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**A QUALITATIVE AND QUANTITATIVE ASSESSMENT OF READINESS FOR  
ORGANIZATIONAL CHANGE LITERATURE**

THESIS

Andrew B. Burris, 1st Lieutenant, USAF

AFIT/GEM/ENV/08-J01

**DEPARTMENT OF THE AIR FORCE  
AIR UNIVERSITY**

**AIR FORCE INSTITUTE OF TECHNOLOGY**

**Wright-Patterson Air Force Base, Ohio**

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AFIT/GEM/ENV/08-J01

**A QUALITATIVE AND QUANTITATIVE ASSESSMENT OF READINESS FOR  
ORGANIZATIONAL CHANGE LITERATURE**

THESIS

Presented to the Faculty

Department of Systems and Engineering Management

Graduate School of Engineering and Management

Air Force Institute of Technology

Air University

Air Education and Training Command

In Partial Fulfillment of the Requirements for the  
Degree of Master of Science in Engineering Management

Andrew B. Burris, BS

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June 2008

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**QUALITATIVE AND QUANTITATIVE ASSESSMENT OF ORGANIZATIONAL  
CHANGE READINESS**

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1st Lieutenant, USAF

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**Abstract**

The purpose of this thesis is to take a step in integrating the change literature and accumulate the empirical results using meta-analytic techniques. First, a literature review of existing research on organizational change was conducted. Second, existing models of organizational change were integrated to create a theoretical structure. Third, a meta-analysis was performed to derive the corrected correlation values for each relationship in that structure. Finally, the readiness for change literature was qualitatively assessed. In addition, a quantitative review was done by accumulating the results across 25 studies in an effort to provide a current quantitative assessment of change management will update Robertson et al's (1993) findings to produce a representative and generalizable guide to organizational change readiness.

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# META-ANALYSIS OF ORGANIZATIONAL CHANGE READINESS

## I. Introduction and Literature Review

### Introduction

Organizational change has been described simplistically as a sequential process where individuals and their organizations move through distinct stages. One of the first to describe this process was Lewin (1947), who described change as a three-stage process that included an unfreezing, moving, and freezing stage. During the *unfreezing* stage, individuals and organizations become motivated to change. The *moving* stage consists of making the necessary change. The *freezing* stage is reached when the change becomes permanent. Others have described the process in an analogous fashion. Bridges (1991), for instance, frames the process as endings, transitions, and new beginnings. Armenakis, Harris and Feild (1999), in developing a model to consolidate theory and research, held more closely to Lewin's original description, describing change as a three-stage process that includes readiness, adoption, and institutionalization. In 2007, Holt, Armenakis, Harris, and Field outlined that *readiness* occurs "when the environment, structure, and organizational members' attitudes are such that employees are receptive to a forthcoming change" (p. 290). "When the organizational members temporarily alter their attitudes and behaviors to conform to the expectations of the change" (Holt et al., 2007, p.290) the organization is considered in the *adoption* stage. The organizational change is considered to be in the *institutionalization* phase "when the change becomes a stable part of employees' behavior" (Holt et al., 2007, p.290).

Clearly, leaders are interested in realizing the benefits associated with any change as quickly and effectively as possible, regardless of the stages that individuals and organizations

move through. For this reason, there is a great interest among practitioners for a definitive guide to introduce and institutionalize change. Capitalizing on this practical need, many have published prescriptions or formulas to guide leaders as they introduce change; however, Weick and Quinn (1999) exposed these recommendations as anecdotal case studies and observations “reiterated without any proof or disproof” (p. 363). Other authors have voiced similar sentiments and offered contributions to the research to help fill this gap. These efforts have ranged from the purely theoretical to the empirical. Armenakis et al. (1999) integrated much of the existing research to create a theoretically grounded model, specifying steps and messages that if taken should lead to change success; del Val and Fuentes (2003) analyzed the importance of the type and source of resistance in terms of their effects on change success; and Robertson, Roberts, and Porras (1993) highlighted the need to integrate empirical findings through their meta-analysis testing of a theoretical model for planned organizational change. The change literature has grown and matured significantly since their analysis, however, and would be served well with an effort to update those results.

### **Research Questions**

Given the desire among practitioners to successfully implement change efforts and the need for integration of empirical results within the literature, an appropriate question would be: “What actions should be taken to achieve the desired effects of an organizational change effort?” An additional, equally important question is: “What factors can influence the effectiveness of those actions?”

### **Research Scope and Benefits**

Arguably, change could be enacted more successfully if the change and the process used to facilitate its introduction are appropriately aligned with the context in which it is being

introduced. Providing a current quantitative assessment of the change literature will update Robertson et al's (1993) findings taking the initial steps to produce a representative and generalizable guide to making this choice. The meta-analysis will test hypothesized relationships between various change antecedents and outcomes while investigating which contextual factors moderate those relationships. Additionally, this analysis will be used as an opportunity to qualitatively assess the state of the literature, identifying insufficiently studied segments in the literature and suggesting directions for future research. Before the studies are gathered and analyzed, change theories, common constructs studied in change research, and the meta-analytical method are discussed, beginning with the conceptual stages of change and how they affect the measurements used to determine change progress and success. A focus will be placed on the initial readiness stage of change, as it is the stage from which the others are built.

### **Stages of Change**

Building on Lewin's (1947) initial conception of change as a three phase process, several researchers in the 1990s have outlined prescriptive and procedural models of change. Judson (1991) envisioned a five phase procedure consisting of (a) analyzing and planning for the change, (b) communicating the change, (c) gaining acceptance of new behaviors, (d) changing from status quo to a desired state, and (e) consolidating and institutionalizing the new state. Kotter (1995) later prescribed that an organization desiring to change should (a) establish a sense of urgency, (b) form a powerful guiding coalition, (c) create a vision, (d) communicate the vision, (e) empower others to act on the vision, (f) plan for and create short term wins, and (g) institutionalize new approaches. Galpin (1996) subsequently published a wheel-shaped change procedure with nine wedges representing steps to create change that closely mirrored Kotter's. Specifically, Galpin suggested (a) establishing the need to change; (b) developing and

disseminating a vision of a planned change; (c) diagnosing and analyzing the current situation; (d) generating recommendations; (e) detailing the recommendations; (f) pilot testing the recommendations; (g) preparing the recommendations for rollout; (h) rolling out the recommendations, and (h) measuring, reinforcing, and refining the change. More recently, Armenakis et al (1999) suggested that leaders must take steps to facilitate (a) readiness, (b) adoption, and (c) institutionalization. There are common themes across all of these procedural models. Generally, each involves a preparatory stage (which may include several specific steps) in which the change is defined and the organization readies itself for implementation. Additionally, each of the models involves a period when the organization tests the new change before eventually institutionalizing it.

To complement these procedural models, several researchers have proposed cognitive models to describe how individuals react to and perceive change as it unfolds. Isabella (1990) laid out four stages of cognitions that individuals experience as they interpret a change which is connected to Lewin's (1947) seminal model. She proposes that individuals first experience anticipation, during which they assemble rumors, scatter information, and make observations in an attempt to understand the pending change. In the confirmation stage, they standardize conventional explanations and references to past similar events to establish expectations. Culmination occurs when change participants reconstruct their understanding according to past and current conditions in order to determine if the change was beneficial. Finally, they enter the aftermath stage when they evaluate the consequences, strengths and weaknesses, and winners and losers of the change to establish a final interpretation of the ordeal.

Similarly, Jaffe et al. (1994) theorized a four phase transition curve to describe responses. As readiness is established, they suggest that an individual focuses on the past and denies that the

change is happening (or will happen). As their focus moves inward, they tend to resist the change. Eventually, as the change is implemented and adopted by the organization, and the individual looks to the future, they will explore the change on a trial basis. Finally, as the change becomes institutionalized, the member commits to the change. Like the procedural models, each of these cognitive models provide stages or phases that correlate to preparation for the change and testing behavior before eventually accepting the change. Table 1 summarizes these thoughts aligning them with this, general, three-phase conceptualization.

**Table 1. Three-Phase Perspective on Various Change Models**

		Stages									Author	Year				
		Preparation			Initiation			Institutionalization								
Perspective	Procedural	Unfreezing									Moving	Freezing	Lewin	1947		
		Analyzing and planning for the change		Communicating the change		Gaining acceptance of new behaviors			Changing from status quo to a desired state			Consolidating and institutionalizing the new state		Judson	1991	
		Establish a sense of urgency	Form a powerful guiding coalition	Create a vision	Communicate the vision	Empower others to act on the vision		Plan for and create short term wins			Institutionalize new approaches		Kotter	1995		
		Establishing the need to change	Developing and disseminating a vision of a planned change	Diagnosing and analyzing the current situation	Generating recommendations	Detailing the recommendations		Pilot testing the recommendations	Preparing the recommendations for rollout	Rolling out the recommendations	Measuring, reinforcing, and refining the change		Galpin	1996		
		Readiness									Adoption			Institutionalization		Armenakis, Harris, & Feild
	Cognitive	Anticipation		Confirmation			Culmination			Aftermath		Isabella		1990		
Denial		Resistance			Exploration			Commitment		Jaffe, Scott, & Tobe		1994				

## Change Measures

In order to determine if the desired success has been realized, an organization must have a method to measure its success. This process is complicated by the fact that the three general stages of change discussed above do not lead one to a set of mutually exclusive measures that can be linked to each stage. That is, there is no definitive distinction of the exact moment that an organization moves between stages, and because of this it is difficult to choose the outcome measures which indicate an organization's achievement of each stage.

Readiness might be the most distinguishable stage of change in that it is ideally achieved before implementation. As suggested by its definition which describes it as a condition when the organization's environment and members' attitudes are prepared for change (Bernerth, 2004), indicators would be objective and subjective. Objective measures reflect the organization's logistical capability for change. Examples of such measures are found in the assessment of equipment capability and training status. Change management literature tends to be more humanistic in nature and studies almost exclusively the subjective measures of readiness.

Adoption and institutionalization, in turn, are more difficult to distinguish because differing and largely unspecified levels of employees' behaviors reflect these stages. Still, adoption, like readiness, can be measured subjectively as members share their perceptions regarding their initial experience and reaction. Further, behavioral and performance measures can also be used to assess an organization's achievement of the adoption stage.

Similar to the other stages, the desired end state of change, institutionalization, could be measured objectively and subjectively. Objective measures may be emphasized over the subjective measures as common organizational performance measures are examined more closely (i.e. profit, growth, production levels, turnover rates, process metrics, and absenteeism); subjective measures would address attitudinal components of performance such as culture, climate, attitudes, job satisfaction, intent to resist or leave, and willingness to change. In turn, each of these measures can be looked at to determine if the measure has a positive or negative impact on change. Table 2 provides examples of the various measures which have been used in the literature and relates them to the appropriate stages of change.

