 56 years. Visual examination of the variables germane to the study revealed that the lowest scores tended to be found in the *ICD* variable, where none responded with higher than a value of three out of seven. This is reflected in the mean value, which was also found to be much lower than any other independent variable. The spread and central tendency of the continuous variables are presented in Table 2.

Table 2

Descriptive Statistics of Continuous Variables

Composite Scores	Min.	Max.	*M*	*SD*
Years in the Pharmaceutical Industry	1	56	14.39	12.37
ICR	1	7	3.49	1.39
CHC	1	7	3.44	1.81
ICD	1	3	1.45	0.66
PCS	1	7	3.96	1.65
RC	0	100	58.29	20.77
SC	61	80	70.94	3.64

Reliability

I conducted Cronbach's alpha tests of reliability and internal consistency on scales, with one test per scale. The Cronbach's alpha provides mean correlation between each pair of items and the number of items in a scale (Brace, Kemp, & Snelgar, 2006). I interpreted the alpha values using George and Mallery's (2010) guidelines where $\alpha > .9$ is excellent, >.8 is good, >.7 is acceptable, >.6 is questionable, >.5 is poor, and < .5 is unacceptable. Results for SC indicated excellent reliability ($\alpha = .93$). Reliability statistics for the composite score are presented in Table 3.

Table 3

Cronbach's Alpha Reliability Statistics for the Composite Score

Scale	# of Items	α
SC	17	.93

Detailed Analysis

Research Question 1: Reaction to Change (*RC*)

1. What is the relationship between *RC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*?

   $H_0$1: No relationship exists between *RC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

   $\beta_1 = \beta_2 = \ldots = \beta_k = 0$.

   H_a1: A relationship exists between *RC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

   At least one $\beta_j \neq 0$.

To assess the first research question, I used a multiple linear regression to assess if the four independent variables (*ICR*, *ICD*, *PCS*, and *CHC*) predict *RC*. Prior to conducting the analysis, I assessed the assumptions of normality, homoscedasticity, and absence of multicollinearity. To check that the data fit a normal distribution, I checked the normal P-P plot to ensure that the data followed the normal line. As there were no large deviations from the normal line, the assumption was met (see Figure 2). To assess the assumption of homoscedasticity, or equal variance in the error terms, I used a

scatterplot of standardized residuals as a function of standardized predicted values. As the data points are rectangularly and randomly distributed around zero, the assumption was met (see Figure 3). I used VIFs to assess the assumption of absence of multicollinearity. Values for VIFs less than 10 indicate that there is not extreme multicollinearity (Stevens, 2009). As the largest VIF in the model was 2.14, the assumption was met.

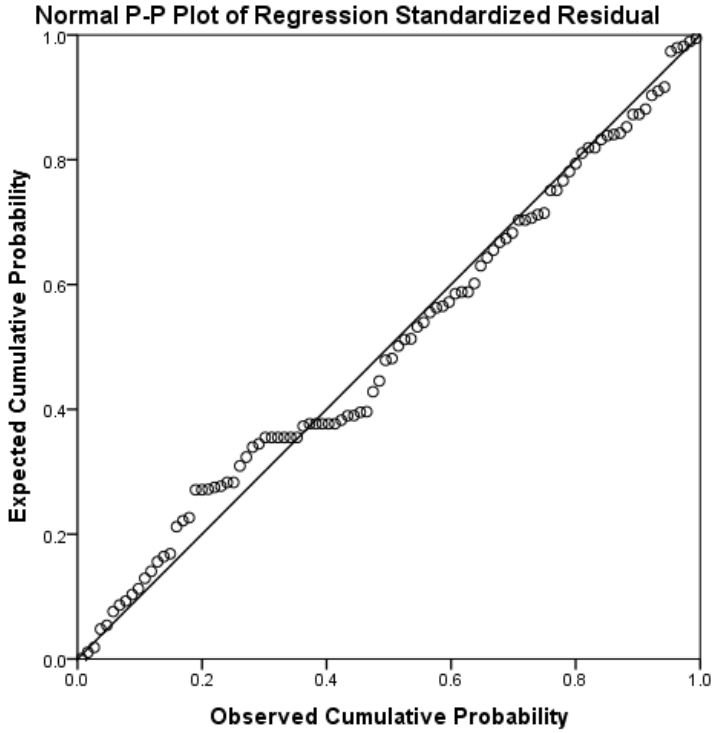

Figure 2. Normal P-P plot to check whether data used to assess the relationship between the predictor variables and *RC* are normally distributed.

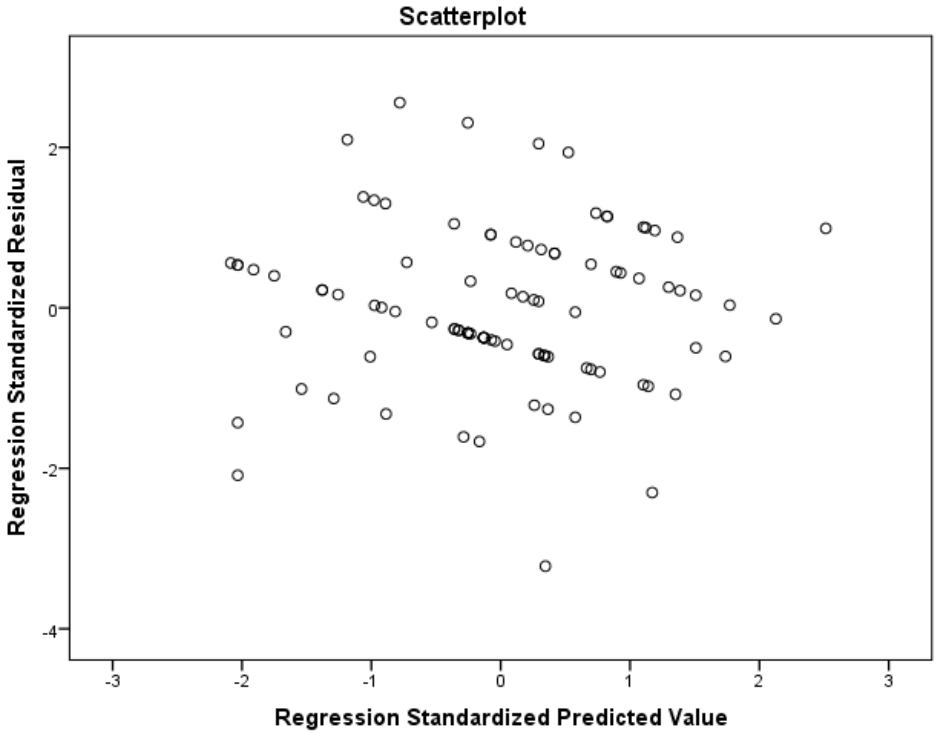

Figure 3. Scatterplot of standardized residuals as a function of standardized predicted values for *RC*.

As the assumptions were met, I proceeded with the regression analysis to determine whether *ICR*, *ICD*, *PCS*, and *CHC* significantly predict *RC*. The results of the analysis indicated that the model is statistically significant, $F(4,93) = 5.50$, $p = .001$, $R^2 = 0.19$ (see Table 4). The results of the multiple linear regression indicated that the null hypothesis was rejected in favor of the alternative, which states that a significant relationship exists between the four predictor variables and *RC*.

Table 4

ANOVA Results for Regression One

Source	SS	*df*	MS	*F*	*p*
Regression	8005.765	4	2001.441	5.499	.001
Residual	33851.697	93	363.997		
Total	41857.462	97			

The R^2 indicates that the model predicts 19% of the variability in the dependent variable. Although the model is significant, there were no significant individual predictors, as depicted by the t-statistics and p-values in Table 5. This is potentially due to issues of multicollinearity or shared significance among predictors, where the model would be unable to determine specifically where significance lies (Stevens, 2009). *ICR* approached significance, but ultimately was found to be insignificant at an alpha of .05 ($B = 3.37$, $t = 1.92$, $p = .057$). Because the regression equation was significant, the following equation may be used to predict *RC*:

$$RC = 3.37(ICR) + 1.11(CHC) - 0.49(ICD) + 2.57(PCS) + 33.26$$

The results are presented in Table 5.

Table 5

Results for Multiple Linear Regression to Predict RC

Source	*B*	*SE*	β	*T(98)*	Critical *t*	*p*
Constant	33.26	6.29		5.29	1.98	.001
ICR	3.37	1.75	0.23	1.92	1.98	.057
CHC	1.11	1.53	0.10	0.73	1.98	.468
ICD	-0.49	3.23	-0.02	-0.15	1.98	.880
PCS	2.57	1.72	0.20	1.49	1.98	.139

Note. $F(4,93) = 5.50$, $p = .001$, $R^2 = 0.19$

Research Question 2: Support of Change (*SC*)

2. What is the relationship between *SC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*?

   $H_0$2: No relationship exists between *SC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

   $\beta_1 = \beta_2 = \ldots = \beta_k = 0$

   H_a2: A relationship exists between *SC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*.

