6-2002

Reflection: Its influence on the psychological empowerment of non -management knowledge workers in the software industry

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School of Education

REFLECTION: ITS INFLUENCE ON THE PSYCHOLOGICAL EMPOWERMENT OF NON-MANAGEMENT KNOWLEDGE WORKERS IN THE SOFTWARE INDUSTRY

A Thesis in

Curriculum Studies

by

Vincent L. Cyboran

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Education

June 2002

We approve the thesis of Vincent L. Cyboran

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ABSTRACT

The purpose of this study was to examine the influences of active reflection on the self-perception of empowerment in the workplace. A model integrating reflection and psychological empowerment was developed. The developed model is based on Spreitzer's Model of Psychological Empowerment.

The sample consisted of non-management knowledge workers at a software company in the Midwest that placed a high value on the continuous learning of its employees. A pretest, posttest control group design was used. The experimental group kept guided journals of their learning activities for three months. Immediately prior to and following the journaling period, both groups completed Spreitzer's Scale of Psychological Empowerment.

A repeated measures ANOVA revealed no significant differences in level of improvement within the groups for the pretest and posttest summary scores on Spreitzer's scale. A repeated measures MANOVA revealed no significant differences within the groups on the pre-test and post-test subscale scores (meaning, competence, self-determination, and impact) on Spreitzer's scale. Though active reflection did not significantly increase their psychological empowerment, between-group analyses revealed that participants who kept guided journals were able to maintain a high level of psychological empowerment, even during turbulent periods at the host organization, while the psychological empowerment of the control group worsened. Participants who actively reflected also had higher levels of self-determination and impact. It was determined that during stable periods, offsite employees possessed higher levels of

psychological empowerment than do onsite employees; however, during turbulent periods, these differences diminish. It is suspected that the non-significant results were due to an already existing high level of psychological empowerment for the experimental group despite random assignment, and to the lay offs of several employees, including study participants, during the study period. A content analysis of the guided journals revealed evidence of all four components of psychological empowerment: meaning, competence, self-determination, and impact.

The results suggest that active reflection through guided journaling may sustain the perception of empowerment for individuals who already possess a fairly high level of psychological empowerment. An unexpected implication suggests that Spreitzer's scale may be useful in identifying employees in need of on-the-job mentoring and counseling. The model developed should be further examined in studies using participants with low to medium levels of psychological empowerment, and also using direct guidance for reflection techniques and journaling.

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I would like to express my sincerest appreciation to those people who supported and challenged me through the doctoral process. I would like to thank my advisor, Dr. Barbara Radner, without whom I would not have entered the program, for her keen insight and guidance. I would like to thank Dr. Gayle Mindes for keeping me on track and making me pay attention to the details. I would like to thank Dr. Layla Suleiman for helping me to see the story behind the numbers.

I would also like to thank my support group, Carla Ellis, Linda Wilson, Tyler Kahdeman, Kevin Edinburg, and Colleen Reardon. I would like to thank those who helped do the content analyses, particularly Tyler Kahdeman, Paula Andries, Robert Kassnel, and Susan Feltman. I would like to thank the administrative staff in the School of Education, particularly Carlota Toledo, for their patience and efforts. I would like to thank the senior management at my workplace for allowing me to conduct my study there, particularly Mike Blair, Patricia Christensen, and Laura Jones.

Finally, I would like to thank my partner, Robert Kassnel, for his support, and for keeping himself busy with his own studies and nautical activity.

"People who don't pay attention often get stuck in the Doldrums."

Norton Juster, *The Phantom Tollbooth*

CHAPTER I. INTRODUCTION

To many, America is the land of opportunity; to the American worker, it is simply the land of change. The Information Age, the global economy, and the changing demographics of the workplace have had profound effects on the U.S. workforce, changing the very idea of what is a "job" and what is "work". There is no turning back, and there is every reason to believe that these changes will persist (Thompson, 1999).

The pervasiveness of workplace technology affects all types of workers, creating new jobs, changing existing jobs, and making others obsolete (Danziger, 1985; Fearfull, 1992). As Davis (1996) states, "The half-life of what a person learns is getting shorter and shorter" (p. 32). Such radical changes can easily invalidate worker knowledge and threaten job security.

The workplace model of a stable employer-employee relationship is fast disappearing. Few workers can expect to stay at a job for their entire careers (Potterfield, 1999; Sennett, 1998; Waterman, Waterman, & Collard, 1994). The average U.S. worker holds an average of 9 jobs between the ages of 18 and 34 (National Longitudinal Survey of Youth 1979). Further, there is a growing trend towards temporary workers. According to the U.S. Department of Labor (1999, ¶58 and ¶59): "The age of 'just in time' production has given rise to 'just in time' workers—employees whom a business can hire on a moment's notice to fill a moment's need. Roughly 1 in 10 workers fits into an alternative arrangement. Nearly four out of five employers use some form of nontraditional staffing arrangement."

To respond to these changes and challenges, many U.S. organizations have become flatter (Sennett, 1998): there are fewer layers of management, and workers are expected to function more autonomously (Spreitzer, 1995a). They are expected to make independent decisions about their work rather than receive direction and advice from management. Addressing this issue, Kanter (1989) writes, "As work units become more participative and team oriented, and as professionals and knowledge workers become more prominent, the distinction between manager and non-manager begins to erode" (p. 88).

The Changing Nature of Workplace Learning

Workplace learning contains three elements: learning the job, learning the organization, and learning the self or learning one's strengths and weaknesses in terms of one's job and one's position in an organization (Brookfield, Marsick & Mezirow in Weintraub, p. 66). As the nature of the workplace changes, so too is the nature of workplace learning changing. It is changing in terms of how learning occurs and in terms of the shifting of primary responsibility for worker learning from the employer to the workers themselves.

Traditionally, workplace learning is assumed to be the result of formal training programs, and U.S. businesses invest heavily in them. It was reported in The American Society for Training and Development's journal (1997, p. 33-75) that U.S. businesses spend over $58 billion each year on formal training programs. This heavy investment in formal training programs continues even though their success is doubtful. Lee (1998) estimates that "workers apply as little as 10-20% of knowledge and skills acquired in training to the job" (p. 50). Another challenge to the extensive investment in traditional,

formal training comes from recent research indicating that as much as eighty percent of worker learning occurs informally (Day, 1998; Stamps, 1998; Weintraub, 1998).

Organizational learning theorists now emphasize the importance of worker knowledge, using the constructs of "human capital" and "intellectual capital" development in much the same way as they analyze more tangible assets (Burton-Jones, 1999; Horibe, 1999). In an era where price and quality can often be matched by an organization's competitors, worker knowledge is considered a competitive advantage (Thomas, 1997). As Rosow (2000) affirms, there "...must be greater reliance on human resources and the investment in training, upgrading and motivating the human capital..."

Now that organizations have recognized the value of worker knowledge, they are encouraging, and often requiring, workers to engage in continuous learning to keep current or to advance their careers. Workers are being informed they can no longer afford to be passive recipients of employer-initiated training programs; they must take ownership of their career development, including their learning and learning goals (Hiemstra, 1998; Jaffee, D., Scott, C., & Tobe, G., 1994; Potterfield, 1999; Senge, 1990; Thompson, L., 1999). Per London and Smither (1999), in today's organizations, "employees must constantly show the capacity to engage in new learning as they cope with change" (p. 82).