**Table 2. Measures of Change Across the Three Stages**

	<b>Preparatory</b>	<b>Initiation</b>	<b>Institutionalization</b>
<b>Subjective</b> <i>cognitive</i>	attitude toward change readiness/preparedness to change openness to change receptivity to change resistance to change commitment to change	attitude toward change readiness/preparedness to change openness to change receptivity to change resistance to change commitment to change coping with change adjustment to change	job satisfaction organizational commitment cynicism
<i>behavioral</i>	intentions to resist willingness to cooperate	intentions to resist willingness to cooperate	intentions to quit
<b>Objective</b>	logistic	employee actions (performance) efficiency product quantity/quality firm performance (growth) absenteeism	employee actions (performance) efficiency product quantity/quality firm performance (growth) absenteeism

While the long-term goal of change is to realize the performance gains associated with institutionalization, readiness will be the focus of this review because readiness has an effect on the success of the subsequent stages. Many empirical studies have suggested that employee readiness is a critical driver of change success (Cunningham et al., 2002). Several aspects of the change event and organization can be interpreted by organizational members, indicating the organization's readiness. Arguing that if employees do not have the subjective beliefs that change is needed or the organization is capable, initiatives are more likely to fail, Armenakis et al. (1993); Cunningham et al. (2002); Holt et al. (2007); Jones et al. (2005); and Madsen et al. (2005) have explored other attitudes that include perceptions regarding the benefits and the leader's support for the change. Eby et al. (2000); Fox et al. (1988); Rafferty and Simons (2005); Weber and Weber (2001); and Weeks et al. (2004) have suggested that individuals' interpretations regarding the organization indicate readiness. A synthesis of the research revealed that readiness is reflected through the subjective assessments and interpretations of "what is involved (i.e., change content), how change occurs (i.e., change process), where changes occur (i.e., internal context), who is involved (i.e., individual attributes), and the responses of



*those involved (i.e., reactions)*” (Holt et al., 2007, p.290). This framework will be used to guide the subsequent steps of this review.

### **Change Content**

As mentioned above, readiness is shaped by one’s perception and assessment of what is involved. Referred to as the change content, this consists of the change’s characteristics. These characteristics, while sometimes dictated by the conditions which necessitate change, are ultimately within the control of the change agent. They include the type of change (technical or administrative) and the scope of the change (radical or incremental).

*Change type.* Various researchers (Rowe & Boise, 1974; Downs & Mohr, 1976; Knight, 1967) have claimed that distinguishing types of change is required to identify the proper antecedents of adoption behaviors. One of the typologies that has been developed is technical versus administrative. This distinction refers primarily to the group of people adopting the changes, but the significance lies within the decision-making processes involved (Daft, 1978). Technical changes pertain to products and services and are related to basic work activities (Knight, 1967). Administrative changes involve organizational structure and administrative processes and are related to management (Kimberly & Evanisko, 1981). As such, they have differing expected relationships with various antecedents (Damanpour, 1987). Daft (1978) provided the example that administrative innovations are facilitated by low professionalism, high formalization, and high centralization, while the inverse conditions facilitate technical innovations.

*Change scope.* Another distinction in change characteristics is that of change scope. A Commonly, changes are viewed to be radical or incremental (Damanpour, 1987). Radical changes are broad and pervasive, occurring over a short period of time and focused on changing

the organization at a fundamental level (Dewar & Dutton, 1986). These changes are resource intensive and can potentially elicit stronger responses from organizational members. Incremental changes, in contrast, occur over longer periods of time with smaller, often successive, changes (Dewar & Dutton, 1986). Incremental changes may be imperceptible to employees, making change readiness less of a challenge (Welborn, 2001).

### **Change Process**

Readiness also appears to be shaped by an individual's perceptions of the process that is used to introduce the change. Key elements of the process include the change message that is communicated about the change as well as the strategies used to relay this message. Like the content, the change message and strategies appear to be facilitators of any change and typically fall under the direct control of a change agent, who is defined as "anyone involved in initiating, implementing, and supporting a change" (Armenakis et al., 1999, p. 104) and is the individual responsible for carrying out the strategies. Change targets are the individuals within the organization that are expected to change.

### ***Change Message***

Despite a widespread agreement that communication is an integral part of organizational change, which is discussed in the change strategy section below, few researchers have identified or studied the specific message that should be delivered. Kotter (1995) argued that employee commitment to a change is enhanced when senior leaders communicate why the change is occurring. Similarly, Covin and Kilmann (1990) found that over 1,000 managers believed the communication was critical to successful change efforts saying that the failure to share why a change is necessary and answer questions regarding the change negatively impacted the success of change efforts. While all of this suggests that information is critical, Armenakis et al. (1999)

outlined several other change messages that should be conveyed. Like Kotter and Covin and Kilmann, they suggest that the message must convey a discrepancy (i.e., Why change?). In addition, the message must explain (a) appropriateness (i.e., Why this change?), (b) self-efficacy (i.e., Can we do this? Will this work?), (c) principal support (i.e., Is management walking the talk?), and (d) personal valence (i.e., What's in it for me?). Bernerth (2004) demonstrated the need for these particular messages by associating qualitative responses from change targets with insufficiently addressed components of the change message. Weinstein, Grubb and Vautier (1986) demonstrated that conveying the discrepancy and personal valence components of a change message increased seat-belt wearing habits among individuals.

### ***Implementation Strategies***

Beyond the development of an effective message, the change process includes the strategies used to convey and reinforce the message. Armenakis, Harris, and Mossholder (1993) detailed three strategies for conveying a change message: active participation, persuasive communication, and management of information. Armenakis, Harris, and Feild (1999) expanded this list to include: rites & ceremonies, human resource management practices, diffusion practices, and formalization activities. Armenakis and Harris (2002) later abandoned this expanded inventory, returning to their initial list of three implementation strategies which they considered to be more appropriate. This simplification of their list was supported by a Welborn (2001) meta-analysis of organizational change literature that specifically culled any studies that used one of the seven strategies put forth by Armenakis et al (1999). All 24 studies identified used participation or communication while only one study was determined to have utilized human resources management practices. No other implementation strategy was identified. For these reasons, this meta-analysis will look at Armenakis et al's (1993) original implementation

strategies. Table 3 illustrates the common strategies and denotes the three that will be analyzed in this study.

**Table 3. Evolution of Implementation Strategies Considered in Research**

Evolution of Change Strategies						
Strategy		Definition	Supporting Study (Year)			
No.	Construct		Armenakis, Harris, and Mossholder (1993)	Armenakis, Harris, and Field (1999)	Armenakis and Harris (2001)	Welborn (2001)
1	Active participation*	A way of getting change targets involved in the change effort to provide a more visceral connection to its desired goals.	x	x	x	x
2	Persuasive communication*	A means for a change agent to directly communicate the change message through primarily verbal means.	x	x	x	x
3	Management of information*	The internal and external sharing of information to support and or reinforce the effort	x	x	x	
4	Rites & ceremonies	Symbolic practices evident in all organizations that shape underlying organizational culture		x		
5	Human resource management practices	Provide extrinsic reinforcement for the desired behavior and symbolic evidence of organizational support for change		x		x
6	Diffusion practices	Spreading organizational change within one group and or to other groups		x		
7	Formalization activities	Accompanying changes to formal activities in support of organizational change		x		

\* - denotes strategies selected for inclusion in this analysis

*Active Participation.* Active participation is a way of getting change targets involved in the change effort and provide a more visceral connection to its desired goals. Participation has been found to lead to favorable job attitudes, improved health, and a better understanding of

work tasks (Witt, 1992), and capitalizes on self-discovery to change beliefs, attitudes, intentions, and behavior (Fishbein & Ajzen, 1975). In the context of strategic change, participation produces high levels of effort, identification, and loyalty while increasing the achievement of goals (Lines, 2004). The examples of participation strategies given by Armenakis et al. (1999) include enactive mastery (gradually introducing behaviors to allow for successive achievements), vicarious learning (observing others and benchmarking), and participative decision making. Locke and Schweiger (1979) performed a critical review of participative leadership and group decision making in which they stated that these strategies resulted in mixed outcomes due to the significant effects of contextual factors such as participant knowledge, motivation, and task attributes. Pasmore and Fagans (1992) further asserted that a shortcoming of participation studies was the lack of readiness measurements.

*Persuasive communication.* According to Armenakis et al (1999), persuasive communication is the most efficient strategy in communicating all aspects of the change message and is a means for a change agent to directly communicate the change message through primarily verbal means. Verbal communication can range from formal speeches to casual face-to-face conversations, while alternatively non-verbal means might include memos, newsletters, or annual reports (Armenakis et al, 1999). Cobb et al. (1995) explained how persuasive communication can be used to articulate causal accounts (reasons for the change), ideological accounts (standards for how change will occur), referential accounts (what the change will improve), and penitential accounts (recognition of change difficulty) to mold employees' perceptions of a change effort. These methods increased the perceived justice of the change and subsequently increased change target receptivity. Some research has shown that the broader

change awareness facilitated by communication leads to a greater likelihood of acceptance and facilitation by the change targets (Nutt, 1986; Johnson, 1990).

*Management of information.* Another important tool used in delivering a change message is the management of information, both internal and external, to support and or reinforce the effort (Armenakis & Harris, 2002). Examples of internal information management, similar to those given by Armenakis and Harris (2002), are using sales records to establish the need for a change or gathering metrics and survey data within the organization to demonstrate the progress since implementation. Conversely, external information like popular press articles could be used to demonstrate the successes that other organizations have experienced with similar changes. Empirical support for the effectiveness of management of information is mixed. Recent research has given mixed results on the effect that information has on change outcomes. Wanberg and Banas (2000) found that providing timely, detailed information about a change reduces resistance, and Jimmieson et al (2004) demonstrated that change information can reduce change-related difficulties while increasing the self-efficacy of participants. However, Oreg (2006) found information to increase resistance to change, suggesting that the relationship may be dependent on whether the change is desirable or that the relationship may be non-linear.

### **Internal Context**

A change agent that attempts to bring about a change within an organization has direct influence over the content and the process, but their change attempts will be shaped by certain contextual factors. These moderating variables are those that are independent of the change effort itself, but still affect the organization and member's readiness and subsequent outcomes. Several moderators are related to where the change occurs, or the "internal context" of the

change. These factors are indicative of the group that is attempting the change, and include organization size and organization type.