   At least one $\beta_j \neq 0$

I utilized four multiple linear regressions to assess Research Question 2. The first was to determine whether the four independent variables (*ICR*, *ICD*, *PCS*, and *CHC*) predict *SC*. I then examined the three individual regression equations where the dependent variables were the *SC* subscales of *CM*, *CP*, and *CH*. I checked assumptions of normality, homoscedasticity, and absence of multicollinearity before conducting the analysis. Normality assumes that the data follows a normal, bell-shaped distribution. I used a normal P-P plot to check the assumption. Since there were no large deviations from the normal line, the assumption was met (See Figure 4). To assess the assumption of homoscedasticity, or equal variance of error terms, I created a scatterplot of the standardized residuals as a function of the standardized predicted values. Since the points are in a rectangular, regular distribution, the assumption was met (See Figure 5). Absence of multicollinearity assumes that no two predictors are highly correlated. I checked this

assumption with VIFs such that a value of 10 indicates that there is multicollinearity in the predictors (Stevens, 2009). As the greatest value is 2.14, the assumption was met.

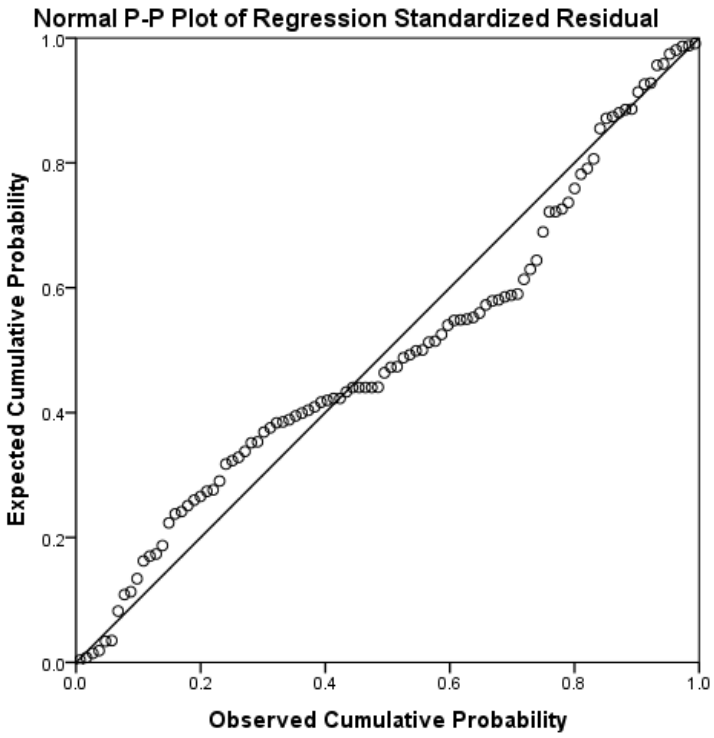

Figure 4. Normal P-P plot to check whether data used to assess the relationship between the predictor variables and *SC* are normally distributed.

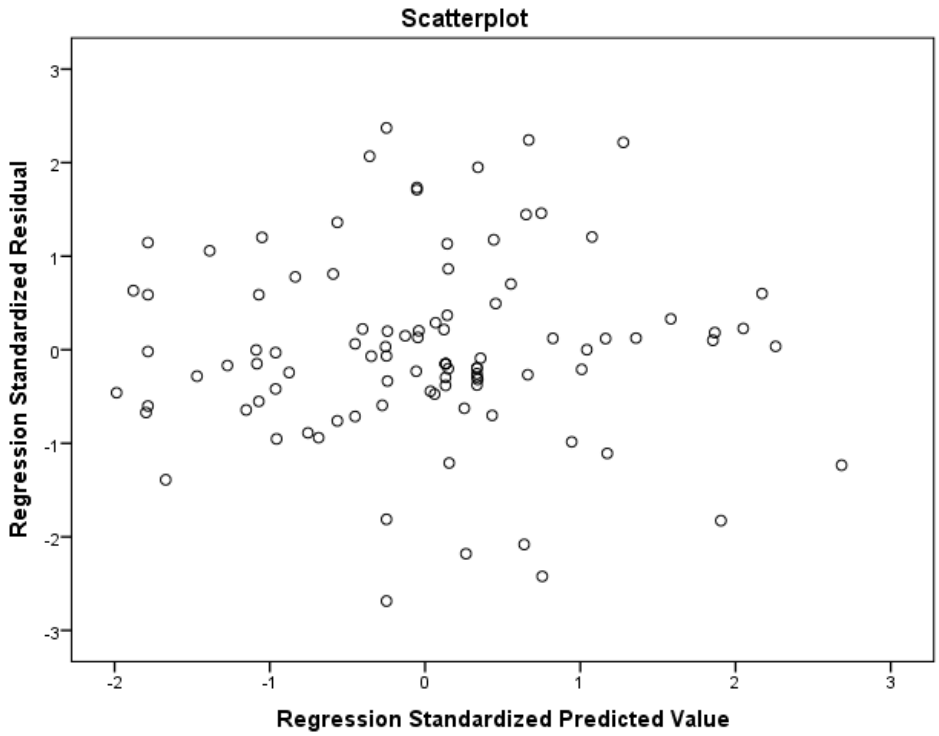

Figure 5. Scatterplot of standardized residuals as a function of standardized predicted values for *SC*.

As the assumptions were met, I ran the first multiple linear regression analysis for Research Question 2. The results of the regression indicated insignificance, $F(4,93) = 1.18$, $p = .326$, $R^2 = 0.05$ (See Table 6). For this research question, the null hypothesis that no relationship exists between the four predictor variables and support of change was not rejected.

Table 6

ANOVA Results for Regression Two

Source	SS	*df*	MS	*F*	*p*
Regression	61.991	4	15.498	1.178	.326
Residual	1223.464	93	13.156		
Total	1285.455	97			

Based on the t-statistics and p-values in Table 7, I cannot conclude that the four predictors made a significant model to predict *SC*. The results of the regression are presented in Table 7.

Table 7

Results for Multiple Linear Regression to predict SC

Source	*B*	*SE*	β	*T(98)*	Critical *t*	*P*
Constant	68.55	1.2		57.34	1.98	.001
ICR	0.25	0.33	0.10	0.76	1.98	.449
CHC	-0.16	0.29	-0.08	-0.56	1.98	.579
ICD	0.56	0.61	0.10	0.91	1.98	.366
PCS	0.32	0.33	0.14	0.97	1.98	.333

Note. $F(4,93) = 1.18$, $p = .326$, $R^2 = 0.05$

Next, I conducted a third regression analysis to determine the collective relationship between the four independent variables (*ICR*, *CHC*, *ICD*, and *PCS*) and *CM*. I checked assumptions of normality, homoscedasticity, and absence of multicollinearity before conducting the analysis. Normality assumes that the data follows a normal, bell-shaped distribution. I used a normal P-P plot to check the assumption. Since there were no large deviations from the normal line, the assumption was met (See Figure 6). To assess the assumption of homoscedasticity, or equal variance of error terms, I created a

scatterplot of the standardized residuals as a function of the standardized predicted values. Since the points are in a rectangular, regular distribution, the assumption was met (See Figure 7). Absence of multicollinearity assumes that no two predictors are highly correlated. I checked this assumption with VIFs such that a value of 10 indicates that there is multicollinearity in the predictors (Stevens, 2009). As the greatest value is 2.14, the assumption was met.

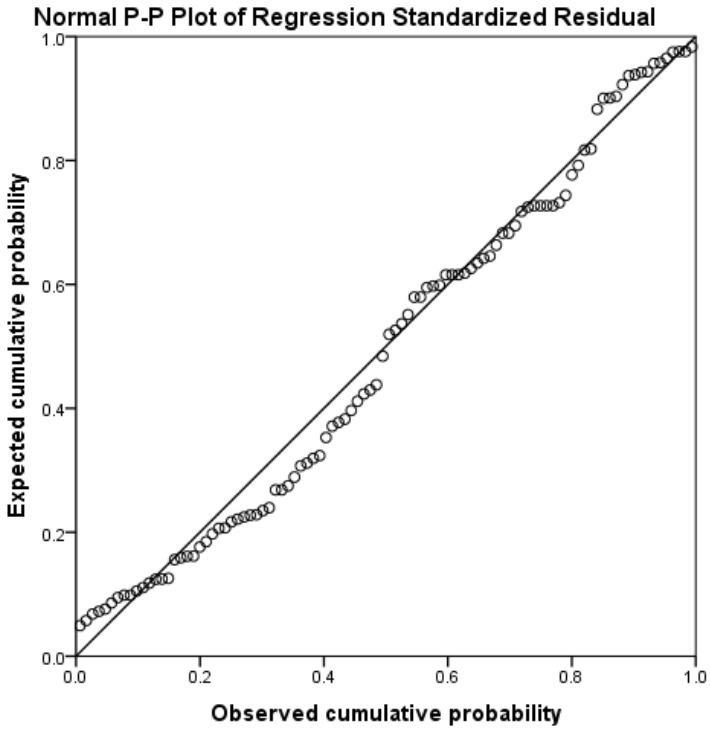

Figure 6. Normal P-P plot to check whether data used to assess the relationship between the predictor variables and *CM* are normally distributed.