Further, technological advances have made possible significant changes in the way learning is fostered within organizations. Many organizations provide workers with access to learning environments through online learning portals that are available seven days a week, twenty-four hours a day (Dobbs, 2000; Schank, 1997). Residing on an organization's Intranet, these online learning portals offer workers access to a variety of

learning options including the following: registration for instructor-led courses offered by the organization itself or by external vendors; self-paced, computer-based training (CBT); 'blended solutions' in which employees receive instruction from a live instructor over the Web, but also complete offline assignments on their own; digitized video of presentations from subject-matter experts; and online product documentation. If an organization uses a Learning Management System, learning profiles will be built for workers, offering them suggestions of courses to take and keeping records of their learning progress. The enactment of such a virtual curriculum by an organization may impose an additional stressor—real or perceived—upon workers to engage in learning activities during evenings and weekends.

A group of workers especially affected by these changes are "knowledge workers" (Drucker, 1969). A knowledge worker is "the person who creates and applies knowledge to productive ends in contrast to an 'intellectual' for whom information and concepts may only have importance because they interest him or to the manual worker who applies manual skills or brawn" (p. 264). Per Stamps (1996), the competitive advantage of organizations is based, in part, on the knowledge that is embodied in their workers.

There is a growing body of research on factors that affect the performance of knowledge workers. Some researchers address factors external to the individual worker, such as organizational culture (London & Smither, 1999; Senge, 1990), organizational climate (Roullier & Goldstein, 1990 cited in Goldstein, 1993), and the capturing and sharing of organizational information (Carliner, 2000; Davenport & Prusak, 1998). Such research views the worker as an "object" to be manipulated through the changing of environmental factors. Other researchers address factors internal to the individual

worker, such as the perception of empowerment in the workplace (Spreitzer, 1992, 1995a; 1995b, 1996, 1997; Thomas & Velthouse, 1990). Such research views the worker as a "subject" whose individual thoughts and perceptions play a vital role in determining his or her own success in the workplace, and in turn, contributing to the success of the organization itself.

Psychological Empowerment

Since the 1980s, simultaneous with the rapid technological changes in the workplace and corporate downsizing, organizational theorists and researchers have been exploring the concept of worker empowerment and its outcomes (Blanchard, Carlos, & Randolph, 1996; Clutterbuck & Kernaghan, 1994; Conger & Kanungo, 1988; Spreitzer, 1992, 1995a; 1995b, 1996, 1997; Thomas & Velthouse, 1990). They suggest that for workers to successfully initiate and sustain their own learning in the workplace, they must have a sense of personal control over their learning and learning goals. London and Smither (1999) speak of the relationship between career-related continuous learning and empowered self-development. From a broader perspective, this type of perceived control is an example of what is known in the literature as "psychological empowerment." Rappaport defines psychological empowerment as "a process by which individuals gain control over their lives" (in Spreitzer, 1995a).

Spreitzer focuses much of her research on psychological empowerment in the workplace, rather than on the related and more traditional research area of employee empowerment by management (Kinlaw, 1995; Blanchard, et al., 1996; Plunkett & Fournier, 1996). Expanding upon the work of Thomas and Velthouse, she uses a constructionist view of empowerment: "a constructionist viewpoint holds that individuals'

perceptions of empowerment are shaped by subjective appraisals of the environment" (Miranda, 1999, p. 3). To Spreitzer, four distinct, yet interrelated components comprise an individual's perceptions of his or her empowerment in the workplace: meaning, competence, self-determination, and impact.

Spreitzer (1995a) suggests that the consequences of psychological empowerment are effectiveness and innovative behavior. Further, Spreitzer (1995a) concludes that one component of her empowerment model, self-determination, is particularly important for learning. "Self-determination results in learning, interest in activity, and resilience in the face of adversity" (p. 1448).

The majority of the literature on the psychological perspective of empowerment focuses on construct/theory building and qualification and quantification of workers' experiences of psychological empowerment (Rulle, 1999; Schleusener, 1999; Schroeder, 1998; Spreitzer, 1992, 1995a; 1995b, 1996, 1997). Recent research has investigated the relationship between psychological empowerment to other variables, such as organizational commitment (Wiley, 1999) and organizational climate (Miranda, 1999). To date, there is little research on how to directly influence psychological empowerment in the workplace. One variable that may stimulate psychological empowerment in the workplace is reflection.

Reflection

Zimmerman (in Spreitzer, 1995a) states that, "For individuals to feel empowered, they must have a critical awareness of their environment." Organizational and management theorists, as well as adult learning theorists, have long emphasized the importance of reflection for workers (Argyris, Putnam, & Smith, 1985; Brookfield, 1987;

Mezirow, 1990; Schön, 1983, 1987). Brookfield (1987) states, "Fostering critical thinking at the workplace is something we should support not simply because of the benefits to be derived from higher productivity and greater worker satisfaction; rather, we should recognize the opportunity to exercise critical thought at the workplace as one of the chief ways in which we affirm our identities" (p.161). Further, much like psychological empowerment, reflective learning is now recognized as a key factor in workplace success (Harback, 2000). Researchers investigating the results of explicit instruction on reflection in the workplace note outcomes such as increased learning (Daudelin, 1996), and enhanced work performance (Frayne & Geringer, 2000; Rigano & Edwards, 1998).

In this study, workers used electronic learning logs—a form of personal reflection journal. The log was used to prompt reflection. The literature suggests that reflection expressed through such learning logs/journals can foster professional development through the use of stories that workers tell themselves and as a form of self-assessment (Gorman, 1998; Hobson, 1996; Marienau & Fiddler, 1997; Swenson, 1988). The very act of chronicling one's responses to daily learning activities, be they formal or informal, forces one to examine one's knowledge, perceptions, and role in an organization. In his seminal work on the learning organization, Senge (1990) refers to this practice as changing one's mental models. As Orem states, "An effective application of journal writing can convince practitioners of their own innate ability to make meaning of their professional lives" (1997, Applications of Findings to Practice section, ¶1). Moving beyond meaning making is the hope that workers will act upon their new frames of reference, that is, empower themselves. Schank, who has done extensive work with story

and narrative in the workplace, concludes, "People learn from what happens to them, and they guide their future actions accordingly" (1990, p. 1). Lakoff and Johnson note that, "The process of self-understanding is the continual development of new life stories for yourself" (1980, p. 233). It may be that active reflection through journaling gives workers the "subjective appraisals of the environment" that Miranda (1999, p. 3) noted would shape their perceptions of empowerment.

Significance

Claxton (1999) writes "In the age of uncertainty, the development of individual learning power is clearly a top priority" (p. 313). He maintains that successful learners and workers in this age of uncertainty will possess three qualities: resilience, resourcefulness, and reflectivity. While there is no empirical evidence directly linking psychological empowerment to the development of individual learning power, two of these qualities, resilience and resourcefulness, are documented outcomes of psychological empowerment—the dependent variable in this study (Spreitzer, 1997). The third quality, reflection, serves as the independent variable.

In this study, a refinement of Spreitzer's model of psychological empowerment was developed and tested. This refined model posits that active reflection can directly influence psychological empowerment. In the developed theoretical model, psychological empowerment remains a variable that mediates between a set of social structural antecedents (independent variable) and a set of behavioral outcomes (dependent variable). However, the focus of this study is on the segment of the model pertaining to the relationship between reflection and psychological empowerment. Therefore, no measures will be taken of participants' perceptions of social structural

antecedents or of behavioral outcomes. This strategy does not refute the importance of the work environment to an individual's perception of psychological empowerment; it merely seeks to examine an alternative, and perhaps more efficient, means of helping workers achieve psychological empowerment. Such a strategy readily aligns with the constructivist and intrapersonal or subjective view of empowerment espoused by Spreitzer (1995a, 1995b, 1997).