### ***Organizational Factors***

From a broader perspective, change success can be affected by several contextual, organizational factors. Prominent among those is the size of the organization. Many researchers (Aiken & Hage, 1971; Kaluzny, Veney, & Gentry, 1974; Kim, 1980) assert that larger organizations are more successful at change than their smaller counterparts, but the empirical results are inconsistent. Baldrige and Burnham (1975) found that organizational size was positively correlated with change innovation. He argued that these larger organizations had more resources to foster new change initiatives and tolerate the losses from failed changes. Haveman (1993), however, found that larger organizations, while more ready to adopt, are slower to achieve that adoption. She attributed this finding to the complex communication system necessary to dissipate information throughout a larger organization. Finally, Damanpour (1987) found no significant relationship between size and successful adoptions

Another contextual factor that can affect change is organization type in terms of public or private. Public organizations are typically more bureaucratic and would be, according to Haveman (1993), slower to adopt change. Conversely, private organizations would be expected to be more flexible in nature, allowing them to effectively make changes necessary to remain competitive. Additionally, their typical for-profit status provides a bottom-line from which support for proposed changes can be drawn. The distinctions between these two sectors could produce useful insights into differences in strategies for hopeful change agents.

## **Individual Attributes**

Individual attributes also influence individuals' propensity to embrace change. Table 4 reflects individual attributes that have been studied by various researchers. These attributes include personality traits, situational states, and demographics (Oreg & Vakola, 2007).

Personality traits, which are indicative of a person's cognitive and affective states across varying situations, include positive and negative affectivity, locus of control, general self-efficacy, self-esteem and organizational commitment. Situational states, which are more transient and may change across situations and over short periods of time, include cynicism about change and change-specific self-efficacy. Finally, demographics such as gender, age, tenure, and education are population characteristics that are typically recorded in organizational change studies.



**Table 4. Research of Individual Attributes and Change Readiness  
Oreg & Vakola (2007)**

<b>Specific Term</b>	<b>Supporting Studies</b>
Self Efficacy	Amiot et al., 2006 Ashford, 1988 Cunningham et al., 2002
Generalized Self Efficacy	Judge et al., 1999
Self Esteem	Ashford, 1988 Hui & Lee, 2000 Giacquita, 1975 Judge et al., 1999 Wanberg & Banas, 2000
Self-Concept	Giacquita, 1975
Locus of Control	Ashford, 1988 Lau & Woodman, 1995 Morris, 1996 Naswall et al., 2005
Perceived control	Fugate et al., 2002 Wanberg & Banas, 2000
Optimism	Wanberg & Banas, 2000
Positive Affectivity	Iverson, 1996 Judge et al., 1999 Naswall et al., 2005
Negative Affectivity	Naswall et al., 2005
Dispositional Resistance to Change	Oreg, 2003 Oreg, 2006
Dispositional Cynicism	Stanley et al., 2005
Tolerance for Ambiguity	Ashford, 1988 Judge et al., 1999
Openness to Experience	Judge et al., 1999
Risk Aversion	Judge et al., 1999
Emotion-focused coping	Fugate et al., 2002

### **Personality Traits**

Personality traits are enduring characteristics that typify an individual's cognitive and affective state across multiple situations. The personality traits analyzed in this study are positive and negative affect, locus of control, generalized self-efficacy, and self-esteem.

*Positive and negative affectivity.* Positive affectivity refers to the tendency of individuals to have a positive world view and be confident, energetic, and gregarious over time (Judge, 1993). Research has shown that positive affectivity is related to a person's ability to control their

environment (Judge, 1993). This affects how readily they embrace change, because they will be more likely to cope with the event (Iverson, 1996). Conversely, negative affectivity describes a person's tendency to be distressed and upset, and have a negative view of self over time and across situations (Watson & Clarke, 1984). Individuals with this disposition are more likely to judge change as stressful due to their lack of coping strategies (Parkes, 1990). Naswall et al. (2005) demonstrated a strong relationship between negative affectivity and job-induced tension. However, Iverson (1996) found no significant correlation between negative affectivity and acceptance of change.

*Locus of control.* Locus of control refers to people's beliefs concerning the source of control over events affecting them (Rotter, 1966). It varies along a continuum with internal and external loci of control at opposite ends. If individuals' loci are more internal, their tendency to attribute outcomes of events to their own control is greater. Thus, they tend to believe that they have control over change events and will not be afraid of change if they see a reasonable probability of success. Further, their perspective on clearly external changes may be such that they feel confident about coping with it. Individuals with internal loci of control have been found to better cope with change (Judge et al, 1999) and report more positive attitudes in organizations experiencing change (Lau & Woodman, 1995).

*Generalized self-efficacy.* This type of self-efficacy is a generalized concept that is stable and cross-situational. A distinctly different, change-specific conceptualization will be discussed in the next section. Generalized self-efficacy is an individual's perceived capability to perform in a certain manner or attain certain goals (Bandura, 1977). Armenakis et al. (1999) state that this perception has an effect on the organizational change readiness, as the change targets would consider the proposed change to be more achievable. Workers with confidence in their ability to

cope with change should be more likely to contribute to change efforts. They also assert that the undesirable occurrence of workers resisting changes may result if they believe the effort to exceed their coping capabilities. Judge et al (1999) found support for this hypothesis by showing generalized self-efficacy to be positively correlated with the individual's ability to cope with organizational change.

*Self-Esteem.* Self-esteem was defined by Coopersmith (1967) as a dispositional characteristic that pertains to an individual's concept of personal competence and worthiness. There is an important distinction between self-esteem and the previously discussed concept of generalized self-efficacy. Self-esteem relates to a person's sense of self-worth, whereas generalized self-efficacy relates to a person's general perception that he or she is capable of reaching goals. The individual may not ascribe any value to his or her abilities, which would result in low self-esteem, regardless of the level of self-efficacy. Self-esteem has been positively correlated with change acceptance (Wanberg & Banas, 2000) and has been revealed to moderate the effect that change has on absenteeism and organizational commitment (Hui & Lee, 2000).

### *Situational States*

The various situational states are attitudes that are related to the member's perception of the organization, the job, and the proposed change. While these attitudes may be influenced by their enduring personality variables, they are more significantly impacted by a given situation. The situational attitudes considered in this analysis are organizational commitment, cynicism about the proposed change, and change-specific self-efficacy.

*Organizational Commitment.* Meyer and Allen (1991) stated that organizational commitment, a measure of an employee's psychological attachment to the organization, has three components—this is still organizational specific. Affective commitment is a measure of how

strongly an individual identifies with the goals of the organization and wants to remain a part of it. An individual with high continuance commitment stays because they perceive high costs of losing organization membership. Normative commitment refers to an individual's perceived obligation to stay with the organization. Individuals who are more committed to an organizational should be expected to more willingly embrace changes and behave in ways consistent with the organization's goal (Coyle-Shapiro & Morrow, 2003). Madsen et al (2005) supported this assertion with a study that shows a significant relation between organizational commitment and readiness for change.

*Cynicism about Change.* Cynicism about change involves a real loss of faith in the leaders of change and may result from both the organization's history of change attempts that are not entirely or clearly successful and a predisposition to see things from a cynical perspective (Wanous et al, 2000). Individuals that are cynical about a change are more likely to resist it. To investigate this further, Stanley et al (2005) devised a change-specific measure of cynicism, as opposed to cynicism about any change attempts made by an organization. They found this measure to be significantly correlated with resistance behavior.

*Change-Specific Self-Efficacy.* Change-specific self-efficacy differs from the self-efficacy discussed above in that it is "an individual's perceived ability to handle change in a given situation and to function well on the job despite demands of the change" (Wanberg & Banas, 2000, p. 134), as opposed to perceived ability to achieve goals in general. This concept is more closely related to the self-efficacy that is to be communicated as an integral part of a change message, according to Armenakis et al (1999), and individuals with high change-specific self-efficacy would be more willing to participate in the change.

## ***Demographics***

Beyond personality factors, there are several demographic variables that are commonly studied antecedents to organizational change. A thorough review of existing change literature revealed the most prevalently captured demographic variables to be (a) age, (b) gender, (3) tenure, and 4) level of education. Gender is often included in studies of organizational change, but findings are inconsistent and typically insignificant (Cordery et al, 1993; Hui & Lee, 2000; Iverson, 1996). Age has been found to have a negative impact on change (Cordery, 1991, 1993; Ellis & Child, 1973), suggesting that younger employees are more likely to accept change than older employees. Presumably, younger employees are not as 'set in their ways' as older employees (Cordery et al, 1991), and as such are less resistant to change. As for tenure, Broadwell (1985) argues that the less time employees have spent within an organization, the more likely they are to accept change. A significant correlation between tenure and organizational change, demonstrated by Iverson (1996), supports Broadwell's argument. Education is expected to be positively related to the acceptance of organizational change, as employees with higher education have increased opportunities for skill utilization (Cordery et al, 1993). This increased skill utilization enables employees to better meet the new challenges of their job.

## **Reactions**

Assessing responses is the final step in measuring readiness, as outlined by Holt et al (2007). As mentioned early in this chapter, the focus of this study will be readiness-specific outcomes. Oreg and Vakola (2007) assembled studies addressing various reactions to change which relate to readiness. A representative table is located below.

**Table 5. Compilation of Change Reactions in Research**

Term	Studies
Stress/insecurity/psychological adjustment	Ashford, 1988 Hui & Lee, 2000 Naswall, Sverke & Hellgren, 2005 Amiot, Terry, Jimmieson & Callan, (2006). Martin, Jones and Callan, 2006
Readiness/preparedness to change	Fox, Ellison & Keith, 1988 Eby, Adams, Russel & Gaby, 2000 Weber & Weber, 2001 Cunningham et al., 2002 Weeks, Roberts, Chonko & Jones 2004 Jones, Jimmieson & Griffiths, 2005 Madsen, Miller & Cameron, 2005
Performance/Coping with change	Coch, & French, 1948 Pollman & Johnson 1974 Judge, Thoresen, Pucik & Welbourne, 1999 Cunningham, 2006
Receptivity to change	Giacquita, 1975 Hennigar & Taylor, 1980 Waugh & Godfrey, 1995
Attitude towards change	Lau & Woodman, 1995 Iverson, 1996 Rosenblatt & Ruvio 1996 Klecker & Loadman, 1999 Yousef, 2000 Fugate, Kinicki, & Scheck, 2002 van Dam, 2005 Bartunek, Rousseau, Rudolph, & DePalma, 2006 Oreg, 2006
Openness to change	Miller, Johnson & Grau 1994 McCartt & Rohrbaugh, 1995 Susskind, Miller and Johnson, 1998 Wanberg & Banas, 2000 Axtell et al., 2002
Resistance to change	Daly & Geyer, 1994 Oreg, 2003 Pardo del Val & Martinez Fuentes, 2003 Oreg, 2006 Lines, 2004
intentions to resist/willingness to cooperate	Maier & Hoffman, 1964 Bovey & Hede, 2001 Peach, Jimmieson & White, 2005 Stanley, Meyer & Topolnytsky, 2005
Innovation/change adoption	Sagie, Elizur & Greenbaum, 1985 Coyle-Shapiro & Morrow, 2003
Commitment to change/status-quo	Fedor, Caldwell & Herold, 2006
Adjustment to change	Jimmieson, Terry & Callan, 2004
Perceived benefits of change for learning	Lines, 2005

The subjective measures of readiness chosen for this effort include affective measures such as stress; behavioral measures such as intentions to resist, change adoption, and

commitment to the change; and general subjective measures such as receptivity to change, openness to change, readiness for change, and resistance to change.