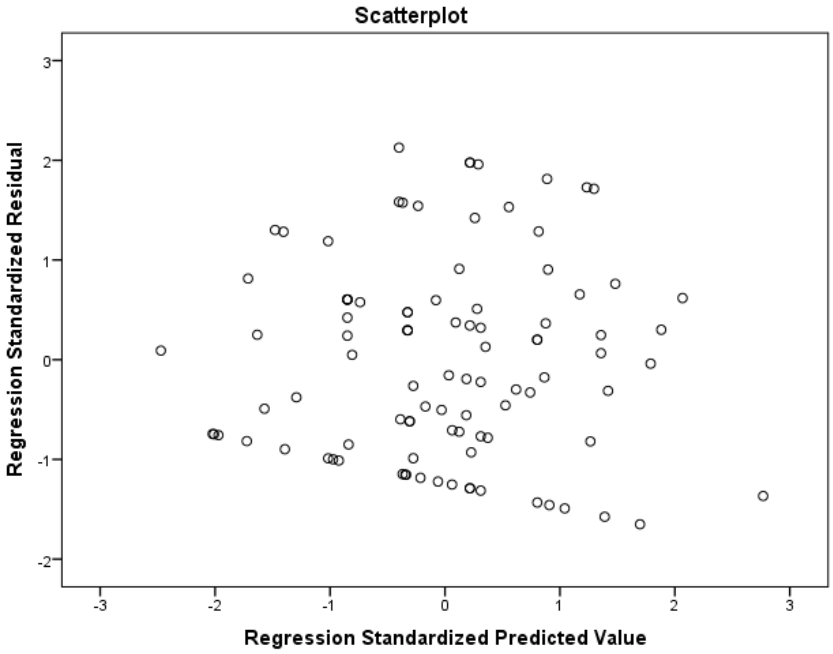

Figure 7. Scatterplot of standardized residuals as a function of standardized predicted values for *CM*.

As the assumptions were met, I ran the multiple linear regression analysis. The results of the regression indicated insignificance, $F(4,93) = 1.44$, $p = .227$, $R^2 = 0.06$ (see Table 8). For this research question, the null hypothesis that no relationship exists between the four predictor variables and *CM* was not rejected.

Table 8

ANOVA Results for Regression Three

Source	SS	*df*	MS	*F*	*P*
Regression	194.97	4	48.743	1.44	.227
Residual	3146.871	93	33.837		
Total	3341.841	97			

Based on the t-statistics and p-values in Table 9, I cannot conclude that the four predictors made a significant model to predict *CM*. The results of the regression are presented in Table 9.

Table 9

Results for Multiple Linear Regression to Predict CM

Source	*B*	*SE*	β	*t*(98)	Critical *t*	*P*
Constant	49.36	1.92		25.75	1.98	.001
ICR	0.83	0.53	0.20	1.55	1.98	.124
CHC	-0.74	0.47	-0.23	-1.60	1.98	.114
ICD	-0.68	0.98	-0.08	-0.69	1.98	.490
PCS	-0.13	0.52	-0.04	-0.25	1.98	.803

Note. $F(4,93) = 1.44$, $p = .227$, $R^2 = 0.06$

Next, I conducted a fourth regression analysis to determine the collective relationship between the four independent variables (*ICR*, *CHC*, *ICD*, and *PCS*) and *CP*. I checked assumptions of normality, homoscedasticity, and absence of multicollinearity before conducting the analysis. Normality assumes that the data follows a normal, bell-shaped distribution. I used a normal P-P plot to check the assumption. Since there were no large deviations from the normal line, the assumption was met (See Figure 8). To assess the assumption of homoscedasticity, or equal variance of error terms, I created a

scatterplot of the standardized residuals as a function of the standardized predicted values. Since the points are in a rectangular, regular distribution, the assumption was met (See Figure 9). Absence of multicollinearity assumes that no two predictors are highly correlated. I checked this assumption with VIFs such that a value of 10 indicates that there is multicollinearity in the predictors (Stevens, 2009). As the greatest value is 2.14, the assumption was met.

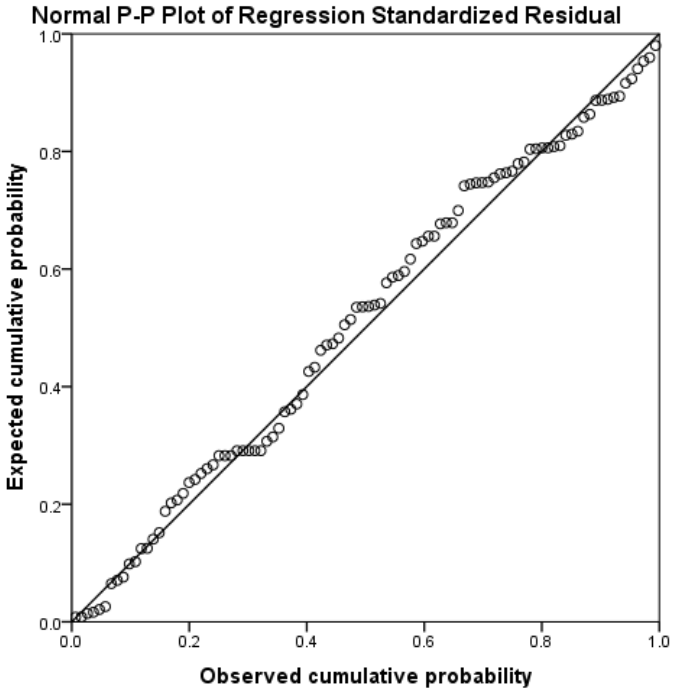

Figure 8. Normal P-P plot to check whether data used to assess the relationship between the predictor variables and *CP* are normally distributed.

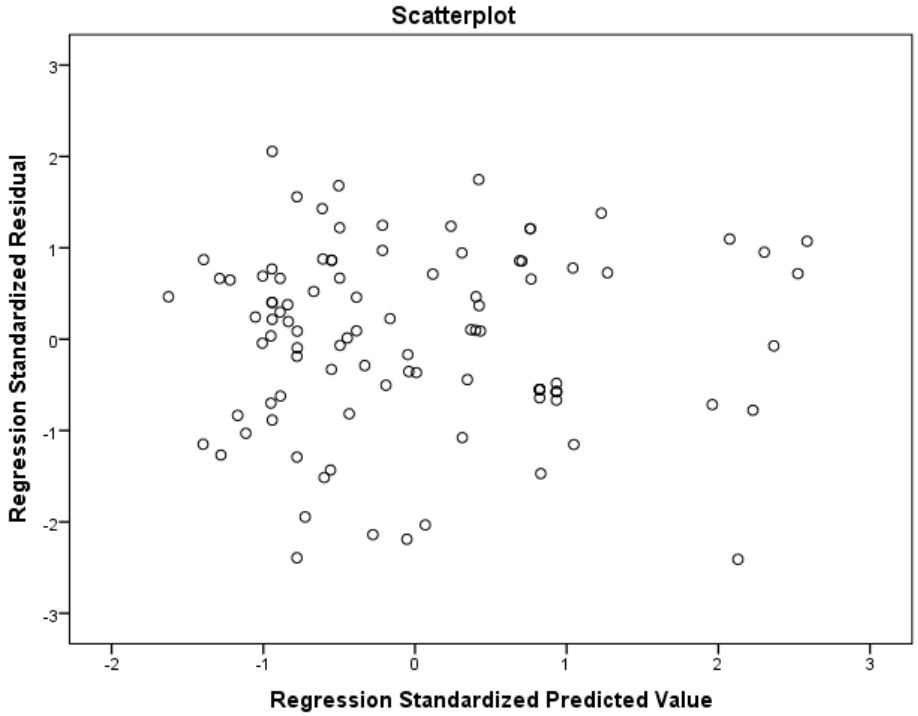

Figure 9. Scatterplot of standardized residuals as a function of standardized predicted values for *CP*.

As the assumptions were met, I ran the multiple linear regression analysis. The results of the regression indicated insignificance, $F(4,93) = 1.25$, $p = .296$, $R^2 = 0.05$ (see Table 10). For this research question, the null hypothesis that no relationship exists between the four predictor variables and *CP* was not rejected

Table 10

ANOVA Results for Regression Four

Source	SS	*df*	MS	*F*	*P*
Regression	92.572	4	23.143	1.247	.296
Residual	1725.633	93	18.555		
Total	1818.205	97			

Based on the *t*-statistics and *p*-values in Table 11, I cannot conclude that the four predictors made a significant model to predict *CP*. The results of the regression are presented in Table 11.