This study contributes to the body of research on workplace learning. Because of its focus on the individual worker, it serves as a counterpart to the growing trend toward focusing on the learning organization and team learning. It emphasizes the individual worker as the "subject" of his or her own career development. It is of particular relevance to those in the fields of human capital development, professional development and learning, and industrial-organizational psychology.

Research Objectives

This study addresses the following questions:

1. How does reflection influence the gestalt of psychological empowerment?
2. How does reflection influence the individual dimensions of psychological empowerment: meaning, competence, self-determination, and impact?
3. Do ons ite and offsite employees possess different levels of the four dimensions of psychological empowerment?
4. W hat will be the proportion and qualities of the four dimensions of psychological empowerment found in the written self-report journals of participant workplace learning?

While this is an exploratory study of the developed model, it is predicted that those who use active reflection will demonstrate increased levels of psychological empowerment as measured by the total score on Spreitzer's scale. No specific hypothesis is offered regarding the effects on the individual dimensions of psychological empowerment: meaning, competence, self-determination, and impact.

To address the research questions, this study employs a design developed through an analysis of relevant theory, research, and recent practices for both reflection and psychological empowerment. Spreitzer's model is used as a theoretical basis for the understanding of psychological empowerment in the workplace. Her survey is used to measure psychological empowerment. Participants' practice of reflection is guided by a set of reflective questions for each month of the study. In addition, a content analysis of the learning log entries is conducted seeking evidence of the four cognitions of psychological empowerment as defined by Spreitzer.

CHAPTER II. REVIEW OF THE LITERATURE

This study examined the influence of reflection on psychological empowerment in the workplace. The literature reviewed as a foundation for this study focused on the following topics for both reflection and psychological empowerment: construct development and definition, relevant theories and models (including antecedents and outcomes), and interventions that sought to influence the variables. In addition, special attention was given to the relationship between the variables reflection and psychological empowerment. The primary source literature for each cognitive element of psychological empowerment—meaning, competence, self-determination, and impact—was reviewed for discussion of reflection. During the review, it became clear that the outcomes of reflection and the outcomes of the cognitions of psychological empowerment were intermixed. Further, there was an intermix of the outcomes of reflection and the outcomes of psychological empowerment. It also became clear that Spreitzer's existing model of psychological empowerment would not suffice for this study. Instead, a new model, a variation on Spreitzer's model, is proposed. This new model serves as the basis for this study.

Empowerment in the Workplace

The Construct of Empowerment

The construct of empowerment was encountered in widely disparate bodies of literature. Beginning in the 1970s, it was addressed in the fields of community

psychology, mental health, and social work (Solomon, 1976; Rappaport, 1981). It has also been addressed in the fields of liberatory education (Friere, 1970) and feminism (Ashcraft, K. L., & Pacanowsky, M. E., 1996; Chase, 1995). In the 1980s and beyond, empowerment has been addressed in the organizational and management literatures (Conger & Kanungo, 1988; Sparrowe, R.T., 1994 [in Liden & Arad/1996]).

Though many definitions of empowerment were found in the literature, most authors viewed empowerment as a process. Outside of the workplace, authors viewed empowerment as a process that enabled powerless individuals to transform their lives through a recognition and understanding of the power structures in their milieus (Gutierrez, 1990; Zimmerman, 1990). Authors who focused their research on empowerment in the workplace did not address the issue of powerlessness. Instead, they offered a more socially and politically neutral definition, and "suggest that increases in individual influence and control evolve over time as the result of changes in work structure/environment and personal skills and knowledge" (Liden & Arad, 1996, p. 207).

There are two dominant perspectives of empowerment in the workplace—one, the management empowerment of employees and two, the psychological empowerment of employees. The former perspective was alternatively referred to as "the relational perspective" (Spreitzer, 1997) or as the "macro approach" (Liden & Arad, 1996); the latter perspective was alternatively referred to as "the psychological perspective" (Spreitzer, 1997) or the "micro approach" (Liden & Arad, 1996). These two perspectives are not mutually exclusive and co-exist in the workplace. Further, Spreitzer (1997) and others (Kraimer, Seibert, & Liden, 1999; Liden & Arad, 1996) believed psychological empowerment might have been an outcome of relational empowerment. Both

perspectives focused on employee motivation: in general, management empowerment of employees addressed extrinsic motivation; psychological empowerment addressed intrinsic motivation (Conger & Kanungo, 1988; Thomas & Velthouse, 1990). Further, all of the models of psychological empowerment discussed in this chapter had management interventions embedded in them.

The roots of the management empowerment of employees were traced back to the 1960s and McGregor's "Theory X and Theory Y" (Kinlaw, 1995). McGregor (1960) posited that managers developed their styles in large part based on how they viewed employees. Theory X managers believed that workers must be coerced and directed in their work. Theory Y managers believed that the most significant rewards for workers were "satisfaction of ego" and "self-actualization." However, many current texts on empowerment strayed quite far from what McGregor intended in their adoption of Theory Y as the viewpoint for their empowerment models and were in actuality closer to Theory X (Potterfield, 1999; Spreitzer, 1995a).

To foster the empowerment of employees, researchers and practitioners developed a variety of models for implementing empowerment initiatives in organizations (Kinlaw, 1995; Blanchard, et al., 1996; Plunkett and Fournier, 1996). Examples of these models are reengineering, total quality management and self-managed teams. The common thread in these models was that employees needed to be empowered though a gradual shifting and sharing of power; power was granted to employees by management.

The presumption that the behavioral outcomes of psychological empowerment, and empowerment in general, formed the genesis of interest in this construct, was not explicitly addressed in the literature, particularly the management literature. The

literature belied no biases or purposes other than the objective building of theory and subsequent practices. Some organizational theorists questioned the study and practice of empowerment within organizations. Potterfield (1999) in particular viewed empowerment practices in corporations as a mere co-opting of the concept of empowerment from other fields, such as community psychology. He wrote, "Companies need workers to behave in 'empowered' ways, and empowerment can be seen as a particular tool for achieving the business goals of business leaders" (p. 38).

Adding to the complexity of the definition of empowerment was the debate about whether empowerment is in fact a separate construct from power. Authors such as Liden and Arad (1996) argued that empowerment should be subsumed within the construct of power in an effort to reconcile the two dominant perspectives of empowerment. Conger and Kanungo (1988) viewed management empowerment initiatives as essentially dealing with power, while viewing the perception of empowerment as a motivational construct. They wrote, "Power in this motivational sense refers to an intrinsic need for self-determination or a belief in personal self-efficacy" (p. 473). The debate over the independence or dependence of the construct of empowerment diminished neither its importance nor its appropriateness as a research topic.

Psychological Empowerment

The literature on psychological empowerment focuses on the means by which individuals empowered themselves, the recording of that experience, the feeling or the perception of empowerment, and the outcomes of empowerment. Theorists, researchers, and practitioners from a variety of fields, stressed the importance of the individual

perception of empowerment: organizational studies, (Conger & Kanungo, 1988; Manz & Sims, 1989; Potterfield, 1999; Thomas & Velthouse, 1990), psychology (Rappaport, 1981; Zimmerman, 1988), and sociology (Alinsky, 1971; Boyte & Riessman, 1986). The evolution of the model of psychological empowerment began as disparate areas of theory building and research in a variety of fields. In particular, the work of Bandura (1977, 1986) on self-efficacy, or competence, and the work of Deci (1975) on intrinsic motivation or self-determination laid the groundwork for the construct of psychological empowerment. The particular model of psychological empowerment used as a basis for this study was developed directly from the works of Conger and Kanungo (1988) and Thomas and Velthouse (1990).