### Forming the Theoretical Model

The constructs discussed in this literature were incorporated into the change model proposed by Armenakis et al (1999) to form the theorized model shown in Figure 1. The change message and implementation strategies were considered as change process variables, while at the same time adding researcher-determined content variables to act as additional antecedents. Additionally, contextual and individual variables are included in that are expected to moderate the relationship between those antecedents and change reactions.

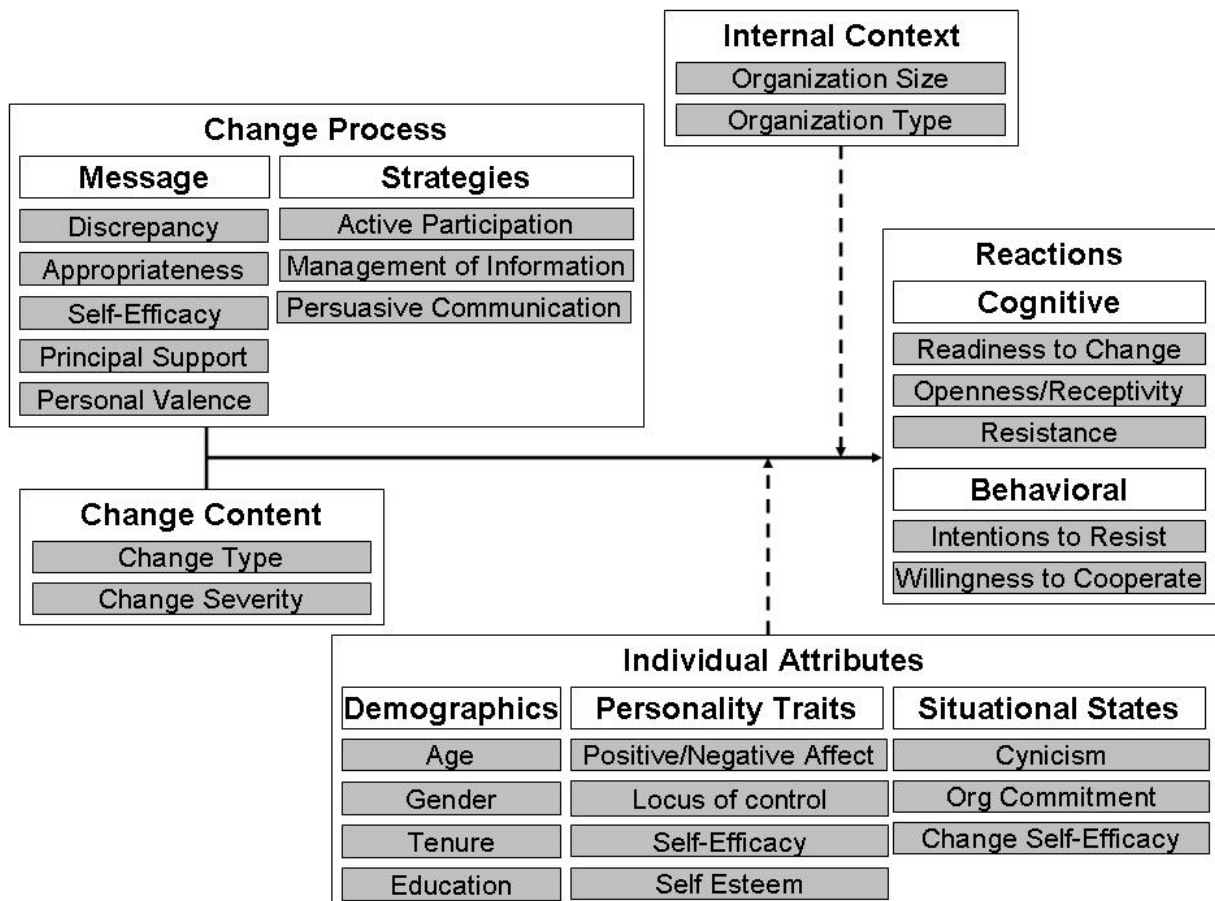


Figure 1. Theorized Model

## **Meta-Analytical Method**

To test the relationships hypothesized relationships in this model, empirical studies will be compiled and analyzed through a meta-analytical review of change literature. Meta-analysis is a statistical method of averaging results across studies. The specific method used for this thesis is that advocated by Hunter and Schmidt (1990). This method has three basic steps: (1) search for and gather studies, (2) extract and code information from the studies, and (3) apply meta-analysis to the information extracted. The search for studies is based on hypothesized relationships and selection is determined by whether a study reports appropriate data. The extraction and coding of information involves translating the data from each study in such a way that their significant features are recorded and organized so that they can be evaluated. The meta-analysis transforms the data from each study into a common metric so that they can be compiled to give more comprehensive and generalizable results.

Researchers in the field of organizational change often attempt to determine why changes succeed or fail, but the results of a single change effort in a specific context cannot be easily extended to work universally. Therefore, studies are performed in various settings in an attempt to provide a better overall picture. However, studies can often vary in both their constructs of interest and resultant relationships between those constructs. Meta-analysis provides a method for researchers to establish more generalizable findings across all of these studies.



## **II. Method**

Robertson et al. (1993), Colquitt et al. (2000), and Welborn (2001) demonstrate the three primary approaches used to gather studies for meta-analyses. Robertson et al (1993) collected their data from two previous reviews and the bibliographies contained within those reviews. Colquitt et al (2000) conducted manual searches within seventeen journals deemed seminal by the researchers, and contacted several researchers within the field for expert input (they offered no guidance on how to select journals nor did they report a response rate from those experts who were contacted). Welborn (2001) merged these two methods, conducting a three phased method of data collection. Initially, relevant studies from two previous reviews were collected. Subsequently, seven databases and three internet search engines were used to perform an electronic search for key terms. Finally, Welborn (2001) searched each journal article's reference list manually and contacted authors within the field to identify additional studies that were relevant to his meta-analysis.

There are benefits and limitations to each of these methods. Manual searches give the researcher considerable discretion in selecting studies; however, as the only method for retrieval, manual searches are not feasible as study selection is subjective and not repeatable. Computer-based searches with specific key terms provide this audit trail, ensuring the study identification process can be repeated and validated. The limitation to computer based searches, none the less, lies in the exclusion of key articles based on the limited selection of search terms.

### **Identification of Studies**

The procedure will consist of identifying relevant studies, selecting which of them can be coded for study, coding those studies appropriately, and analyzing the coded data. This will be

accomplished through a phased methodological approach consisting of three steps: (a) literature search, (b) manuscript evaluation and coding, and (c) meta-analysis.

Data collection began by reviewing all of the citations from a recent qualitative review of the literature on organizational change (Armenakis & Bedeian, 1999). By drawing from a review article, it was possible to rely on the expertise of leading scholars in the field. This review was augmented by a manual search of every study analyzed in previous organizational change meta-analyses (i.e., Robertson et al., 1993; Welborn, 2001). These data were further complemented with a computer-based search using the Social Sciences Citation Index (SSCI). This database, covering 250 disciplines and approximately 8,500 of the world's leading peer-reviewed journals (Thomson Scientific, 2007), searches 24 of the top 25 management journals as determined by Extejt and Smith (1990). This electronic search followed the key search term concept provided in the Welborn (2001) meta-analysis. The search term combinations and the resulting number of articles found are summarized in Figure 2. The search results were filtered further to report only articles or reviews published in the English language between 1985 and 2008.

321	#8 AND #1 <i>Databases=SSCI Timespan=1985-2008</i>
>100,000	#7 OR #6 OR #5 OR #4 OR #3 OR #2 <i>Databases=SSCI Timespan=1985-2008</i>
1,904	Topic=("technical change" OR "administrative change" OR "radical change" OR "incremental change") <i>Databases=SSCI Timespan=1985-2008</i>
>100,000	Topic=("age" OR "gender" OR "tenure" OR "level of education" OR "positive affectivity" OR "negative affectivity" OR "locus of control" OR "self esteem" OR "cynicism" OR "organizational commitment" OR "task-specific self-efficacy" OR "generalized self-efficacy") <i>Databases=SSCI Timespan=1985-2008</i>
1,087	Topic=("active participation" OR "management of information" OR "persuasive communication") <i>Databases=SSCI Timespan=1985-2008</i>
5,594	Topic=("readiness" OR "change readiness" OR "openness to change" OR "receptivity to change" OR "preparedness" OR "resistance to change") <i>Databases=SSCI Timespan=1985-2008</i>
17,653	Topic=("change message" OR "discrepancy" OR "appropriateness" OR "self-efficacy" OR "principal support" OR "personal valence") <i>Databases=SSCI Timespan=1985-2008</i>
94	Topic=("organization size" OR "profit orientation") <i>Databases=SSCI Timespan=1985-2008</i>
2,812	Topic=("organizational change" OR "organizational development") <i>Databases=SSCI Timespan=1985-2008</i>

**Figure 2. Electronic search term combinations and resultant article counts**

These terms were added in order to capture all variables within the researcher's initially proposed model. A limitation of using the selected search terms is some studies that use alternative terminology to name desired constructs may have not been captured. Jeyavelu (2007) provided one such example of disparate labels by using "organizational change" and "organizational turnaround" to describe the same construct. Additionally, 1985 was selected as the earliest date because the previous organizational change meta-analysis conducted by Robertson et al (1993) consisted of studies up to 1988. Selecting 1985 provided a three year overlap to ensure studies from Robertson et al's (1993) analysis were included. Furthermore, articles since 1985 were more likely to focus on constructs of interest and more likely to report meta-analyzable effect sizes.

### **Selection of Studies**

Studies were evaluated systematically before they were included. Specifically, studies were eliminated if they (a) were not research on organizational change, (b) were not quantitative studies, (c) did not include relevant data, or (d) did not indicate a level of change readiness. Further, studies were coded if they reported a sample size and Pearson correlation ( $r$ ) coefficients or statistics that could be transformed into point-biserial correlations. Appendix A includes a summary of the studies that were identified through the searching process described and the review of the studies' content, noting why studies were eliminated from the analysis. The 117 articles from my initial literature review was augmented by Armenakis and Bedeian (1999) review which provided 42 articles; the Robertson et al. (1993) and Welborn (2001) meta-analyses yielded 45 and 15 articles, respectively; and an additional 225 were obtained from the electronic search of the SSCI database.