Table 11

Results for Multiple Linear Regression to Predict CP

Source	*B*	*SE*	β	*t*(98)	Critical *t*	*P*
Constant	69.76	1.42		49.14	1.98	.001
ICR	-0.22	0.40	-0.07	-0.56	1.98	.575
CHC	-0.11	0.34	-0.05	-0.31	1.98	.754
ICD	1.34	0.73	0.20	1.84	1.98	.069
PCS	0.38	0.39	0.15	0.99	1.98	.325

Note. $F(4,93) = 1.25$, $p = .296$, $R^2 = 0.05$

I conducted the final regression analysis to determine the collective relationship between the four independent variables (*ICR*, *CHC*, *ICD*, and *PCS*) and *CH*. I checked assumptions of normality, homoscedasticity, and absence of multicollinearity before conducting the analysis. Normality assumes that the data follows a normal, bell-shaped distribution. I used a normal P-P plot to check the assumption. Since there were no large deviations from the normal line, the assumption was met (See Figure 10). To assess the assumption of homoscedasticity, or equal variance of error terms, I created a scatterplot of the standardized residuals as a function of the standardized predicted values. Since the points are in a rectangular, regular distribution, the assumption was met (See Figure 11). Absence of multicollinearity assumes that no two predictors are highly correlated. I checked this assumption with VIFs such that a value of 10 indicates that there is

multicollinearity in the predictors (Stevens, 2009). As the greatest value is 2.14, the assumption was met.

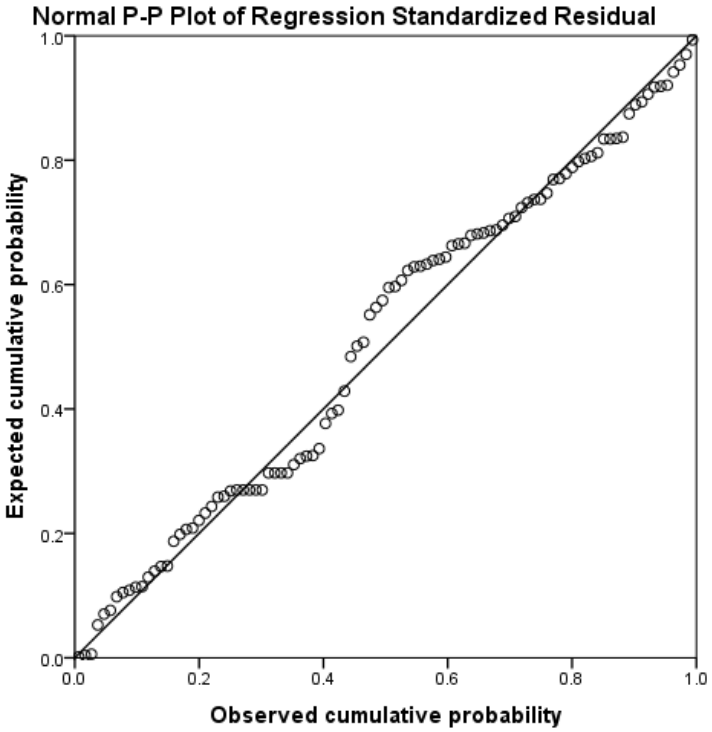

Figure 10. Normal P-P plot to check whether data used to assess the relationship between the predictor variables and *CH* are normally distributed.

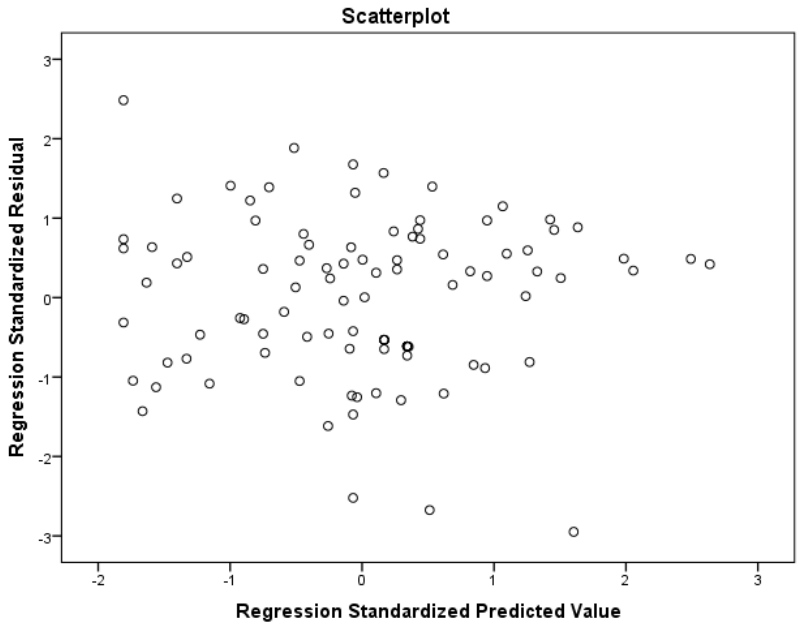

Figure 11. Scatterplot of standardized residuals as a function of standardized predicted values for *CH*.

As the assumptions were met, I proceeded with the regression analysis to determine whether *ICR*, *CHC*, *ICD*, and *PCS* significantly predict *CH*. The results of the analysis indicated that the model is statistically significant, $F(4,93) = 5.24$, $p = .001$, $R^2 = 0.18$ (see Table 12). The results of the multiple linear regression indicated that the null hypothesis was rejected in favor of the alternative, which states that a significant relationship exists between the four predictor variables and *CH*.

Table 12

ANOVA Results for Regression Five

Source	SS	*df*	MS	*F*	*P*
Regression	429.176	4	107.294	5.236	.001
Residual	1905.832	93	20.493		
Total	2335.008	97			

The R^2 indicates that the model predicts 18% of the variability in the dependent variable. Although the model is significant, there were no significant individual predictors, as depicted by the t-statistics and p-values in Table 13. This is potentially due to issues of multicollinearity, or shared significance among predictors, where the model would be unable to determine specifically where significance lies (Stevens, 2009). Perceived change success was the closest to being significantly predictive of *CH*, but ultimately was found to be insignificant at an alpha of .05 ($B = 0.70$, $t = 1.72$, $p = .089$). Because the regression equation was significant, the following equation may be used to predict *CH*:

$$CH = 0.15(ICR) + 0.37(CHC) + 1.01(ICD) + 0.70(PCS) + 86.52$$

The results are presented in Table 13.

Table 13

Results for Multiple Linear Regression to Predict CH

Source	*B*	*SE*	β	*t*(98)	Critical *t*	*P*
Constant	86.52	1.49		57.99	1.98	.001
ICR	0.15	0.42	0.04	0.37	1.98	.716
CHC	0.37	0.36	0.14	1.01	1.98	.313
ICD	1.01	0.77	0.14	1.32	1.98	.189
PCS	0.70	0.41	0.24	1.72	1.98	.089

Note. $F(4,93) = 5.24$, $p = .001$, $R^2 = 0.18$

Summary of Results

For Research Question 1, the results suggest that an aggregate model of *ICR*, *CHC*, *ICD*, and *PCS* predicts *RC* ($F(4,93) = 5.50$, $p = .001$, $R^2 = 0.19$). However, the multiple linear regression did not find a significant individual predictor.

For Research Question 2, the results suggest that there is insufficient evidence to conclude that *ICR*, *CHC*, *ICD*, and *PCS* predict *SC* ($F(4,93) = 1.18$, $p = .326$, $R^2 = 0.05$). However, *ICR*, *CHC*, *ICD*, and *PCS*, in the aggregate, were found to predict the *CH* subscale of *SC* ($F(4,93) = 5.24$, $p = .001$, $R^2 = 0.18$). As in the regression used to predict *RC*, the model could not identify an individual independent variable with significant predictive ability.

Summary of Chapter

Chapter Four presented a brief summary of the purpose and problem statement to contextualize the results prior to discussing the field test and initial data-screening that occurred before presenting the analyses. I presented sample characteristics and descriptive statistics. I then described and presented detailed analyses in order of the relevant research questions and hypotheses. Finally, I examined the hypotheses so that they could be either accepted or rejected and concluded with a summary of the results. I will discuss the implications of these results in the next chapter in the context of the existing literature and practice.