Conger and Kanungo (1988) equated empowerment to Bandura's concept of self-efficacy. They proposed a process model of empowerment consisting of five sequential stages: 1) an organization's examination of its disempowering practices, such as an inequitable reward system; 2) explicit management intervention strategies, such as participative management; 3) providing feedback to employees about their behaviors to increase their competence; 4) employees experience empowerment, and 5) expected outcomes occur. Though they did not explicitly use the term psychological empowerment, Conger and Kanungo's Stage 4 (increase in performance expectancy or belief in personal efficacy) recognized the importance of the experience of empowerment.

Building on the work of Conger and Kanungo, Thomas and Velthouse (1990) developed a cognitive model of empowerment. Citing the limitations of the positivist paradigm and its insistence on an objective, verifiable reality, they wrote, "...our model

applies a soft constructionist perspective" (p. 669). Their model differed from Conger and Kanungo's in the following ways: it explicitly classified empowerment as a type of motivation—intrinsic; it acknowledged the importance of self-efficacy, and added three additional components that resulted in the perception of empowerment: meaningfulness, choice, and impact.

Spreitzer's Model of Psychological Empowerment

To Spreitzer, empowerment "is an interaction of person and situation. Empowerment reflects the ongoing ebb and flow of one's perceptions about the covariation among the self (as agent), behavior, and outcomes (Spreitzer, 1997, p. 50). She initially developed a measure of psychological empowerment within the workplace to validate the work of Thomas and Velthouse (1992, 1995a, 1995b). Her later work focused both on further refinement of the construct of psychological empowerment and the further validation of her instrument (1996, 1997).

Spreitzer's model of psychological empowerment, shown in Figure 1, was essentially a distillation of Thomas and Velthouse's model, emphasizing the four "task assessments" (1990) of meaning, competence, self-determination, and impact. What Thomas and Velthouse called "task assessments," Spreitzer called "cognitions", equating them to cognitive empowerment. Spreitzer focused on one aspect of the Thomas and Velthouse model; she noted: "...it is the individual's self-perception of empowerment, rather than other's perceptions, that is appropriate to examine. It is the subjective nature of empowerment that is of interest" (Spreitzer, 1997, p. 49).

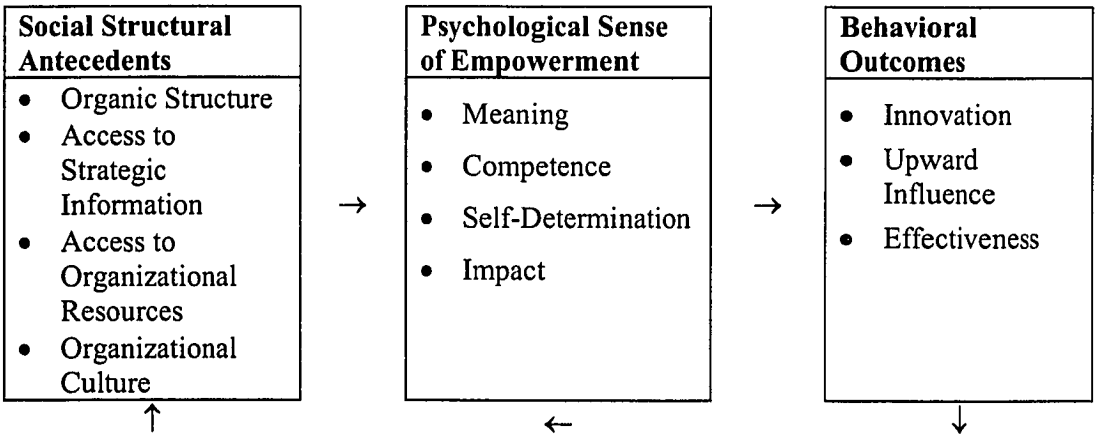

Figure 1. A theoretical model of individual empowerment in organizations. From *Research in organizational change and development, Vol. 10.* Greenwich, CT.: JAI PRESS INC. In W. Pasmore & R. Woodman (Series Eds.), 1997. Copyright 1997 by Gretchen Spretizer. Adapted with permission of the author.

Spreitzer (1997) defined the cognitions as follows. Meaning was described as "the value of a work goal or purpose, judged in relation to an individual's own ideals or standards" (p. 40). Her Psychological Empowerment Scale measured this cognition with the following items:

1. The work I do is very important to me.

2. My job activities are personally meaningful to me.

3. The work I do is meaningful to me.

Competence was equated with self-efficacy, and described as "an individual's belief in his or her capability to perform activities with skill" (p. 40). Her Psychological Empowerment Scale measured this cognition with the following items:

4. I am confident about my ability to do my job.

5. I am self-assured about my capabilities to perform my work activities.

6. I have mastered the skills necessary for my job.

Self-determination was described as "an individual's sense of having choice in initiating and regulating actions" (p. 41). Her Psychological Empowerment Scale measured this cognition with the following items:

7. I have significant autonomy in determining how I do my job.

8. I can decide on my own how to go about doing my work.

9. I have considerable opportunity for independence and freedom in how I do my job.

Impact was described as "the degree to which an individual can influence strategic, administrative, or operating outcomes in the organization or larger environment" (p. 43). Her Psychological Empowerment Scale measured this cognition with the following items:

10. My impact on what happens in my department is large.

11. I have a great deal of control over what happens in my department.

12. I have significant influence over what happens in my department.

All four of these beliefs are required for an employee to perceive empowerment. Spreitzer, et al. (1997) wrote "These dimensions are not predictors or outcomes of empowerment, but rather comprise its very essence" (p. 681). She described an empowered individual as one who:

> (a) finds meaning in his or her role involvement, (b) feels efficacious with respect to his or her ability and capacity to perform, (c) has a sense of determination with regard to specific means to achieve a desired outcome within his or her role, and (d) believes that the individual has control over

> desired outcomes, that he or she can have an impact on the larger environment. (p. 49)

Antecedents of psychological empowerment.

Theoreticians and researchers viewed psychological empowerment, or the perception of empowerment, as a consequence of a variety of factors. These factors included environmental elements, such as employee access to information (Conger & Kanungo, 1988), and management interventions, such as reward systems and job enrichment (Thomas & Velthouse, 1990). These antecedents were generally controlled by management within organizations; they relied on an organization recognizing the impact of its practices and then examining and, if necessary, changing them. No discussion was included about methods that individual employees could take to empower themselves.

In Conger and Kanungo's process model (1988), psychological empowerment resulted from three sequential stages: 1) an organization's examination of its disempowering practices, such as an inequitable reward system, 2) explicit management intervention strategies, such as participative management, and 3) providing feedback to employees about their behaviors to increase their competence, and eliminate any disempowering practices found in Stage 1. Similarly, Thomas and Velthouse's model of psychological empowerment, or intrinsic motivation (1990), incorporated both environmental factors and explicit management interventions. Further, Thomas and Velthouse mapped a set of environmental factors to the task assessments that they believed were most impacted by them per their interpretations of empirical studies. For example, they linked a charismatic leadership style to competence and meaningfulness,

and equitable reward systems to competence and choice. In Spreitzer's model (1997, refer to Figure 1), the set of antecedents were grouped under the term "social structural antecedents" (p. 51). These social structural antecedents of psychological empowerment were as follows: organic structure ("Less hierarchical and bureaucratic structures" p. 51), access to strategic information and access to organizational resources ("access to sources of system power" p. 51), and organizational culture ("which values the human assets of the organization" pp. 51-52).