## **Coding**

For each selected study, change outcomes were coded in addition to the change message components, the implementation strategy, the organizational context, and individual variables. The change message components and implementation strategies were coded in a manner consistent with the change model suggested by Armenakis et al (1999). Change message components were coded as (a) discrepancy, (b) appropriateness, (c) self-efficacy, (d) principal support, or (e) personal valence. Implementation strategies were coded as (a) active participation, (b) persuasive communication, or (c) management of internal/external information.

Change readiness outcomes were coded as reported in the analyzed studies, except when the researcher determined the constructs to be congruent. This was deemed necessary because researchers have used different terms that seem to reflect the same attitude. A summary of these terms is presented in Table 6. Jones et al. (2005) measured readiness for change, while Wanberg and Banas (2000) measured openness to change. Interestingly, both of these studies based the measurement for their construct on the same items developed by Miller et al (1994). Further, although Hennigar and Taylor (1980) ultimately use the term receptivity to change that is common to studies in the educational field (Giacquinta, 1975; Waugh & Godfrey, 1995), they refer to receptivity to change and readiness for change interchangeably throughout the study. The conglomeration of these constructs allowed for a more comprehensive meta-analysis by creating a larger number of correlations for the given dependent variables.

**Table 6. Congruence of Dependent Variables in Change Studies**

Construct Term	Fox et al (1988)	Eby et al (2000)	Weber & Weber (2001)	Cunningham et al (2002)	Weeks et al (2004)	Jones et al (2005)	Madsen et al (2005)	Giacquinta (1975)	Hennigar & Taylor (1980)	Waugh & Godfrey (1995)	Miller et al (1994)	McCart & Rohrbaugh (1995)	Susskind et al (1998)	Wanberg & Banas (2000)	Axtell et al (2002)
Definition	Work group's willingness to make improvements in procedures and to make an effort toward solving problems	Cognitive precursor to the behaviors of either resistance to, or support for, a change effort	Extent to which an organization is ready to make changes to improve performance	A demonstrable need for change, a sense of one's ability to successfully accomplish change, and an opportunity to participate in the change process	(1) beliefs, attitudes, and intentions regarding the extent to which change is needed, and (2) perceptions of the organizations ability to deal with change under dynamic business conditions	The extent to which employees hold positive views about the need for organizational change, as well as the extent to which employees believe that such changes are likely to have positive implications for themselves and the wider organization	An individual is ready for change when he or she understands, believes, and intends to change because of a perceived need.	inverse to the amount of risk individuals perceive to be taking in their organizational status if the change occurs	Use receptivity and openness interchangeably	None provided	Support for change, and positive affect about the potential consequences of the change	Creative use of alternative, even initially unfamiliar, methods of deliberation and conflict management	Employees support for an intervention	(a) Willingness to support the change and (b) positive affect about the potential consequences of the change	Willingness to accommodate or accept the specific changes
Item	5 items adapted from Keith (1986)	9 items adapted from Daly (1991), Jones & Bearley (1996), and Tagliaferri (1991)	4 items from Gordon and Cummins (1979)	6 item 5-point scale modelled after Prochaska et al (1994)	4-item, 5-point Likert scale originally developed by Daley (1991), Hardin (1967), and Trumbo (1961)	7-item, 7-point scale adapted from Miller et al (1994)	14-item, 7-point Likert scale based on Harpachern et al (1998) and McNabb and Sepic (1995) studies "My willingness or openness to work more because of the change Employees were asked if is..." very likely to very unlikely; "My themselves to be open or willing or resistant to the changes", openness to find ways "if they were looking forward to the changes in is..." very likely to very unlikely; "My changes would be for the better, particularly in relation to how they did their job".	Describe feelings, according to 15 pairs of adjectives, toward introduction of a new program	90 items scored on Likert scale - how likely would respondent be to support a given suggestion	10 adjective pairs similar to Osgood et al (1970) and Waugh and Punch (1987), and comments in writing on their attitude to the Unit Curriculum System as a whole	8-item measure to assess individuals' willingness to support organizational change and positive affect toward change	Allocate 100 points to express relative priorities placed on four decision aspects.	8 item, 5-point metric (strongly agree, agree, neutral, disagree, and strongly disagree)	7 item, 5-point scale similar to Wanberg & Banas (2000)	Do employees "welcome the introduction of new technology"; "whether they welcome new ways of working within the organization"; "whether they would rather such changes did not take place"; and "whether they were willing to learn new skills to take advantage of such changes".

## **Analysis**

Meta-analysis is a method to accumulate the results across several studies to gain more insights into a “true” relationship between constructs. With this method, findings are corrected for differences in sample sizes and measure reliabilities. Like Colquitt et al (2000), the data were analyzed using Hunter and Schmidt’s (1990) procedure. Hunter and Schmidt suggest several specific calculations. First, the mean correlation across studies weighted by sample size was calculated. Then observed variance among correlations was then calculated. Finally, the observed variance was corrected by subtracting the variance due to sampling error. Other sources of variance, rarely calculable in meta-analytical efforts due to lack of necessary information, are range restriction and measurement error. In the cases when reliability is not reported, Hunter and Schmidt’s (1990) method of artifact-distribution meta-analysis were to be used to correct for measurement error in those studies.

The subsequent step in the meta-analytical process is to establish whether or not the inclusion of moderating variables was necessary to account for unexplained variance. In a study such as this, when corrections are only made for sampling error, the introduction of moderators is unnecessary if sampling error explains more than 60% of the observed (uncorrected) variance.

### III. Results

Upon more rigorously analyzing the 53 selected studies for coding, 27 others were excluded from analysis. The majority of these exclusions were due to the measurement or conceptualization of readiness outcomes that were incongruent with the definition used for this study. Specifically, general attitudes toward change (e.g. climate or culture) were measured, whereas this study set out to analyze attitudes toward particular changes. In other words, several research papers tended to measure readiness as a general organizational state that was relatively consistent across specific change settings. The remaining studies were coded, and the relevant antecedents and outcomes were recorded in Table 7, from which it is evident that facilitation strategy and change message were reported in few studies. This finding will be discussed further in the detailed qualitative review of the studies in the next section.

**Table 7. Antecedents and Outcomes Coded from Selected Studies**

Author(s)	Year	Facilitation Strategy	Change Message	Change Type	Change Severity	Outcome Measured
Chen & Wang	2007			administrative	incremental	aff comm to change
Cochran et al	2002			technical	radical	receptivity
Cunningham et al	2002			administrative	radical	readiness
Eby et al	2000	participation		administrative	radical	readiness for change
Furst & Cable	2008	participation		administrative	incremental	resistance to change
Giangreco & Peccei	2005	part, comm, info		administrative	radical	resistance to change
Greenberg	1994	comm, info	discrep, approp, support, valence	administrative	radical	acceptance of ban
Groves	2005					openness to change
Herold et al	2007					change commitment
Herscovitch & Meyer	2002					aff comm to change
Herscovitch & Meyer	2002					aff comm to change
Iverson	1996	comm, participation		technical	radical	org change (attitude)
Jones et al	2005			administrative	incremental	readiness for change
Lau & Woodman	1995			technical	radical	attitude (spec change)
Lines	2004			technical	radical	resistance to change
Miller et al	1994			technical	radical	openness to change
Nov & Ye	2008			technical	incremental	resistance to change
Oreg	2006	info		administrative	radical	affective resistance
Sagie & Koslowski	1996	part, comm		administrative	incremental	change acceptance
Schweiger & Densi	1991			administrative	radical	intentions to remain
Schweiger & Densi	1991	communication		administrative	radical	intentions to remain
Stanley et al	2005	comm				inention to resist
Stanley et al	2005			administrative	radical	resistance
Walker et al	2007	comm	efficacy	administrative	radical	aff comm to change
Wanberg & Banas	2000			technical	radical	change acceptance

## **Scope Adjustment**

Given this study's intended purpose of analyzing the effects of implementation strategies and the change message conveyed, these intermediate results required a refinement of the study's focus. The individual attributes became the primary antecedents and all other independent variables were recorded as potential moderators. The studies were culled further to include only correlations between one of the individual attributes and a change readiness outcome. Weighted true correlations were calculated for any relationships that had at least two correlations reported. Of the relevant outcomes, commitment to change, readiness for change (aggregate of readiness, receptivity, and openness), resistance to change, intention to quit, and general attitude toward change had sufficient studies for analysis. The number of relationships varied across the change outcomes, but the relevant individual attributes available for meta-analysis were age, gender, tenure, organizational commitment, and change-specific self-efficacy. Further, there were no more than three correlations for any specific relationship. As such, moderator analysis could not be performed, because at least two correlations would be needed for each moderator state.

## **Quantitative Results**

In instances when organizational commitment or commitment to change had been studied as three separate components (affective, continuance, and normative), the components were aggregated to form a general commitment construct and the correlations were adjusted accordingly, as outlined by Hunter and Schmidt (1990, pg 457). Further, correlations involving intentions to remain were reverse coded before being aggregated with the other "intention to quit" correlations, as the items used to measure it were themselves reverse-coded "intention to quit" items (Schweiger & DeNisi, 1991).



The analysis, summarized in Table 8, resulted in ten correlations across five readiness outcomes and seven individual attributes. Of those correlations, only organizational commitment to commitment to change ( $\rho = .34$ ), change-specific self-efficacy to readiness for change ( $\rho = .25$ ), age to intention to quit ( $\rho = -.17$ ), and organizational commitment to intention to quit ( $\rho = -.46$ ) were significant within a 95% confidence interval. Further, each relationship consisted of the aggregation of two or three correlations, with total sample sizes ranging from 265 to 1066. As mentioned, there were an insufficient number of correlations to perform a moderator analysis, but the relationships were still analyzed to determine if such an analysis would have been necessary if possible. Moderator analysis is considered necessary if less than 60 percent of the observed variance is explained by sampling error. Only the correlations between age and resistance to change and between organizational commitment and change attitude met this requirement.

**Table 8. Primary Analysis - Weighted Correlations after Correction for Sample Size and Unreliability**

Antecedent	Commitment to Change				Readiness for Change				Resistance to Change				Change Attitude (Positive)				Intention to Quit			
	K	N	p	95% CI	K	N	p	95% CI	K	N	p	95% CI	K	N	p	95% CI	K	N	p	95% CI
Demographics																				
Age	3	480	-0.01	(-0.15, 0.13)	2	368	0.00	(-0.10, 0.09)	2	343	0.17	(-0.22, 0.57)					2	350	-0.17	(-0.18, -0.16)
Tenure	3	480	-0.09	(-0.20, 0.02)																
Gender					2	368	0.05	(-0.12, 0.23)												
Situational States																				
Organizational Commitment	2	265	0.34	(0.12, 0.57)									2	1066	0.28	(-0.73, 1.30)	2	336	-0.46	(-0.49, -0.43)
Change-specific Self-efficacy					2	997	0.25	(0.10, 0.39)												

K = number of studies; N = total sample size; p = weighted average correlation

## Supplementary Analysis

Given the limited results (i.e. low study counts for each correlation, low total sample sizes, and no moderator analysis) that could be harvested from the standard coding of the studies, a supplementary analysis was performed. This analysis further aggregated the outcome measures in an attempt to strengthen the weighted correlations by increasing the study counts as well as the total sample sizes. Specifically, commitment to change, readiness for change, receptivity to change, openness to change, change acceptance, and change attitude were

considered to be equivalent constructs. Further, resistance was considered to be an opposite construct and appropriately reverse-coded before aggregation with the other constructs. Intention to quit was excluded from this analysis. The results of this analysis are detailed in Table 9. It should be noted that there may not be theoretical support for the congruence of these constructs, and that this analysis was conceived as an attempt to view correlations across all of the change readiness literature.