In summary, the four independent variables (*ICR*, *CHC*, *ICD*, and *PCS*) in the aggregate significantly predicted *RC*, and though they did not significantly predict *SC* overall, they did predict the *CH* subscale of *SC*. None of the independent variables individually predicted *RC* or *SC*. Of the four independent variables, *ICR* was the only one that trended towards predicting *RC*, but the association was not significant. Likewise, *PCS* was the closest variable to being a significant predictor of *CH*, though this association was also not significant.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative, correlational study was to narrow the knowledge gap on large-scale organizational change in the pharmaceutical industry. I did so by measuring whether any of several factors predict employee response to large-scale change initiatives, such as M&As, in the pharmaceutical industry. The independent or predictor variables were the four factors I hypothesized affect the change's implementation: participants' initial reactions, participants' involvement in the change design, participants' perceptions regarding the successfulness of the change, and the frequency and quality of communication about the change. The two dependent variables were reaction to change and operationalized measures of support of change. Reaction to change includes the full spectrum of reactions ranging from a negative reaction of active resistance to a positive reaction of championing change; operationalized measures of support of change is an index computed by combining the subscales of compliance, cooperation, and championing.

The problem addressed in this study was a limited understanding of the factors that predict employee response to large-scale change in the pharmaceutical industry. Researchers have studied employee response to change in many industries, including law enforcement (Ford et al., 2003), the hospitality industry (Hartline & Ferrell, 1996), and the electronics industry (Goksoy et al., 2012). However, there was no information in the literature on the study of employee response to large-scale organizational change in the pharmaceutical industry. This was the case despite the fact that the industry frequently

engages in M&As, a common type of large-scale organizational change, 50-80% of which usually fails, according to Budhwar et al. (2009), for reasons related to communication and employee engagement. Additionally, risk of failure is high in the pharmaceutical industry, as only 1 in 10,000 discovered compounds make it from the laboratory to market, according to Cook et al. (2009) and costs $1.8 billion in doing so, based on Golec et al.'s 2009 estimate. Failed mergers have immediate negative effects in the communities in which these pharmaceutical companies operate, as the failed entities may go out of business, resulting in major job losses. In addition to the financial and business challenges, a failed merger in the pharmaceutical industry has a significant potential to negatively affect the participating companies' development of medicines and other medical innovations to fulfill global health needs.

This chapter begins with a summary of the results of the study. I then interpret the results and discuss how they extend knowledge in the area of change management within the pharmaceutical industry. After reviewing key limitations, such as those related to the quantitative methodology and generalizability outside the pharmaceutical industry, I present recommendations for future research, review implications for organizational change and positive social impact, and conclude after discussing recommendations for professional practice.

Summary of Key Results

This study was designed to answer two research questions:

1. What is the relationship between *RC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*?

2. What is the relationship between *SC* and the predictor variables *ICR*, *ICD*, *PCS*, and *CHC*?

For Research Question 1, the results suggest that in the aggregate, the four independent variables predict reaction to change. However, none of the predictors individually predicted reaction to change.

For Research Question 2, the research failed to find sufficient evidence to conclude that the factors, in the aggregate, predict support of change. However, the factors in the aggregate, were found to predict the championing sub-scale. As in the regression used to predict reaction to change, the model could not identify an individual independent variable with significant predictive ability.

Interpretation of Results

How Results Confirm and Disconfirm Knowledge in the Discipline

Reaction to change. I selected the factors evaluated in my study because previous researchers found that one or more of these factors predicted employee response to change and lead to change success in other industries. These industries included law enforcement (Ford et al., 2003), the hospitality industry (Hartline & Ferrell, 1996), the electronics industry (Goksoy et al., 2012), and the publishing industry Franckeiss (2012). In a 2012 study of a global print-based publishing company that was transitioning to digital formats, Franckeiss found that various hands-on change inclusion techniques and frequent change communication through webinars before, during, and after change implementation increased change success. Goksoy et al. (2012) found that communication with employees during and after the change are a crucial success factor in

organizational change. My results, however, did not align with the findings of previous studies, as none of the factors (participants' initial reactions, involvement in the change design, perceptions regarding the successfulness of the change, or communication about the change) individually predicted employees' reaction to change.

However, my results did support previous research that showed change is multidimensional and best examined through multidimensional approaches (Herscovitch & Meyer, 2002). It is likely that there are different factors related to employee reactions to change in the pharmaceutical industry than those of other industries. Additional factors related to employee reactions to change from recent research have included behavioral and attitudinal components (Jaros, 2012), emotional factors (Mishra & Bhatnagar, 2010), and factors related to employees' ambivalence toward change (Oreg & Sverdlik, 2011). In addition, recent research in other industries found that change leadership (Charbonnier-Voirin, El Akremi, & Vandenberghe, 2010; Ricke-Kiely & Robey-Williams, 2011; Wang & Rode, 2010) and employees' prior change experiences (Bordia et al., 2011) both predict employees' reactions to change. These prior findings all suggest that a combination of factors influence employee reaction to change.

These two factors (change leadership and employees' prior change experiences) might be related to employees' reaction to change in the pharmaceutical industry as well and could be the subject of future research. In addition, Oreg and Sverdlik (2011) found that employees' reactions to change could be ambivalent, suggesting the necessity of more nuanced approaches to employees' reactions to change that can account for how employees can both resist (the actual change) and support (through positive feelings

about the change agent) aspects of the same change. Although change may be best approached as a multidimensional construct, as it is in other industries, it may be necessary for researchers to discover what specific individual factors relate to employee reaction to change in the pharmaceutical industry.

Support of change. Based on a review of the literature, I hypothesized that the opinions employees form or behaviors they exhibit upon first learning about a change predict or influence how much they support the change. I also hypothesized that the quality and frequency of the initial and subsequent change communication, the level of employee involvement in the change development, and perceptions of the change's success influence the degree to which employees support change in the pharmaceutical industry. However, my results in the pharmaceutical industry did not confirm previous findings from other industries that employee involvement in change or communication regarding change, taken individually or in the aggregate, predict their support of change. Jaros (2010) and Whelan-Berry and Somerville (2010) found that employee involvement in change predicted employee support of change. Jaros (2010) found that getting employees to commit to new procedures, policies, and goals involving change increased the likelihood of change success. This means that other factors specific to the pharmaceutical industry could influence employee support of change and are worth evaluating in a future study.

The commitment to the new operating norm Jaros (2010) described may be hard to achieve without a comprehensive, multidimensional approach to change management. Whelan-Berry and Sommerville (2010) mentioned resource requirements as one key

component of large-scale change that change leaders and human resource personnel are responsible for, which is often overlooked during change implementation. In the same study, Whelan-Berry and Sommerville mentioned communication and employee participation among the contributors to successful change. In addition, Goksoy et al. (2012) and Whelan-Berry and Somerville found that clear communication regarding organizational change was important for employee adoption and support of change.

Much of the relevant literature appears to support my results related to reaction to change, that a number of factors in the aggregate foster a positive reaction to change. However, when comparing existing literature to my results related to support of change, the result is different, as the four independent variables in the aggregate did not predict support of change. When the subscales of support of change were isolated and considered separately, however, the independent variables in the aggregate predicted the championing subscale. Individually, none of the independent variables predicted support of change or any of its subscales.

Reflecting on the responses on the change continuum ranging from active resistance to championing change, only 5.1% of the 98 participants fell in the championing change category (See figure 12). This 5.1% is an interesting result because the four independent variables predicted championing, indicating that when employees display the most enthusiastic, supportive change behaviors, the change is likely to be successful, provided other aspects of the change are proceeding well. My results on employees' championing change suggest connections between employees' support of change and stakeholder theory, one of the three theoretical frameworks I will cover in the

next section. Employees are supportive and enthusiastic when they feel they are important to an organization's overall success and when leaders treat them as stakeholders (Duckworth, 2014). Viewing employees as stakeholders with an interest in an organization's overall success may help change leaders and managers establish bottoms-up approaches to include employees in change processes and to facilitate employees' championing of change (Duckworth, 2014) to ensure change success.

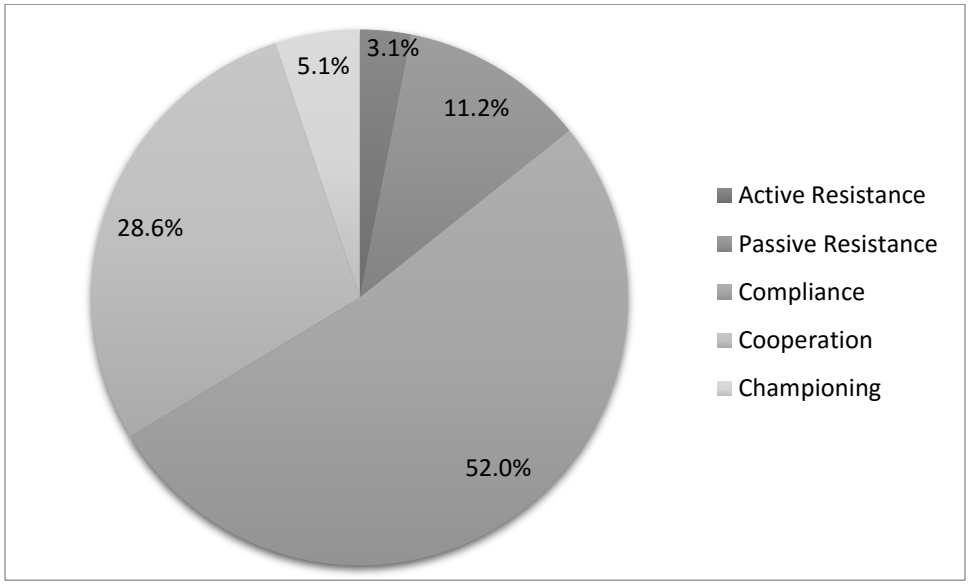

Figure 12. The distribution of responses to reaction to change.