Only Thomas and Velthouse and Spreitzer addressed characteristics of the individual employee as antecedents of psychological empowerment. Thomas and Velthouse (1990) suggested that there were two different, yet simultaneous, ways that shaped an individual's task assessments of meaning, competence, self-determination, and impact. These are: interpretive style and global assessments. Interpretive style, or the way in which individuals interpreted feedback and other environmental elements, impacted their task assessments. To address this issue, the authors suggested that organizations institute interpretive style interventions; that is, make employees aware of their negative interpretive styles and teach them to replace them with more objective and positive interpretive styles. It is significant that Thomas and Velthouse viewed interpretive style as a learned habit, not as a personality trait. Global assessments were more "generalized beliefs" (p. 669) that an individual held based on his or her past behaviors and experiences. Whether global assessments equated to personality traits is debatable. For example, while Thomas and Velthouse suggested that the global assessment of impact was similar to Rotter's locus of control (Rotter, 1966), they further

explained that "although locus of control has been treated as a personality variable, research also has shown that it changes over time to reflect new experiences" (p. 674).

Spreitzer, in an early version of her model of psychological empowerment (1995a), examined two personality traits—self-esteem and locus of control—as antecedents of psychological empowerment. She found that self-esteem was significantly related to psychological empowerment, but that locus of control was not. Spreitzer cautioned that it may have been the inadequacy of the measure used that caused such results. Though Spreitzer's later works no longer included these variables in her model, she contended that more research needed to be done on personality traits as antecedents of psychological empowerment (Spreitzer, 1997).

Outcomes of psychological empowerment.

When proposing behavioral outcomes for their models of psychological empowerment, most theoreticians relied heavily on the work of prior theoreticians and researchers on the individual components of the models, rather than empirically validating their theories themselves. Conger and Kanungo (1988) listed two behavioral outcomes of psychological empowerment in Stage 5 of their model of empowerment: initiation and persistence of behavior to accomplish tasks. In their brief discussion of the behavioral effects of empowerment, they cited only one source, Bandura. Thomas and Velthouse (1990), concurred with Conger and Kanungo, and added the following outcomes: activity, concentration, and flexibility. Again, support for the outcomes of their model lay with Bandura (1977) for competence; with May (1969), Kanter (1968) and Sjoberg, Olsson, and Salay (1983) for meaning; with Deci and Ryan (1985) for self-determination; and with Abramson, Seligman, and Teasdale (1978) for impact.

Spreitzer's list of behavioral outcomes of psychological empowerment—innovation, upward influence, and effectiveness—was drawn from the work of Conger and Kanungo (1988), Thomas and Velthouse (1990), along with other organizational theorists: Kanter (1993) and Vogt and Murrell (1990). In addition, Spreitzer relied on her own empirical research (Spreitzer, 1995b). Spreitzer and others (Bolton & Brookings, 1998; Spreitzer, et. al., 1997) also maintained that a sense of psychological empowerment gave one an active orientation towards work.

Spreitzer, along with Kizilos and Nason (1997), has also investigated the affective outcomes of psychological empowerment, focusing on job effectiveness, job satisfaction and perceived job-related strain. The results suggested that "the four dimensions of empowerment together are modest, yet differential predictors of the different anticipated outcomes of empowerment" (p. 700).

Psychological empowerment as a mediating variable.

Mediator variables help to explain the relationship between two other variables, an independent (predictor) variable and a dependent (criterion) variable. In essence, a mediator variable is an intervening variable (James & Brett, 1984). Per Baron and Kenny, "Mediators explain how external physical events take on internal psychological significance" (1986, p. 1176). The relationship of variables in a mediating relationship is shown in Figure 2.

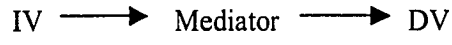

Figure 2. Mediator variable effects

Mediation is generally classified as "full" or "partial". In full mediation, the effect of the independent variable on the dependent variable is completely through the mediator variable. In essence, the relationship between the independent variable and the dependent variable can only be explained by the presence of the mediator variable; there is no direct linear relationship between the independent variable and the dependent variable. In partial mediation, the effect of the independent variable on the dependent variable occurs partially through the mediator variable, but also partially through a direct, linear relationship.

Figure 3 depicts the potentiality of both full and partial mediation effects. If full or complete mediation is in effect, then path 'c' (IV → DV) approaches (and theoretically, is reduced) to zero. The independent variable influences the mediator variable (path 'a'), which in turn influences the dependent variable (path 'b'). If partial mediation is in effect, then path 'c' (IV → DV) is greater than zero. The effects of the independent variable on the dependent variable occur simultaneously through path 'c' and through paths 'a' and 'b'.

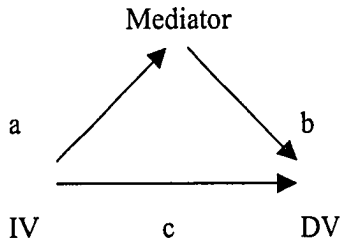

Figure 3. Full and partial mediation effects

Spreitzer (1997) treated psychological empowerment as a variable that mediates between a set of social structural antecedents—organic structure, access to strategic information, access to organizational resources, and organizational culture—and a set of behavioral outcomes—innovation, upward influence, and effectiveness. Per Spreitzer, "the mediator variable (i.e., empowerment) represents the generative mechanism through which the focal independent variable (i.e., perceptions of the social-structural context) is able to influence the dependent variable (i.e., individual behavior)" (p. 606). In a test of her model of psychological empowerment (Spreitzer, 1995b, p. 615), she reported "the social structural characteristics were significantly correlated with empowerment, and (b) empowerment was significantly correlated with the two behavioral outcomes." Support for the mediating effect of psychological empowerment was found in the work of other researchers, notably Frayne and Geringer (2000) and Liden, Wayne, and Sparrowe (2000), though they examined different antecedents and outcomes.

Frayne and Geringer (2000) examined the mediating effects of self-efficacy (also known as "competence") and outcome expectancy on job performance of sales personnel, as one question in a study of the effects of self-management training on job performance (This study is discussed in detail in the next section of this chapter: "Psychological Empowerment and Interventions"). The results suggested that self-efficacy only partially mediated between the independent variable (training) and subsequent job performance measures of calls made, policies sold, sales revenue, and performance appraisal. Partial mediation was found between self-efficacy and sales revenue. Partial mediation was found between outcome expectancy and calls made and sales revenue. These findings are important in that they provide empirical evidence of the mediator effects of self-efficacy

and outcome expectancy between self-management training and performance. The mixed results in this particular study may be due to the way in which the performance measures were operationalized and to the fact that this is a single-site study.

Liden, et. al. (2000) examined the mediating role of psychological empowerment, as defined by Spreitzer, on four areas: 1) job characteristics, 2) interpersonal relationships between leaders and members, 3) interpersonal relationships between team members, and 4) work outcomes, expressed as the dependent variables work satisfaction, organizational commitment, and job performance. Using a series of correlation and regression techniques, the following results were found: the dimension of "meaning" completely mediated between job characteristics and organizational commitment; "meaning" partially mediated between job characteristics and work satisfaction; and "competence" partially mediated between job characteristics and work satisfaction.

Though both Spreitzer's (see Figure 1) and Thomas and Velthouse's (1990) models of psychological empowerment indicated that behavioral outcomes looped back to influence antecedents of psychological empowerment, there was little or no explicit discussion of this effect in the works of these authors. Thomas and Velthouse merely noted that behaviors could affect environmental elements, which would then affect task assessments, creating a loop or cycle; Spreitzer did not address this issue.