**Table 9. Supplementary Aggregate Analysis - Weighted Correlations after Correction for Sample Size and Unreliability**

Antecedent	Aggregated "Change Readiness" Construct			
	K	N	p	95% CI
Demographics				
Age	9	2170	-0.04	(-0.27, 0.19)
Tenure	5	1407	-0.15	(-0.25, -0.04)
Gender	5	1510	0.05	(-0.12, 0.23)
Education	4	1361	0.06	(-0.12, 0.24)
Personality Traits				
Locus of Control	3	693	0.03	(-0.21, 0.27)
Situational States				
Organizational Commitment	4	1331	0.29	(-0.61, 1.00)
Change-specific Self-efficacy	5	1679	0.29	(-0.04, 0.62)
Cynicism	2	329	-0.44	(-0.56, -0.31)

K = number of studies; N = total sample size; p = weighted average correlation

For the supplementary analysis, meta-analyzable relationships were found between the aggregate readiness construct and the relevant individual attributes. Among those antecedents, only tenure (-.15) and cynicism (-.44) were found to be significant within a 95% confidence interval. Study counts for the relationships ranged from two to nine, and total sample sizes varied from 329 to 2170.

#### IV. Discussion

The purpose of this chapter is to conclude by answering the research goals, as well as to illuminate any areas recommended for further future research.

## **Answering the Research Questions**

The ultimate focus of this effort was on readiness for change. This stage of change was selected because it is crucial to eventual change success and is distinctive from the other stages in that it is a cognitive state that serves as a precursor to implementation. The other two stages of change, adoption and institutionalization, have their own outcomes, but are more difficult to disentangle. Thus, I focused on antecedents and moderators hypothesized to have an effect on readiness outcomes. The hypothesized antecedents were change type and magnitude, as well as elements of the change message and implementation strategies. It was also hypothesized that organizational and individual factors would moderate the effects these antecedents had on the readiness outcomes. However, there was an insufficient number of studies to address all of the elements of the hypothesized model. This is a finding in and of itself, as the model was based on theoretical literature, but could not be supported by the available empirical literature. Thus a qualitative assessment of the relevant research was necessary.

### ***Goal 1: Qualitative Assessment of Literature***

While the purpose of this meta-analysis was to provide a comprehensive and quantitative summary of change readiness studies, it also served to illuminate the state of this particular field of research. Of note are issues concerning the readiness outcomes studied, the dual-role within the literature of readiness measures as both outcomes and antecedents, and the reporting and analysis of change messages and implementation strategies.

### ***Issues Involving the Measurement of Readiness***

One area of potential confusion has revolved around the definition of an individual's readiness for change. The first area is whether readiness is considered a general state that is stable across changes or a situational contingency that is related to a particular change.

Presumably, those that take the general state perspective suggest that individuals and organizations are more or less likely to embrace change regardless of the particular change (Weber & Weber, 2001; Oreg, 2003; Rafferty & Simons, 2006). Oreg (2003), for example, considers resistance to change to be a stable personality trait that makes people less likely to voluntarily incorporate changes into their lives. Accordingly, the measures he developed measured aspects such as routine-seeking tendencies and cognitive rigidity. In contrast, others seem to view readiness as a state that is based on a specific change event (Cunningham et al., 2002; Chen & Wang, 2007; Furst & Cable, 2008). These are distinct constructs that caused some confusion during the study selection process, which resulted in the late elimination of 14 dispositional studies initially considered relevant to this effort.

When looking at readiness as a situational contingency, many have differed as to whether it is a broad construct or a set of more finely specified dimensions (analogous to the discussion of broad and narrow personality traits). Generally, it seems that readiness has been defined and described as precondition for a person or an organization to succeed in facing organizational change. It appears to involve the individual's internal orientation toward a particular change. Based on this general idea, it is no surprise that it has been operationalized broadly as a general orientation toward change such as openness (Groves, 2005), receptivity (Cochran et al., 2002), or readiness (Jones et al., 2005). In contrast, others have argued in favor of more numerous and specific dimensions. Holt et al. (2007) and Armenakis et al. (2007) suggested that readiness is manifested in the organizational members' beliefs that the proposed change is appropriate, the leaders support the change, and the individual is capable of changing.

In instances of broad readiness conceptualizations, a common issue throughout the literature was the use of multiple terms for apparently similar constructs. As studies were coded

(discussed in the Method), several research projects used Miller et al.'s (1994) 8-item instrument to measure individuals' internal orientation toward change. Yet, these researchers have referred to this construct differently; some have termed it "readiness for change" (e.g., Jones et al., 2005), and others have termed it "openness to change" (e.g., Wanberg & Banas, 2000). While it is relatively simple to resolve the differences when the same measures are used, the imprecise definitions and various ways of operationalizing the construct complicate any attempts to aggregate and compare results between studies, to include meta-analytical efforts.

### ***Issues Involving the Change Process***

A finding of this effort that had a major effect on the final analysis is the limited study of change messages and implementation strategies as change antecedents. Some studies did correlate specific strategies with readiness outcomes (Miller et al., 1994; Eby et al., 2000; Wanberg & Banas, 2000), but many did not report the methods used by change agents. Others did not provide correlations, but made the use of strategies apparent by providing background information about the change. Walker et al. (2007) listed the forms of communication used to broadcast the change message throughout the organization they studied. Similarly, Iverson (1996) detailed how a hospital's executive director explained the necessity to change through meetings and newsletters (communication) and formed task forces to come up with potential solutions (participation). As discussed in the literature review, there is agreement among researchers that the strategies used can have significant impact on the success of changes. Unfortunately, this perceived importance does not translate into empirical studies, as is the case with the reporting and analysis of change message effects on change readiness.

Another issue concerning change messages in empirical studies is the perspective from which they are measured. The model presented in this study suggested that the message was

something that was delivered to members. However, the research reviewed suggested that it was limited, ignoring the fundamental idea that the change message should be viewed from two perspectives—the change agent’s and the change recipients’ or targets’. From the change agent’s perspective, the theorized model suggested five specific messages that must be conveyed. These were discrepancy, appropriateness, principal support, self-efficacy, and personal valence. When delivered, the change recipients must make sense of these messages, interpreting them and making decisions regarding the change. Based on this idea, several researchers seemed to assess the recipients’ interpretation of the change, addressing discrepancy with items like “We need to improve the way we operate in the organization” and attempting to measure self-efficacy with items like “We have the capability to successfully implement the change” (Walker et al., 2007). The problem is that there is no measure of the application of these messages. While it is important for change agents to know what attitudes are desirable within their organization, more salient would be the specific messages to send. None of the studies coded appeared to measure from this perspective, however.

### ***Goal 2: Quantitative Assessment of Studies***

Several individual attributes were shown to be significant antecedents of change readiness measures. Specifically, organizational commitment was shown to positively affect commitment to change and reduce intentions to quit in the face of a proposed change. Additionally, change-specific self-efficacy was shown to beneficially influence an individual’s readiness to change. Other important findings of this study lie within the non-significant findings. Age, while shown to reduce intentions to quit, had no significant affect on commitment to change (-0.01), readiness to change (0.00), or receptivity to change (0.17). This is important,

given the often anecdotal belief that individuals become more resistant to change as they get older.

The supplemental analysis, while lacking extensive theoretical support, indicates potential areas for more thorough analysis. Specifically, it supported the non-significance of age on change readiness. Further, it validated several studies mentioned in the first chapter by finding tenure and cynicism to be negatively correlated to change readiness.

### **Limitations**

Identifying limitations ensure an understanding of the research process, show the potential for biased data, serve as a caution, and propose areas for further research. Limitations of this particular study identification are methodological in nature, related to the processes used for study identification, selection, and coding.

One study identification limitation for this analysis is that only a cursory manual search was performed before augmenting those results with an electronic search. This causes the potential biases of the electronic search to be more dominant. The first such bias is search term selection. The terms were subjectively chosen and may not have captured studies that used alternate terminology for equivalent constructs. Further, the terms were selected in consideration of the initial constructs of interest, change messages and implementation strategies. Given that the focus was shifted to the effects of individual attributes after studies had been selected, the search terms were less likely to result in studies that reported appropriate data for the ultimate analysis. Additionally, only SSCI was searched electronically, biasing the results toward the publications culled by that database.

Yet another study identification bias lies in the exclusion “file drawer” studies. Those academic publications depicting construct relationships for organizational change readiness are

more likely to be published. In accordance with Scargle (2000), the “file drawer bias” states that there are some papers that failed to be published, that may offer significant insight. The opposing view highlights the rigorous acceptance standards for publications and places emphasis on the inaccuracies within the papers that prevented their publication. For the purposes of this thesis, “file drawer” studies were not included in the analysis, thus their potential effects on the calculated correlations were not realized.

Study selection limitations include the rigor of the elimination method and the subjectivity of the individual selecting the appropriate studies. Some studies were determined irrelevant after reading only the title and abstract. This decision was made to prevent the necessity of scanning the text of over 400 articles, but my have resulted in the exclusion of relevant studies. Related to this limitation is the subjectivity of the study selection. Only one researcher was involved in the codability determination within the search results. Ideally, multiple researchers would have participated.

Finally, only one coder was involved in assessing the variables reported in each study. Typically, a team of researchers perform the necessary coding to increase the reliability of variable determination. In some instances, an individual coder will perform a validation exercise before coding to establish the appropriateness of their methods. Such an exercise was not performed for this effort, thus no form of reliability was established. This weakness was mitigated by the sparse results of the analysis. The most subjective determinations during the coding processes were for variables that were considered as moderators. These values were typically coded from non-explicit statements within the studies and were the most likely to be points of disparity among coders. However, so few relationships were analyzable within this



study that moderator analysis was impossible. Therefore, any bias in those variables had no impact on the final results.