Interpretation of Results in Relation to Theoretical Framework

I framed this study with a synthesis of transformational leadership theory, stakeholder theory, and change management theory. I selected these theories because they all relate to employee engagement during organizational change. Burns's (1978) transformational leadership theory involves the use of motivation and inspiration to obtain desired actions and outcomes from employees. It is also considered a reciprocal relationship in which both manager and employee elevate each other to higher levels of

success, according to Burns. Freeman's (1984) stakeholder theory is about justice, acknowledgment, and fair treatment of those with a vested interest or stake in an organization. Finally, and since change usually involves some disruption, Lewin's (1947) 3-stage change management model, which is to unfreeze the current situation, make the change, and then stabilize or refreeze the situation, seemed an appropriate theoretical framework to understand change processes in relation to the pharmaceutical industry. Lewin's 3-stage change management model offered a theoretical lens through which to examine initial change reaction, involvement in change design, perceived change success, and change communication in relation to large-scale change of established practices in the pharmaceutical industry.

Based on the results of my study, it may be possible to construct a more effective change management process with an optimum mix of leadership and employee engagement. Charbonnier-Voirin et al. (2010) noted that transformational leadership is the type required for effective change management because transformational leaders use motivation and inspiration to help employees adapt to organizational change. Charbonnier-Voirin et al. contended that creating a work environment conducive to innovation fosters better change adoption at individual and team levels. Actual characteristics or predispositions that would create that environment and signal how employees respond to change, however, were not addressed. Similarly, Wang and Rode (2010) discussed a comprehensive approach to change that emphasized the value of context in facilitating change. According to Wang and Rode, employee engagement during change is important. The effects of employee engagement during change,

however, can be optimized in an innovative, transformational leadership environment, where employees identify with leaders. In my study, I isolated a combination of four factors (initial change reaction, involvement in change design, perceived change success, and change communication) that can assist, in the aggregate, in creating such an environment. In addition, transformational leadership techniques, such as motivation, inspiration, and recognizing that employees are important stakeholders, may help change leaders engage better with employees during organizational change to help ensure change success.

Successful organizational change requires a balanced approach that acknowledges various stakeholder needs. According to Duckworth (2014) and Parmar et al. (2010), decisions and actions regarding change intimately and directly affect employees. For this reason, employees are important stakeholders to engage in organizational change. Applying stakeholder theory, employees may be considered crucial stakeholders in an organization, and research (Jaros, 2010; Whelan-Berry & Somerville, 2010) shows that employees' participation in change endeavors is a key factor to successful organizational change implementation. A balanced, stakeholder-oriented approach to organizational change should address the views, concerns, needs, and efforts of various stakeholders, especially those of employees, when considering and managing change. An integrated approach that considers employees as important stakeholders to engage in organizational change necessary for change success, may also include a balanced approach that considers all of the variables of initial change reaction, involvement in change design, perceived change success, and change communication, individually and in the aggregate.

In addition, my results related to the championship subscale suggest a connection between seeing employees as stakeholders and employees championing change. Employees are supportive and enthusiastic when they are involved, feel instrumental to an organization's overall success, and when leaders treat them as stakeholders (Duckworth, 2014). My results on the championing change sub-scale suggests that transformational leadership during change might include ensuring that employees are made to feel like stakeholders with an interest in the organization. In addition, stakeholder theory may offer a way to better understand that successful change should include a balanced approach that considers a variety of strategies when it comes to employee concerns, and may have a specific connection to employees championing change by involving them and making them feel crucial to an organization's success.

Although Lewin's (1947) 3-stage change management model has become foundational to the study of organizational change, Marks and Mirvis (2011) cautioned that there is no one-size-fits-all approach to organizational change. The results of my study suggest that factors connected to the unfreezing of established approaches (i.e., reaction to change and support of change; Whelan-Berry & Sommerville, 2010) could not be predicted by initial change reaction, involvement in change design, perceived change success, and change communication, individually. Consequently, the results do not support targeting any of these components individually to help successfully unfreeze established practices in facilitating successful change. However, initial change reaction, involvement in change design, perceived change success, and change communication may be used in the aggregate to generate information that could be used to help unfreeze

established practices in relation to reaction to change and the championing subscale of support of change.

The findings from this study partially support the use of Lewin's change management model in relation to information regarding reaction to change and the championing subscale of support of change. The findings of this study do not support the use of the unfreezing stage of Lewin's change management model to inform support of change. This is the case because the four independent variables (initial change reaction, involvement in change design, perceived change success, and change communication) did not predict support of change individually or in the aggregate, but it could be used for the championing subscale of support of change.

How Findings Extend Knowledge in the Discipline

Major change initiatives are usually initiated in response to internal and external pressures. Organizations merge and remove management layers in response to a challenging economic climate. Fletcher (2009) likened this need for change or adaptation to that of a burning platform. In discussing this burning platform metaphor, Fletcher noted that organizations make bold, radical moves to stay competitive. Other researchers have taken a different perspective. According to Judge, Bowler, and Douglas (2006), organizations do not need to wait until they are essentially forced to change, and should always be prepared for change. According to Judge et al., organizations should have a change strategy that includes a contingent of change agents who are ready to facilitate change initiatives. Lucey (2008) concurred with this perspective and suggested that change provisions include both a communication plan and change agents. A key role for

these change agents is to ensure that employees at all levels of the organization are involved in the change. Change agents can do so through soliciting feedback in informal settings and delivering the feedback to management for action and communication back to employees.

Change initiatives have not traditionally focused on people as the primary target. According to Pellissier (2011), regardless of the change rationale, change model, philosophy, and selected change management tools, the emphasis of change initiatives is usually directed at specific processes or products. When employee response to change has been studied, it has been in other industries. Researchers have not paid enough attention to how engaged employees are during the change process in the pharmaceutical industry.

My study, however, adds important, empirical data to the change management literature on employee response to change in the pharmaceutical industry. We now know that a combination of actions representing the four independent variables (initial change reaction, involvement in change design, perceived change success, and change communication) influences reaction to change. We also know that in the pharmaceutical industry, these variables independently do not influence reaction to change. When focused on the supportive side of employee response to change, ranging from mere compliance to championing, the four independent variables (in the aggregate or individually) did not influence support of change. However, the four independent variables significantly predicted the championing subscale of support of change. In addition, the findings of this study support the use of transformational leadership and

stakeholder theory, but to a lesser extent the use of Lewin's change management model to inform and frame organizational change. This is useful information for pharmaceutical organizations contemplating large-scale change such as M&As.

Limitations of the Study

Limitations to Generalizability

The focus of this study was on the pharmaceutical industry, specifically on how pharmaceutical industry employees perceived large-scale organizational change. The sample included a diverse set of pharmaceutical industry job roles, including research scientists; support roles, such as IT and project management; executives; middle management; and one change management expert. This mix of job roles approximately reflects the typical distribution of job roles at a pharmaceutical company. Consequently, the results may be generalizable within the pharmaceutical industry. Beyond the pharmaceutical industry, however, the results may not be applicable and need to be interpreted with caution.

Limitations to Validity and Reliability

One key assumption in the proposal was that participants would respond honestly to the survey questions. There is no evidence to believe that participants were dishonest or thoughtless in responding to the survey. The Cronbach's alpha reliability analysis for the support of change variable had excellent reliability ($\alpha = .93$). This degree of reliability is indicative of thoughtful and consistent responses to the scale (George & Mallery, 2010).

Another potential area of concern was ensuring that each participant completed only one survey. The Survey tool tracked the IP address of the participants' devices and assigned a unique participant code. There was also no evidence that any participant completed more than one survey. The above concern represented potential limitations that did not affect the validity and reliability of this study.

Potential limitations to internal validity arise when assumption tests indicate a violation to a statistical assumption (Stevens, 2009). In my study, each of the assumptions of the analyses (i.e., normality, homoscedasticity, and absence of multicollinearity) was met, and the analyses may be assumed to be accurate and empirically valid. In addition, the final sample used in the analysis was found to be sufficiently large to carry out the regression analyses based on an a-priori sample size calculation, which contribute to trustworthy results.