Support for Spreitzer's Model

To establish construct validity for her model of psychological empowerment, Spreitzer (1997) reviewed the literature on the four cognitions of empowerment. For each cognition, she reviewed literature from the following areas: organization studies, psychology, religion, and sociology, and found 150 themes. Two independent raters

were able to sort the data from these themes into the four cognitions. Inter-rater reliability was 0.72.

Further, Spreitzer attempted to corroborate the findings from the literature review through a series of interviews with workers. She conducted a rudimentary content analysis of the interview text, searching for evidence of the four cognitions. The reported results were as follows: meaning was found in 18 of 18 interviews; competence was found in 17 of 18 interviews; self-determination was found in 17 of 18 interviews; and impact was found in 15 of 18 interviews. Generalizing from these results was difficult as Spreitzer conducted the coding herself.

Despite an acknowledgement in the literature of the lack of a consistent definition of psychological empowerment (Miranda, 1999; Potterfield, 1999; Rulle, 1999; Schroeder, 1998), there is an increasing body of support for Spreitzer's definition of empowerment and for her four-dimensional model of psychological empowerment. Researchers finding themes of psychological empowerment that matched or were similar to those used by Spreitzer included Rulle (1999) and Schroeder (1998).

Rulle (1999) conducted a qualitative field study of non-supervisory, health care employees' perceptions of empowerment. His analysis of the employee interviews found five recurrent themes: impact, competence, autonomy, meaning of work, and relationship with supervisor. The first four themes equated to Spreitzer's four cognitions. The fifth theme, relationship with supervisor, was included in Spreitzer's antecedents of psychological empowerment.

Similarly, Schroeder (1998) conducted an investigation of individuals' empowerment at work. His participants were a heterogeneous group of utility workers.

Through a series of interviews, surveys, card sorts, feedback groups, and a review of personnel records, he identified two types of individual empowerment: instrumental and self-authorizing. Instrumental empowerment contains four components—competence, impact of effort, resource access, and choice. Competence, impact of effort, and choice equated directly to three of Spreitzer's four cognitions of psychological empowerment. Resource access equated to one of Spreitzer's social structural antecedents of psychological empowerment: access to sources of system power. Self-authorizing empowerment extended Spreitzer's model; it was defined as "an individual's self-perceived ability to be self-leading and self-expressive in the context of work achievement" (p. xiv). The components of self-authorizing empowerment were credibility, respect, alignment, and opportunity to exit.

Miranda (1999) examined the relationship of organizational culture, organizational climate, and burnout to perceived empowerment among sixty-eight workers in a human services organization. Measures administered included Spreitzer's Psychological Empowerment Scale, the Organizational Culture Inventory, the Work Environment Scale, and the Maslach Burnout Inventory (MBI). Psychological empowerment was positively correlated both to a constructive culture ($r = .32, p < .05$) and to a positive climate: innovation ($r = .36, p < .01$); involvement ($r = .35, p < .01$); autonomy ($r = .28, p < .01$). Inverse relationships between these variables were not found, with the exception of a mildly significant correlation between self-determination and work pressure ($r = -.24, p < .05$).

Wiley (1999) investigated the impact of locus of control and empowerment (psychological and organizational) on organizational commitment. The sample consisted

of 171 employees of public service organizations in the fields of health and education. In addition to Spreitzer's Psychological Empowerment Scale, the following measures were used: Organizational Empowerment Questionnaire, Work Locus of Control Scale, and Organizational Commitment Questionnaire. A statistically significant relationship ($p <$ .01) was found among all three predictor variables and the criterion variable, organizational commitment.

Psychological empowerment and work location.

Advances in workplace technology have increased the numbers of remote employees, particularly in the software industry and in the information technology departments of organizations. Recent research has begun to examine the cultural impact of the virtual organization, including the psychological effects of work location on remote employees. Staples, Hullan, and Higgins (1998) developed and tested a model of the perception of remote work self-efficacy and its effects. In this study of 376 remote employees in 18 organizations, Staples, et. al. (1998, ¶1) concluded that "remote employees' self-efficacy assessments play a critical role in influencing their remote work effectiveness, perceived productivity, job satisfaction, and ability to cope."

The merits of remote work, or telecommuting, itself are viewed differently by managers and their employees. Per DeSanctis (1984), managers tend to focus on the problems of telecommuting, while their employees tend to focus on the benefits of telecommuting. These disparate foci may impair work relationships and worker self-perception.

Though not explicitly addressed by Spreitzer or by other researchers of psychological empowerment, work location may have an effect on psychological

empowerment of employees. Staples, et. al.'s (1998) model examining remote work self-efficacy treated self-efficacy as a mediator variable, operating between a set of social structural antecedents (remote work experience and training, information technology and training, modeling best practices by manager, computer anxiety, physical conditions, and connectivity) and a set of behavioral and affective outcomes (remote work performance, job satisfaction, ability to cope, organizational commitment, and job stress) that are analogous to those used by Spreitzer in her model of psychological empowerment. Because 31% of the host organization's U.S.-based employees work remotely, the question of work location and its effect on psychological empowerment was addressed in this study.

Psychological Empowerment and Interventions

Little formal research was found indicating that specific training focusing attention on one's language and thought actually increased either the gestalt of psychological empowerment or of its four cognitions. Thomas and Velthouse (1990) suggested that interpretive style was a learned habit that could be corrected by training (p. 677). Judge and Locke's research (1993) suggested that an employee's negative thoughts would cause his or her perception of well-being and job satisfaction to diminish. Studies conducted by Frayne and Geringer (2000) and by Neck and Manz (1996) suggested that there could be an improvement in self-efficacy through explicit instruction.

Frayne and Geringer (2000) demonstrated that explicit self-management training improved the job performance of salespeople. They defined self-management as "an effort by an individual to exert control over certain aspects of his or her decision making and behavior. Self-management can be viewed as a set of behavioral and cognitive

strategies..." (p. 361). In this study, 60 insurance salespeople who had volunteered for self-management training were randomly assigned to control and experimental groups. Participants in the experimental group were given individual training during two-hour sessions for a period of four weeks.

Five outcome variables—reaction (to the training's relevancy and methodology), learning (acquisition and retention of knowledge), self-efficacy (beliefs about obstacles that might hinder sales performance), outcome expectancy (positive and negative consequences for job performance), and job performance—were measured at five times: prior to the training, and at three, six, nine, and twelve months following the training for both groups. The results for all variables were statistically significant for the experimental group. Twelve months after the start of the program, the control group received the same instruction that was given to the experimental group; they also received the same measures. The results for the control group were very similar to that of the experimental group. Frayne and Geringer concluded that the "results seem to indicate that training had a large immediate positive effect on self-efficacy as well as a smaller, but significant, positive effect throughout the following year."

Neck and Manz (1996) conducted a training intervention-based study on what they called "thought self-leadership" or TSL. They wrote that "TSL proposes that employees in organizations can influence or lead themselves by utilizing specific cognitive strategies. These strategies include self-management of individual self-dialogue, mental imagery, and beliefs and assumptions" (p. 446). This intervention was similar to that recommended by Thomas and Velthouse (1990) to remediate negative interpretive styles. This pre-test, post-test field study was conducted on 48 employees of

the Agency Accounting Department of America West Airlines. Participation in the study was voluntary.