### **Future Research**

In an effort to close the literature gap, a need for further research emerged that was outside the scope of research for the time available for completion; however, completion would greatly benefit the field. Given that this meta-analysis looked across the empirical literature available, several broad suggestions have surfaced. First is the necessity for a definitive measure of readiness. A major finding of this meta-analysis is that many different constructs are used throughout the literature. As such, it is difficult to draw conclusions across all studies. Secondly, there is an apparent deficiency in studies that address the effects of various change message and the implementation strategies used to convey them. Finally, there are a few suggestions for future meta-analyses related to the influence of individual attribute on organizational change. A reproduction of this specific effort may be more successful if the focus is placed on the relevant personal variables from the outset, to ensure the most appropriate article search and study selection. Further, the organizational change literature may be served well by an effort to meta-analyze these individual attribute effects on change outcomes beyond those related to readiness.

### **Final Conclusions**

The primary intentions of this effort were to provide a comprehensive quantitative analysis of change readiness studies to bring and, in doing so, allow for a qualitative assessment of the state of the literature. Modest results were available given the disparity between studied constructs and the definition of those constructs, but practitioners can use this work as an indicator of the influence that various individual attributes may have on their organization's

readiness or willingness to accept a given change. I further hope that researchers will take note of the difficulties faced in consolidating the literature and work to align their constructs and studies in a way that allows for sense to be made between studies and fills the apparent holes in the literature.

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## Appendix. Excluded Studies

No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
1					x	Acker	2006		x		
2					x	Adelman & Taylor	1997		x		
3					x	Agnew et al	1997		x		
4					x	Agócs	1997		x		
5				x		Alderfer	1977		x		
6			x			Allen & Meyer	1990	x			
7	x					Amburgey et al	1993				x
8					x	American Psychological Association	2003		x		
9					x	Amis et al	2006				x
10				x		Amoit et al	2006				x
11	x					Armenakis	1988				
12				x		Armenakis	1999		x		
13				x		Armenakis	2002		x		
14	x					Armenakis et al	1999				
15					x	Arrow	1997	x			
16	x					Arvey et al	1978				x
17					x	Arvidsson et al	2006				x
18				x		Ashforth	1989				x
19					x	Audia et al	2000		x		
20					x	Avgerou & McGrath	2007		x		
21				x	x	Axtell et al	2002				
22				x		Baernerth	2004		x		
23					x	Bailyn	2003		x		
24	x					Bandura	1986	x			
25	x					Barnett & Carroll	1995		x		
26					x	Barnett et al	2005		x		
27					x	Baron et al	2007	x			
28	x					Bartunek & Keys	1982				x
29			x			Bartunek et al	1999				x
30				x		Bartunek et al	2006				x
31					x	Bastedo	2005		x		
32					x	Battilana	2006	x			
33					x	Battistelli & Ricotta	2005		x		
34					x	Baxter & MacLeod	2005		x		
35	x			x		Becker	1992	x			
36	x			x		Becker et al	1996	x			
37	x					Beer & Eisenstat	1996		x		
38				x		Beer & Walton	1987		x		
39					x	Begley & Czajka	1993				x
40					x	Benson et al	2002				x

No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
41					x	Beugelsdijk et al	2002		x		
42					x	Blau et al	2007	x			
43					x	Blazzo	1998		x		
44					x	Blomqvist	1999		x		
45				x		Boeker	1989				x
46				x		Boeker & Goodstein	1991				x
47					x	Bommer et al	2005				
48					x	Bommer et al	2004				x
49				x		Bovey & Hede	2001				x
50	x					Bragg & Andrews	1973				
51					x	Bresnahan et al	2002				x
52					x	Brown	2000		x		
53					x	Brown & Humphreys	2002		x		
54				x		Brown & Leigh	1996				x
55					x	Brown & Starkey	2000		x		
56					x	Bryett	1999		x		
57					x	Buchanan	1997		x		
58					x	Budros	2001		x		
59	x					Buller & Bell	1986				x
60					x	Burkard et al	2002	x			
61		x		x		Burke	1992		x		
62		x				Burke	1994				
63				x	x	Caldwell et al	2004				x
64		x				Callan	1993				
65					x	Campbell	2006				x
66					x	Canter & Mueller	2002		x		
67					x	Carlson et al	1999	x			
68				x		Carrillo & Gaimon	2002		x		
69					x	Chen & Wang	2007				
70					x	Chen et al	1999				x
71					x	Cheng	1995		x		
72					x	Cheng et al	2006	x			
73					x	Chenhall & Euske	2007		x		
74					x	Choi & Shepherd	2005	x			
75					x	Chreim	2006		x		
76		x				Clarke et al	1996				x
77					x	Clemons & Hann	1999		x		
78					x	Cochran et al	2002				
79	x					Cohen & Turney	1978				x
80					x	Coleman & Rippin	2000	x			

No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
81					x	Collins	2005		x		
82					x	Collins & Green	1999		x		
83			x			Collins et al	1993				x
84	x					Cooke & Coughlan	1979				x
85					x	Cookston et al	2007				
86					x	Cooper	2000		x		
87					x	Cox & Minahan	2004		x		
88			x			Coyle-Shapiro	1999				x
89				x		Coyle-Shapiro	2003				x
90					x	Coyle-Shapiro & Morrow	2003				x
91	x					Culbert	1972				x
92	x					Cummings & Srivastva	1977				x
93					x	Cunha & Cunha	2003		x		
94				x	x	Cunningham	2006				
95				x	x	Cunningham et al	2002				
96			x			Daley	1995				x
97			x	x		Daly & Geyer	1994				x
98	x					Damanpour	1991			x	
99					x	D'Annunzio-Green & Macandrew	1999		x		
100					x	D'Aunno et al	2000				x
101					x	De Holan & Phillips	2002		x		
102	x					Dean et al	1998		x		
103				x		del Val & Fuentes	2003				x
104	x					Denzin & Lincoln	1998a	x			
105	x					Denzin & Lincoln	1998b	x			
106	x					Denzin & Lincoln	1998c	x			
107					x	DeShon & Gillespie	2005		x		
108				x	x	Devos et al	2007				
109					x	Di Pofi	2002		x		
110	x					Dirks et al	1998				
111					x	Dobers & Strannegård	2001		x		
112					x	Dobson	2003		x		
113					x	Dowell	2006				x
114					x	Doyle	1995		x		
115					x	Durand et al	2007				x
116				x		Earley	1985				x
117				x		Earley et al	1992	x			
118			x	x	x	Eby et al	2000				
119	x					Eden	1986				x
120					x	Eisenbach et al	1999		x		

No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
121			x			Eisenberger et al	1990				x
122					x	Ely & Meyerson	2000	x			
123					x	Erakovic & Wilson	2005		x		
124			x			Erez & Judge	2001				x
125					x	Erickson et al	2003				x
126					x	Eriksson	2004		x		
127					x	Ernst	2003		x		
128					x	Farmer & Farmer	1996		x		
129			x	x		Fedor et al	2006				x
130					x	Feitler et al	1997				x
131					x	Feldman	2004		x		
132	x		x			Finstad	1998		x		
133					x	Fischer & Pollock	2004				x
134	x					Fleury	1994				
135					x	Folger & Skarlicki	1999		x		
136					x	Ford et al	2008		x		
137			x			Fox et al	1988				x
138	x		x			Fox-Wolfgramm et al	1998		x		
139					x	Frahm & Brown	2007		x		
140					x	Frances	1995		x		
141					x	Fried & Hisrich	1995		x		
142	x					Friedlander	1967				x
143			x			Friedlander & Brown	1974		x		
144					x	Fry	2003	x			
145					x	Fry et al	2005				x
146			x			Fugate	2002				x
147					x	Furst & Cable	2008				
148					x	Gade & Perry	2003		x		
149					x	Gaingreco & Peccei	2005				
150	x					Galpin	1996		x		
151					x	Geletkanycz	1997				x
152					x	Gelijns & Their	2002		x		
153					x	Ghobadian & Gallear	1997		x		
154					x	Ghobadian & Gallear	1996		x		
155	x					Gilmore et al	1997		x		
156			x			Ginsberg	1990				x
157					x	Giuri et al	2008				x
158					x	Gold	1999				x
159	x					Golembiewski et al	1997				
160			x			Gollwitzer et al	1990		x		

No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
161					x	Goltz & Hietapelto	2002		x		
162			x			Gopinath et al	2000				x
163				x		Greenberg	1994				
164	x		x			Gresov et al	1993				x
165					x	Grossi et al	1999	x			
166					x	Groves	2005				
167	x					Hackman et al	1978				
168					x	Halford & Leonard	2005		x		
169					x	Harris & Cole	2007				x
170	x					Hautaluoma & Gavin	1975				
171		x		x		Haveman	1992				x
172	x					Head et al	1986				x
173					x	Henderson et al	2006				x
174		x				Hendry	1996		x		
175				x	x	Herold et al	2007				
176				x	x	Herscovitch & Meyer	2002				
177				x		Hershey & Brown	1992		x		
178	x					Hicks & Klimoski	1981				x
179				x		Hollenbeck et al	1989				x
180				x		Holt	2007				x
181				x		Holt et al	2007				
182					x	Howell et al	2002		x		
183					x	Hu et al	2007		x		
184			x			Huang & Kappelman	1996				
185		x		x		Huff et al	1992				x
186	x					Hughes et al	1983				x
187			x	x		Hui	2000				x
188					x	Huy	2001		x		
189		x				IBM	1997	x			
190					x	Ingersoll et al	2000				
191		x		x		Isabella	1990		x		
192					x	Issel et al	2003	x			
193	x					Ivancevich & Lyons	1977				x
194				x		Iverson	1996				
195	x					Jackson	1983	x			
196		x				Jaffe et al	1994		x		
197				x		Jeyavelu	2007		x		
198				x		Jimmieson	2004				x
199					x	Jimmieson et al	2004				x
200					x	Johnson & Baum	2001		x		

No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
201			x			Johnson & Meyer	1997				
202					x	Johnson et al	2006				x
203				x		Jones et al	2005				
204					x	Jones et al	2003	x			
205	x					Jordan	1986				x
206					x	Joshi	1991		x		
207			x	x	x	Judge et al	1999				x
208	x					Judson	1991		x		
209					x	Kan & Parry	2004				x
210	x			x		Kanter	1991		x		
211					x	Kaplan	1995		x		
212					x	Kautz & Nielsen	2004		x		
213					x	Keister	2002				x
214	x			x		Kelly et al	1991				x
215					x	Kets De Vries & Balazs	1999		x		
216	x					Keys & Bartunek	1979				x
217					x	Kieffer	2005				x
218	x					Kim & Campagna	1981				x
219					x	Kimberly & Cook	2008		x		
220	x					Kimberly & Nielson	1975				x
221					x	Klakovich	1996				x
222				x		Klecker	1998	x			
223				x		Klein et al	2001				x
224					x	Knippenberg et al	2006				x
225	x			x		Kotter	1995		x		
226	x					Krug	1998				
227					x	Kulis & Miller-Loessi	1992				x
228					x	Kumar et al	2007				
229				x		Kwong & Leung	2002				x
230					x	Labianca et al	2000		x		
231					x	Larkey & Morrill	1995		x		
232					x	Larsen & Lomi	1999		x		
233			x			Latham et al	1994				x
234				x		Latona	1993				x
235			x	x		Lau & Woodman	1995				
236	x					Lee	1998				
237					x	Lee & Henderson	1996	x			
238					x	Lehman et al	2002				x
239	x					Lewin	1947		x		
240				x		Lines	1994				