Recommendations for Future Research

The sample contained a diverse mix of pharmaceutical industry employees, including scientific research roles, various project management and supportive roles, as well as management and executive roles. There was also one change management expert and a large category of other roles. One suggestion for future research is to segment and categorize pharmaceutical industry employees and study whether different groups, based on position, level, or role, respond to change differently. For example, a pharmacist, treating physician or nurse interacting directly with patients may not respond to change the same way a pharmaceutical company employee would. This difference could be because pharmaceutical company employees do not routinely interact with patients

directly and are more focused on discovery, development, and commercialization of pharmaceutical products, giving them a different perspective. Although both categories of employees share the same goal of improving lives through their work, their contribution and vantage points are quite different. In addition, employees may have differing roles in organizational change based on their positions and levels that would affect how they respond to change. It would therefore be interesting to see if these differences could be examined in a scholarly study.

My selection of a quantitative method to study employee response to change in the pharmaceutical industry means that I traded rich details, typically associated with qualitative research, for statistical certainty that associations did not occur by chance. The four independent variables, together, significantly predicted reaction to change as well as the championing subscale of support of change. Although there was no individual predictor, initial change reaction came close to predicting reaction to change and perceived change success came close to predicting the championing subscale of support of change. Both of these variables could influence change communication and are worth further study using either a qualitative or mixed method approach to get a deeper understanding of the potential role initial change reaction and perceived change success play in facilitating successful organizational change.

Avenues for future research might also include study of the format or type of communication used to inform employees initially of change in relation to *ICR*. The form of communication used to convey the information might influence employees' initial experience with organizational change. For example, initial change communication could

take the form of a live, in-person meeting, a web-based meeting with video, a teleconference, a memo sent through the mail or email. Since the type of the initial change communication can vary, the type of format used to convey organizational change might influence employees' initial reaction to change.

The results also suggest that more research is needed to identify other predictive factors in relation to employees and change that are specific to the pharmaceutical industry. These might include employees' ambivalence toward change (Oreg & Sverdlik, 2011) and prior change experiences (Bordia et al., 2011). Additionally, researchers might also test how stakeholder theory is related to employees championing change and their support and enthusiasm for change when they are involved and feel they are important to an organization's overall success as stakeholders.

Implications

Organizational Change Implications

Of the 98 participants in my study, only 3.1% described themselves as having actively resisted change, and only another 11.2% passively resisted change. Although it is possible that respondents to this type of survey were those more likely to support change, organizations should be encouraged by the low percentage of employees who resist change. This finding creates an opportunity for organizations to leverage the fact that the vast majority of employees support organizational change. What is interesting, however, is that of those who supported change, a majority (60.7%) simply comply, providing minimal support. Organizations can create a more targeted approach to change management that incorporates the findings from my study. Such approach could identify

and help convert some employees passively resisting change and move the compliant employees up the reaction to change continuum, making them more supportive of change.

The results imply that a combination of factors, such as initial change reaction, involvement in change design, perceived change success, and change communication, can facilitate a better reaction to change. Large-scale changes, such as M&As, are strategic events with several proprietary and confidential elements. This poses a communication challenge to senior management, who may not be authorized to share many aspects of the change freely. This reality makes it difficult to incorporate the findings of this study in the design and implementation of organizational change, as communication and employee involvement are vital to the way employees react to organizational change. Therefore, managers contemplating change need to consider and decide from the outset what information to share with employees, communication frequency, and how much to engage employees in the process. This practice may be different from the traditional approach of focusing on the financial and regulatory aspects of the deal first, then worrying about change implementation and employee reaction later.

Positive Social Change Implications

Pharmaceutical industry employees are very much interested in creating social change. The intent of their research and development efforts is frequently to discover and develop medicines that fulfill unmet medical needs and improve the quality of life of individuals in societies around the world. In many cases, the medicines and other scientific innovations are life-saving, which is the ultimate testament of the potential

positive impact of their work on social change. Given the magnitude of the opportunity for social change in this profession, it is important for socially responsible organizations to create an environment in which such employees can have their greatest impact. Such environment can lead to better performance and focus during organizational change, effectively enabling employees to fulfill their mission of improving lives through their work developing medical innovations.

With this new knowledge of the key factors that predict employee reaction to change, the industry is positioned to implement sound change management practices during organizational change. To improve the probability of a more positive change reaction, all four independent variables must be considered before, during and after implementing large-scale change, as individually they do not influence reaction to change. Although the association was only directional and not significant, based on the multiple regression analysis, change leaders should pay particular attention to the mode and content of the initial change communication, as it could influence whether employees support or resist organizational change.

Recommendations for Practice

In announcing organizational change initiatives, especially those as large as an M&A, organizations must be careful in communicating the right type and amount of information. Although all affected parties can benefit from a general overview of the change, each stakeholder or category of stakeholders will need more information on specific aspects of the change they deem more relevant to them. As such, the organization

should create a change communication plan that addresses this need. Table 14 is an example of the diversity in information needs related to a contemplated change.

Table 14

Stakeholder Information Needs

Stakeholder	Type	Information Need
Managers	Primary	Intended business benefits and resources needed
Employees who execute the process	Primary	Reason for change in process and detailed procedures
Process management head or change management professional	Primary	Realization metrics and scope of change
Other functional areas	Secondary	Awareness of process change
External clients	Secondary	Awareness of process change components that affect interactions with them

A well-coordinated process that considers a variety of change dimensions is needed for successful change implementation. Such a process might consist of an approach that does not single out any one factor, but employs a combination of four factors (initial change reaction, involvement in change design, perceived change success, and change communication) that can assist in creating an environment of successful organizational change in pharmaceutical organizations. A well-coordinated process might also ensure that key players are aware of the decisions and the role they need to play to support it. Watson (2005) described this process as policy deployment, the second of a four-step approach to organizational strategy. The other steps are policy setting, implementation, and review. Watson's description is similar to sigma methodology,

except that Watson begins with an identified solution and focuses on achieving the intended goals of that solution.

In addition to communication and employee involvement, good process management is essential to successful change implementation. In a large-scale organizational change situation, such as an M&A, the organizations should consider using various process management tools to foster communication up, down, and across the organization. First, the organizations should establish a process realization office. This office would be responsible for coordinating all formal integration-related communication, including town hall meetings to present high-level integration strategies. This central office could serve as a trusted source of merger- or integration-related information, create consistency in messaging, and represent a communication brand for the change initiative. With such an organized process, employees would know where to go for reliable organizational change information.

Second, it is useful to establish a network of change agents to solicit feedback from peers in informal settings. According to Barratt-Pugh et al. (2013), in a study of the merger of two state government departments in Western Australia, employees had a positive experience with change when change agents used informal, relational techniques. With the feedback from the informal interactions, change leaders can adjust aspects of the implementation plan to meet stakeholder needs more effectively. This network of change agents will address a critical need to acknowledge and respond to stakeholder concerns during change implementation. Incorporating feedback through this communication

vehicle even after the major change decisions have been made can be a useful way to gain additional support for the change.

As noted in the sample characteristics, one participant was a change management expert with six sigma expertise. A close examination of the responses from this participant revealed that the participant responded very positively to the questions related to the championing subscale of support of change. The participant was actively involved in the change process, perceived the quality and frequency of change-related communication highly favorably, and scored perceived change success very highly. The responses also indicate that the participant maintained an optimistic perspective of the change and influenced others to support the change. This participant essentially modeled the behaviors implied in my recommended actions to improve the probability of successful organizational change in the pharmaceutical industry.

These recommendations, if executed well, may foster a positive or supportive reaction to change. They address aspects of the four independent variables, which my study demonstrated influences reaction to change and the championing subscale of support of change when considered in the aggregate. The communication plan ensures the frequency and quality of communication, which can in turn elicit a positive initial reaction if handled well. Leveraging a network of change agents to interact with employees at all levels of the organization is a good way to keep employees involved. Doing so gives employees a voice and a feeling that their opinions and concerns matter, which could give them an overall feeling that the change may be successful.

Conclusion

The purpose of this quantitative, correlational study was to narrow the knowledge gap on large-scale organizational change in the pharmaceutical industry. This was an important study because the pharmaceutical industry frequently engages in M&As, a type of large-scale organizational change, 50-80% of which fail because of poor communication, lack of employee involvement, and clashing corporate cultures, according Budhwar et al. (2009). Researchers have studied employee response to organizational change in many industries, including law enforcement (Ford et al., 2003) the hospitality industry (Hartline & Ferrell, 1996), and the electronics industry (Goksoy et al., 2012). However, they have not focused on employee response to change in the pharmaceutical industry, even though Cook et al. (2009) and Golec et al., (2009) indicated that it is one of the most expensive and high-risk industries. It is also an industry with strong potential for positive social change impact due to the nature of the work discovering and developing medical innovations to save and improve lives, while fulfilling global health needs.