Participants in the training (experimental) group received two hours of instruction per week for a period of six weeks on the use of mental strategies, stressing the impact of self-talk, the impact of mental imagery, and the importance of questioning one's beliefs and becoming cognizant of one's thought patterns. The control group received the same training following the completion of training for the experimental group. Further, the control group was aware that they would receive the same training as the other group. Thus, as the researchers noted, the control group functioned as a "'quasi' placebo control group" (p. 449).

A variety of questionnaires and scales were used to measure performance, attitudes, mental performance, reaction, and self-efficacy. In addition, as America West Airlines was going through bankruptcy proceedings during the study, "bankruptcy perception" was also measured using a researcher-designed scale. The results "suggested that individuals who received the thought self-leadership training experienced increased mental performance, positive affect (enthusiasm), job satisfaction, and decreased negative affect (nervousness) relative to those not receiving the training" (p. 460).

Of special interest for this study were the results on the self-efficacy scale. Only a marginally significant difference was found between the training group ($M = 19.750$) and the control group ($M = 17.917$) following the training. As the participants in the study were self-selected and therefore had an interest in TSL, and possibly a belief in its power, they may already have had high levels of self-efficacy. Therefore, it would be difficult to effect a significant increase in the level of self-efficacy based on the treatment.

Neither the models of psychological empowerment nor any of the interventions reviewed explicitly mentioned reflection as a means of fostering psychological empowerment in the workplace. The next section covers the importance of reflection in work lives. It establishes the theoretical and empirical bases for establishing a relationship between psychological empowerment and reflection.

Reflection in the Workplace

The Construct of Reflection

The importance of reflection to our everyday lives and personal development has been stressed by educational philosophers and theorists (Dewey, 1933), educational practitioners (Meier, 1995), adult educators (Houle, 1961; Knowles, 1978; Lindeman, 1926; Tough, 1979) and cognitive scientists (Claxton, 1997, 1999; Vygotsky, 1962) since at least the early twentieth century. In the latter half of the twentieth century and into the twenty-first century, the importance of reflection had also been recognized by organizational learning theorists as a key component to professional success (Argyris, 1985; Brookfield, 1995; Schön, 1983; Senge, 1990). Because reflection, much like empowerment, is represented in such a wide variety of literature, it was important to determine the appropriate definition to use for this study.

The Discourse of Reflection

Within the field of adult education, which overlapped with workplace learning, reflection was often imbued with social and political ramifications (Brookfield, 1995; Mezirow, 1991). The construct of reflection, as it pertained to workplace learning, was viewed as a continuum ranging from critical reflection on one end and the simpler notion of reflection on the other. In reviewing the literature, it was also important to separate as

much as possible the purposes of reflection (workplace learning, social awareness and action, and so forth), and to consider the ways in which the reflection was conducted (in teams, individuals, other groupings).

The following broad-ranging definition of critical reflection was offered by Brookfield (1995), whose work crossed the boundaries of adult education and workplace learning:

> As an idea critical reflection focuses on three interrelated processes: (1) the process by which adults question and then replace or reframe an assumption that up to that point has been uncritically accepted as representing commonsense wisdom, (2) the process through which adults take alternative perspective on previously taken for granted ideas, actions, forms of reasoning and ideologies, and (3) the process by which adults come to recognize the hegemonic aspects of dominant cultural values and to understand how self-evident renderings of the 'natural' state of the world actually bolster the power and self-interest of unrepresentative minorities.

Mezirow (1991), whose work on transformative learning in adults was based on Habermas' emancipatory philosophy of knowledge, proposed three types of reflection that resulted in different outcomes. Content reflection was reflection on what the learner perceived. Process reflection was an evaluation of how the learner conducted content reflection. These two types of reflection resulted in what Mezirow termed "reflective learning" (p. 109). Premise reflection followed content and process reflection, and required the learner to question his or her own beliefs and the status quo of his or her milieu. Premise reflection was analogous to Brookfield's definition of critical reflection.

When selecting a definition of reflection that was compatible with the construct of psychological empowerment, particularly a definition that would allow for reflection serving as a potential precursor to psychological empowerment, it was appropriate to use this simple definition from Seibert and Daudelin (1999): "the cognitive examination of experience" (p. 3). The term 'examination' in their definition encompasses an element of criticality; as defined in Webster's New World Dictionary, 'examination' means "to look at or into critically or methodically". Seibert and Daudelin's definition is similar to Dewey's in intent, but not as elaborate in its insistence on the examination of the grounds and conclusion of any belief (Dewey, 1910). Further, it was analogous to Mezirow's content and process reflection and to Argyris and Schön's (1974) single-loop learning.

Though Seibert and Daudelin's definition sufficed for a view of reflection as metacognition, it was the act of reflection that was of interest for this study, not the cognitive state. Such a simple definition of reflection was in keeping with that of psychological empowerment, as defined by Spreitzer (1997) as a contextual variable, not a personality variable. For the purposes of this study, it was neither required nor expected that participants would become transformed, as the term was defined by Mezirow, through a process of critical reflection. Choosing the simpler definition of reflection did not preclude study participants from engaging in critical reflection; it acknowledged that such reflection was not necessary to influence psychological empowerment.

Though there was disagreement among theoreticians, researchers, and practitioners (Brookfield, 1995; Dewey, 1910; Mezirow, 1991; Seibert & Daudelin, 1999) on the exact definition of reflection, there was agreement that the importance of

reflection stemmed from its outcome: change, brought about through a new perspective on personal meaning (Boyd & Fales, 1983; Brookfield, 1995; Freire, 1970; Mezirow, 1991). The concept of meaning perspective is alternatively referred to in the literature as "mental maps" and as "mental models" (Senge, 1990).

A term synonymous with reflection in the literature was mindfullness, or purposefully focused attention (Langer, 1989; Novak, 1998; Watkins & Marsick, 1993). Benefits of mindfulness included the ability to control the knowledge we attain (Novak, 1998) and "satisfaction, flexibility, innovation, and leadership ability" (Langer, 1989, p. 133). Watkins and Marsick (1993) contended that "People can learn without paying much attention to what they are learning. However, to maximize the benefits of much workplace learning, people needed to bring what they are learning into conscious awareness. They learned more effectively through a process of questioning, reflection, and feedback from others that permits deeper understanding to emerge from these otherwise everyday activities" (p. 26).

Reflection and Organizational Learning

Many organizational learning theorists included a reflective component in their models of workplace learning. In these models, reflection did not typically stand alone as a means of fostering change; instead it was part of a cycle that ultimately resulted in action taken on the changed meaning perspectives gained from reflection, and then subsequent reflection on the action taken. This nexus was noted in the terms associated with the models. Schön, (1983, 1987, 1991, 1994) used the term "reflective practitioner". Argyris (1985) used the term "action science". Watkins and Marsick (1993) termed their model the "Continuous Work and Learning Model."

Argyris and Schön (1974, 1978) contrasted two types of learning for the workplace: single-loop and double-loop. Single-loop learning required workers to examine the outcomes of their actions, and remedy mistakes through implementing alternative actions and approaches. Double-loop learning required that workers examine the situation comprehensively rather than simply recommend alternative approaches. It was double-loop learning that resulted in long-term learning and development.

Each of these models entailed reflection on actual experiences in the workplace. They were similar to Kolb's experiential learning model (1984) that required not only reflective observation on a concrete experience, but also active experimentation of alternative responses to situations. None of these models included journaling as a means of fostering reflection. Further, each of these models was generally administered by management to stimulate reflection; as such, they are analogous to the "management perspective" of empowerment in the workplace and were not under the control of the workers themselves.