No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
241				x		Lines	2005				x
242					x	Linnam et al	2007				x
243					x	Linstead et al	2005		x		
244					x	Lips-Wiersma & Hall	2007		x		
245	x					Locke et al	1976				x
246					x	Logan & Ganster	2007	x			
247					x	Logan et al	2004				x
248					x	Löck & Arnetz	2002		x		
249					x	Lopopolo	2002				x
250					x	Lopopolo	2001				x
251		x				Löwstedt	1993			x	
252				x		Luo et al	2006		x		
253	x					Luthans et al	1987				x
254			x			Lyu & Roffry	1983				x
255				x		MacPhee	2007		x		
256					x	Macri et al	2002		x		
257				x		Madsen et al	2005				
258					x	Mak & Mueller	2000	x			
259					x	Mak & Mueller	2001	x			
260					x	Malott	2002		x		
261					x	Marshall	1999		x		
262				x	x	Martin et al	2005				
263					x	Martins	2005				x
264				x		Mathieu	1991				x
265	x					Mathieu & Leonard	1987				x
266					x	McAfee	2006		x		
267					x	McCartt	1995				x
268					x	McCormick	2007		x		
269					x	McDonald	2003	x			
270					x	McElrath	2002		x		
271					x	McEvoy	1997	x			
272					x	McGuire & Hutchings	2006		x		
273	x					McHugh	1997				x
274					x	McKeen et al	1994				x
275					x	McKendrick	2001	x			
276					x	Meisiek	2004		x		
277	x			x		Meyer et al	1990		x		x
278					x	Meyerson & Kolb	2000	x			
279					x	Midttun & Martinussen	2005				x
280	x					Miles & Snow	1978				



No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
281					x	Miller & Chen	1996	x			
282					x	Miller & Chen	1994				x
283	x					Miller & Schuster	1987				x
284					x	Miller & Shamsie	2001				x
285				x		Miller et al	1994				
286					x	Mills	2005		x		
287					x	Milne et al	2007		x		
288	x					Mitchell	1986				x
289					x	Mohide & Coker	2005		x		
290		x				Morera et al	1990				x
291	x					Morrison & Sturges	1980				x
292		x		x		Mossholder et al	1994				x
293					x	Moyle & Parkes	1999				x
294	x					Murphy & Sorenson	1988				x
295	x					Nadler et al	1980				x
296					x	Nagwasdi & O'Brien	1999		x		
297	x					Narayan & Nath	1984				x
298					x	Narayan et al	2008				
299				x	x	Naswall et al	2005	x			x
300					x	Nirel & Gross	1997				x
301					x	Nov & Ye	2008				
302				x		Nutt	1986				x
303					x	O'Brien	2007		x		
304	x					Oldham & Brass	1979				x
305			x			Oliver	1990	x			
306	x					Ondrack & Evans	1986	x			
307				x	x	Oreg	2003				
308				x	x	Oreg	2006				
309		x				Orlikowski	1996		x		
310				x		Ornstein	1986	x			
311	x					Orpen	1979				x
312				x		Ostroff	1993				x
313					x	O'Sullivan & Sheridan	2005	x			
314					x	Parikh & Joshi	2005		x		
315			x			Parker et al	1997				x
316		x		x		Pasmore	1992		x		
317	x					Pasmore & King	1978				x
318	x					Pate et al	1977				x
319	x					Paul & Gross	1981				x
320				x		Peach et al	2005				x

No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
321	x					Pettigrew	1990		x		
322					x	Piderit	2000		x		
323					x	Plowman et al	2007		x		
324					x	Porra	1999		x		
325					x	Porra et al	2005		x		
326				x		Porras	1991		x		
327	x					Porras et al	1982				x
328					x	Power & Singh	2007				x
329					x	Prenkert	2006	x			
330					x	Prochaska et al	2006				x
331					x	Pulakos et al	2002				
332				x		Rafferty	2005				
333					x	Rajagopalan & Sreitzer	1997		x		
334	x					Ralston et al	1985				x
335					x	Reay et al	2006		x		
336					x	Reger et al	1994		x		
337	x		x			Reichers	1997		x		
338				x		Reineck	2007		x		
339				x		Rhoades et al	2001	x			
340	x		x			Robertson et al	1993		x	x	
341					x	Robinson & Shimizu	2006		x		
342				x		Rodgers et al	1988				x
343				x		Rodgers et al	1993				x
344					x	Roman & Johnson	2002				x
345					x	Rootman & Ronson	2005		x		
346				x		Rosenblatt	1996	x			
347				x		Rousseau	1999				x
348					x	Rousseau	1997		x		
349					x	Rubery et al	2005		x		
350					x	Ruef	1997				x
351					x	Rusaw	2000		x		
352				x		Sackett	1991		x		
353				x		Sagie	1985				
354			x			Sagie & Koslowsky	1996				
355					x	Sagie et al	2001				x
356					x	Sarp et al	2005		x		
357	x					Sashkin & Burke	1987		x		
358	x		x			Sastry	1997		x		
359	x					Schabracq & Cooper	1998		x		
360					x	Schaefer	1998				x

No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
361	x					Schuster	1984				x
362				x		Schwab	2004	x			
363	x	x				Schweiger & Densi	1991				
364					x	Schyns	2004		x		
365					x	Scott	2006		x		
366					x	Segal	1996		x		
367				x		Segrest et al	1998				x
368	x					Seidman	1998	x			
369				x		Shapiro & Kirkman	1999				x
370					x	Shepherd	1995		x		
371					x	Siegal et al	1996		x		
372					x	Siggelkow	2001		x		
373					x	Simard & Rice	2006		x		
374					x	Siu	2002	x			
375					x	Skordoulis & Dawson	2007		x		
376					x	Snyder-Halpern	2001				x
377					x	Somerville et al	2005		x		
378					x	Spracklen et al	2006		x		
379				x	x	Stanley et al	2005				
380	x					Steel et al	1985				x
381					x	Stoeberl et al	1998				x
382					x	Suarez & Oliva	2005		x		
383	x					Sundstrom et al	1982				x
384				x		Susskind	1998				x
385					x	Swales	2004				
386					x	Swanson & Keith	2001				x
387	x					Szilagyi & Holland	1980				x
388			x			Tanenbaum & Dupuree-Bruno	1994	x			
389					x	Taylor & Francis	2008				x
390					x	Terry et al	1996				x
391					x	Tesluk et al	1995	x			
392	x					Thompson & Hunt	1996		x		
393					x	Thompson & Van de Ven	2002	x			
394					x	Thornhill et al	1997		x		
395					x	Torkelson et al	2007		x		
396					x	Townley et al	2003		x		
397					x	Trader-Leigh	2002		x		
398					x	Tuomi et al	2004				x
399					x	Tyler	2005		x		
400					x	Väänänen et al	2004				x

No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
401					x	Vaira	2004		x		
402					x	Valentine	1995	x			
403				x		van Dam	2005				
404	x					Van de Ven & Huber	1990		x		
405	x					Van de Ven & Poole	1995		x		
406				x		Viswesvaran & Ones	1995	x			
407	x					Vollman	1996		x		
408	x					Wahlstedt & Edling	1999				x
409					x	Waldman et al	1998		x		
410				x		Walker et al	2007				
411	x					Wall et al	1986				x
412				x	x	Wanberg & Banas	2000				
413				x	x	Wanous et al	2000				
414					x	Ward et al	2000		x		
415				x		Waugh	1995		x		
416				x		Weber	2001				
417				x		Weeks et al	2004				x
418	x			x		Weick & Quinn	1999		x		
419				x		Weinstein et al	1986				x
420	x					Whissell & Dawson	1986	x			
421			x	x		Witt	1998	x			x
422					x	Wollebaek & Selle	2004	x			
423					x	Wood & Johnsrud	2005	x			
424					x	Wood & Des Jarlais	2006		x		
425	x			x		Woodman	1989		x		
426					x	Worts et al	2007		x		
427				x		Wright & Bonnett	2002	x			
428				x		Wright & Kacmar	1994	x			x
429				x		Wright et al	1994				x
430					x	Yeager & Saggese	2008		x		
431					x	Young	2000		x		
432				x		Yousef	2000				x
433					x	Yousef	1998				
434					x	Yousef	1999				x
435					x	Yousef	2000		x		
436				x		Yukl et al	1999				x
437					x	Yves et al	2006	x			
438					x	Zahra et al	2006		x		
439	x					Zalesny & Farace	1987				x
440	x					Zand et al	1969				

No.	Robertson et al., 1993	Armenakis et al., 1999	Welborn, 2001	Literature Review	SSCI	Authors	Year	Not organizational change related	Not quantitative	Not meta-analyzable	Not relevant constructs
441			x			Zeffane	1994				x
442					x	Zhang & Rajagopalan	2004				x
443				x		Zhao & Seibert	2006				x
444					x	Zhou	2006				x

## **Vita**

1st Lieutenant Andrew B. Burris graduated from Derby High School in Derby, Kansas. He entered undergraduate studies at Kansas State University, Kansas where he graduated with a Bachelor of Science degree in Mechanical and Nuclear Engineering, and a minor in Spanish in May 2004. He was commissioned through the Reserve Officer Training Command.

His first assignment was to the 374<sup>th</sup> Civil Engineer Squadron, Yokota AB, Japan, where he served as Mechanical Engineer. In July 2005, he was assigned to the 364<sup>th</sup> Mission Support Group, Yokota AB, Japan where he served as a Group Executive Officer. In September 2006, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology. Upon graduation he will be stationed at 435<sup>th</sup> Civil Engineer Squadron, Ramstein AB, Germany. Immediately upon his arrival he will be forward deployed to Iraq for a 365 day tour.

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<b>14. ABSTRACT</b> The purpose of this thesis is to take a step in integrating the change literature and accumulate the empirical results using meta-analytic techniques. First, a literature review of existing research on organizational change was conducted. Second, existing models of organizational change were integrated to create a theoretical structure. Third, a meta-analysis was performed to derive the corrected correlation values for each relationship in that structure. Finally, the readiness for change literature was qualitatively assessed. In addition, a quantitative review was done by accumulating the results across 25 studies in an effort to provide a current quantitative assessment of change management will update Robertson et al's (1993) findings to produce a representative and generalizable guide to organizational change readiness.					
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