The results indicate that deploying a change management strategy that considers a combination of four factors, which were the independent variables in my study, can foster a positive, supportive employee reaction to change in the pharmaceutical industry. These four factors were initial change reaction, involvement in change design, perceived change success, and change communication. These individual factors on their own may not result in a positive response to change, as individually, they were not significant in any of the regression analyses. To maximize the value of this key finding when contemplating

organizational change, managers should create a targeted change management strategy that, at a minimum, includes a contingent of change agents to facilitate informal employee engagement, a stakeholder information needs analysis for timely and relevant dissemination of information, and a process realization office responsible for communication quality, frequency, and consistency.

Although the results of my study confirm that change is best examined as a multidimensional construct, the factors of the construct might be particular to the organizational needs and change dynamics of the pharmaceutical industry. As such, the study offers researchers encouragement and direction to identify additional factors, specific to the pharmaceutical industry, which may predict employee response to change. It also creates an opportunity to develop a better understanding of the connection between employee support of change and the enthusiasm employees feel for change as stakeholders. Finally, the findings that only a small percent of employees resist change and majority of those who support change merely comply, is an opportunity for managers to create enthusiasm and build support for change, starting with the initial change communication. Doing so might convert some of the few that may otherwise resist change and move up the change reaction spectrum those who only comply or cooperate.

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Appendix A: Permission to Add and Use the Behavioral Support for Change Scale

Dear Otis,

I have attached the behavioral support measures you requested along with some more resent articles and measures you might find of interest. I hope all goes well with the research.

Best regards,

John Meyer

----- Original Message -----

From: Otis Johnson

To: meyer@uwo.ca

Cc: james.stewart@waldenu.edu

Sent: Tuesday, March 06, 2012 10:10 PM

Subject: Request for Instrument and Usage Permission

Dear Dr. Meyer,

My name is Otis Johnson, a Ph.D. student at Walden University School of Management. I am currently conducting research on the factors that predict employee response to change. I would appreciate very much if you would kindly grant me permission to use the Behavioral Support for Change Scale from your 2002 publication with Dr. Herscovitch

(titled: Commitment to organization change: Extension of a three component model). I would also appreciate a copy of the actual scale.

Thanks,

Otis Johnson

PhD Candidate: Management

Specialization: Leadership and Organizational Change

Student ID: A00136499

Phone: 908-487-1624

Otis Johnson <otis.johnson@waldenu.edu> 12/29/14 (6 days ago)

to John

Dear Dr. Meyer,

Thank you for sharing these instruments and papers with me. I took some time off from school to take a new job, but now I am working towards finishing my dissertation in 2015.

I will use your behavioral support for change scale (BSCS), but need to add a few questions upfront to learn about the study population and to ask questions that would help

me examine any correlation between my independent variables (initial reaction to change announcement, change communication quality and frequency, involvement in change implementation, and perceived change success) and compliance, cooperation and championing (dependent variables).

Would you kindly allow me to modify the BSCS instrument by adding these questions? I would appreciate your reply with approved.

Thanks,

Otis Johnson

PhD Candidate: Management

Specialization: Leadership and Organizational Change

Student ID: A00136499

Phone: 908-487-1624

Email: otis.johnson@waldenu.edu

John Meyer 12/30/14 (5 days ago)

to me

Dear Otis,

Yes, you can add any questions you would like – our BSCS assesses only one set of variables that might be of interest in studying organizational change. I hope all goes well with your research.

Best regards,

John Meyer

Dr. John Meyer

Department of Psychology

Rm 8411, Social Science Centre

Western University

London, Ontario, Canada

N6A 5C2

Phone: (519) 661-3679

Fax: (519) 661-3961

Email: meyer@uwo.ca

Appendix B: IRB Approval Letter

Dear Mr. Johnson,

This email is to notify you that the Institutional Review Board (IRB) has approved your application for the study entitled, "Evaluating Key Predictors of Employee Response to Change in the Pharmaceutical Industry."

Your approval # is 07-02-15-0136499. You will need to reference this number in your dissertation and in any future funding or publication submissions. Also attached to this e-mail is the IRB approved consent form. Please note, if this is already in an on-line format, you will need to update that consent document to include the IRB approval number and expiration date.

Your IRB approval expires on July 1, 2016. One month before this expiration date, you will be sent a Continuing Review Form, which must be submitted if you wish to collect data beyond the approval expiration date.

Your IRB approval is contingent upon your adherence to the exact procedures described in the final version of the IRB application document that has been submitted as of this date. This includes maintaining your current status with the university. Your IRB approval is only valid while you are an actively enrolled student at Walden University. If you need to take a leave of absence or are otherwise unable to remain actively enrolled,

your IRB approval is suspended. Absolutely NO participant recruitment or data collection may occur while a student is not actively enrolled.

If you need to make any changes to your research staff or procedures, you must obtain IRB approval by submitting the IRB Request for Change in Procedures Form. You will receive confirmation with a status update of the request within 1 week of submitting the change request form and are not permitted to implement changes prior to receiving approval. Please note that Walden University does not accept responsibility or liability for research activities conducted without the IRB's approval, and the University will not accept or grant credit for student work that fails to comply with the policies and procedures related to ethical standards in research.

When you submitted your IRB application, you made a commitment to communicate both discrete adverse events and general problems to the IRB within 1 week of their occurrence/realization. Failure to do so may result in invalidation of data, loss of academic credit, and/or loss of legal protections otherwise available to the researcher.

Both the Adverse Event Reporting form and Request for Change in Procedures form can be obtained at the IRB section of the Walden website:
http://academicguides.waldenu.edu/researchcenter/orec

Researchers are expected to keep detailed records of their research activities (i.e., participant log sheets, completed consent forms, etc.) for the same period of time they retain the original data. If, in the future, you require copies of the originally submitted IRB materials, you may request them from Institutional Review Board.

Both students and faculty are invited to provide feedback on this IRB experience at the link below:

http://www.surveymonkey.com/s.aspx?sm=qHBJzkJMUx43pZegKlmdiQ_3d_3d

Sincerely,

Libby Munson

Research Ethics Support Specialist

Office of Research Ethics and Compliance

Email: irb@waldenu.edu

Fax: 626-605-0472

Phone: 612-312-1283

Office address for Walden University:

100 Washington Avenue South, Suite 900

Minneapolis, MN 55401

Information about the Walden University Institutional Review Board, including instructions for application, may be found at this link:

http://academicguides.waldenu.edu/researchcenter/orec

Appendix C: IRB-Approved Informed Consent Form

INFORMED CONSENT

Pharmaceutical company employees who have experienced a large-scale organizational change in their company are invited to take part in a research study. This is a study of opinions about organizational change and how employees perceive it. Because these issues are only relevant to those who have experienced such a change, and who have opinions on this matter, you must have recent memory of such an event. This form is part of a process called "Informed Consent", to allow you to understand this study before deciding whether to take part. Do not indicate your name or any other identifying information on the materials. This study is being conducted by a researcher named Otis Johnson, Walden University.

Procedures:

Participation in this research study is completely voluntary. There is no penalty if you decide not to participate. If you agree to participate in this study, you will be asked to complete a questionnaire. The process will take approximately 30 minutes or less to complete. Questions on these assessments will ask you about your initial reaction to the change, perceptions of its success, and support of the change. Samples of some of the questions and prompts include the following:

a) Rank your initial reaction when you first learned about the change (1 = I am going to lose job; 7 = I am going to get promoted).
b) How involved were you in the development of the change initiative? Response options are not involved, consulted, actively involved.

c) Rank the following item on a 7-point Likert scale (1 = strongly agree; 7 = strongly disagree): I remain optimistic about the change even in the face of diversity.

Risks and Benefits of Being in the Study:

Risks to participation are minimal, and include only slight discomfort in responding to the questions should you recall unpleasant memories from your organization's change. Though you may not directly benefit from this study, the benefits to the population include a better understanding of factors that contribute to successful change in large organizations.

The contact information for individuals regarding this study is: (a) the researcher, Otis Johnson (otis.johnson@waldenu.edu) (b) the researcher's committee chairperson, Dr. Branford McAllister (branford.mcallister@waldenu.edu), and (c) the Walden representative who can be contacted if you have questions about your rights as a participant, irb@waldenu.edu.

Compensation:

There is no monetary compensation for participation in this study.

Confidentiality:

Any information you provide will be kept anonymous. The researcher will not use your information for any purposes outside of this research project. Also, the researcher will not

include anything that could identify you in any reports of the study. This study will not ask for your name or any identifying information. It is completely anonymous and you are requested not to provide your name on any of the materials.

Contacts and questions:

If you have any questions, you may contact the researcher via telephone at 908-487-1624. If you would like to talk privately about your rights as a participant, you can contact the Walden IRB representative. This representative can discuss this with you and may be contacted through irb@waldenu.edu. Walden University's approval number for this study is 07-02-15- 0136499 and it expires on July 1, 2016.

Statement of Consent:

To protect your privacy, no consent signature is required. By pressing accept below and submitting your completed survey via SurveyMonkey, you have given your consent for your information to be used in this study. Please print a copy of this form for your records. Thank you for your participation in this study.