Reflection and Learning Logs

The body of theoretical and research literature where learning logs/journals were associated with reflection suggested that learning logs could be effective in professional development and in fostering transfer of training. In his analysis of how adults conducted their own learning projects, Tough (1979) noted that some adults used learning logs as an opportunity "to analyze, reflect, and gain insights regarding the planning and execution of personal learning projects" (p. 67) with no prompting to do so, suggesting that journaling was a natural method of reflection, and its use as an intervention in the field would perhaps be less artificial than other types of reflective interventions.

The work of theoreticians and researchers recommending the use of learning logs to foster reflection did not include an associated "action" component, unlike that of many organizational learning theorists, unless one considered the very act of reflection and subsequent journaling to be an action. The issue of measuring the effectiveness of reflective journaling through self-reports versus performance was not addressed in the literature.

Types of Learning Logs

The research on types of learning logs was divided into two categories: the personal reflection journal and the dialogue journal (Kerka, 1996). In a personal reflection journal, individuals typically reflected on their experiences and noted insights gained from those reflections. Used outside of academic settings, the log entries were neither reviewed nor shared with others. In a dialogue journal, individuals typically responded to questions posed by a teacher/mentor. Individual's responses were then commented on by the teacher/mentor. In some situations, journal entries were shared with a group and discussed (Seibert & Daudelin, 1999).

The personal reflection journal was used almost exclusively in professional development settings (Hobson, 1996; Marienau & Fiddler, 1997; Swenson, 1988). The dialogue journal was used both in professional development settings and in academic settings (Furwiler, 1987; Permaul, 1982). Both types of journals and logging seemed to lead to outcomes of developing the capacity for reflection and making meaning (Kerka, 1996). An analysis of journal entries by both Clark (1994) and Grennan (1989) suggested that journaling reflected the same cycle of learning described by Kolb's (1984) model of experiential learning.

Learning Logs and Professional Development

For purposes of this study, it was determined that the personal reflection journal or learning log was most appropriate. Professional development was one area in which learning logs were recommended (Hobson, 1996; Marienau & Fiddler, 1997; Swenson, 1988). Marienau and Fiddler (1997) believed that a learning log could help with professional development when it functioned as a self-assessment tool. They wrote that "Telling stories about oneself, to oneself, is a wonderful place for self-assessment to start." Swenson (1988) concurred with Marienau and Fiddler, stating that, "a log can also be a tool for professional growth and development, particularly in the area of deepening professional self-awareness" (p. 307). Swenson (1988) wrote "The first and most important step is to become comfortable with the idea of taking charge of one's own professional learning and growth" (p. 307). Hobson (1996) wrote, "As a way of developing a reflective ongoing relationship with oneself and one's work, a journal is hard to beat" (p. 9).

Empirical evidence supporting the use of learning logs to foster professional development was sparse. Gorman (1998) was a high school writing teacher who kept a journal for a period of two months to help him implement changes in his teaching and to discover what worked, what didn't work, and why. He looked at four areas of concern about his teaching: creating a system of peer response and editing, providing an essay format on the chalkboard to improve structure, making students use asterisks and questions to add more detail to their papers, and writing better comments on students essays for better feedback. Gorman attested to the focus provided by keeping a reflective

journal, writing "The physical act of writing created concrete examples to focus my attention" (p. 435).

Learning Logs in Academic Settings

The research literature indicated that the use of learning logs might improve the transfer of conceptual information from coursework to daily living by undergraduate and graduate students (Ballantyne & Packer, 1995; Fisher, 1996; Thorpe & Loo, 1999). The results of the academic studies must be tempered with the knowledge that journal entries were sometimes graded and that some students may have inflated their opinions of the usefulness of journaling to please the instructor.

Fisher (1996) used journals in an undergraduate social psychology course. Based on responses to follow-up survey questionnaires and an analysis of journal entries, it was determined that journals were effective in helping students transfer conceptual information to their daily lives. The survey contained both open-ended questions and a series of statements to which students could indicate their level of agreement or disagreement. The majority of students felt that the journal entries helped them apply the course material to their everyday lives (35% agreed; 51% strongly agreed). The same was true for journal entries making the course more personally meaningful (27% agreed; 57% strongly agreed).

Similar results were found by Ballantyne and Packer (1995), who analyzed the journal entries of 13 Ed.D. students. They found that journals were useful for "reflecting on and connecting academic learning and experience." Participants listed the benefits of reflective journaling to include the ability to reframe their thoughts and to gain new insights on their experiences and practice.

Learning Logs and Reflective Questions

Various researchers have stressed the importance of clear instructions (Furwiler, 1987; Kekra, 1996) for directed journal or log projects. As Sommer (1989) noted, "as a completely open-ended assignment, journals are doomed to failure" (p. 115). Per Kekra, the following types of guidelines were important: explaining what a journal is, what to write, why it was being kept, and how it would be used.

Establishing a theme for journals (Cranton, 1994) and writing reflective questions to be answered were suggested by a variety of researchers. Researchers noted that specific, thought-provoking questions should be used. For example, Justice and Marienau (in Seibert & Daudelin, 1999) recommended that a sequential series of questions be asked, starting with "What is the problem?" (p. 26) to "What criteria will I have met when the problem is resolved?" (p. 26). Glenn and Nelson (in Seibert & Daudelin, 1999) recommended a series of questions moving from "what" to "why" to "how".

For this study, it was decided to establish a separate theme for each month's logging entries. Reflective questions to be answered were supplied to the participants (see Appendix B for the reflective questions used in this study). For example, the theme for month one was Learning; the reflective questions used were as follows: "What did you learn?" and "How did you learn it?"

Reflection and Interventions

There was little research on the effects of interventions on reflection in the workplace. The majority of research on reflection in the workplace focused on managers or professionals, not with the workers themselves. Further, much of the research on

reflection in the workplace was exploratory in nature, rather than interventionist (Brooks, A. K., 1989; Harback, 2000). The results of the literature reviewed suggested improvements in learning (Daudelin, 1996), job performance (Rigano & Edwards, 1998), and skill transfer (Kruger & May, 1985) could be attributed to explicit instruction on reflection.

Daudelin (1996) examined the use of directed reflection among individuals, two-person helper groups, and a discussion group of peers on the dependent variable amount of learning. Participants were 48 managers from a variety of areas in a Fortune 500 organization. All participants were given a brief training session on the use of reflection and the stages of reflection as identified by Daudelin: a) problem articulation, b) problem analysis, c) theory development, and d) action or decision to act on a chosen problem. All participants then moved out of the classroom to reflect for a period of one hour.

Immediately following the reflective period, participants completed questionnaires about their experiences, particularly their learning. Based on counts of the insights or lessons listed by participants, statistically significant increases in learning amounts were found for both the individuals and the two-person helper groups. The results suggested "just one hour spent reflecting on one aspect of a challenging situation can significantly increase the learning from that situation" (p. 45). It was difficult to generalize from results for a variety of reasons, 1) participants reflected for only one hour, 2) the report documents neither the questionnaire nor the statistical tests done, and 3) the specific correlation coefficients were not reported.

Another workplace study examining the effects of worker reflection was that conducted by Rigano and Edwards (1998) who reported on a single-case study of an

engineer involved in a professional self-development program designed to embed reflection into the practice of employees. The voluntary self-development program at a refinery emphasized what the authors termed "action learning exploration". The program consisted of three phases over a period of fifteen months, during which employees attended workshops that introduced them to action learning exploration (ALE). Employees were asked to choose areas of their professional development to improve on, and to record their reflections of their learning and actions in a "thinkbook". In addition, an interim seminar was held to reinforce the ALEs and self-reflection.

The researchers noted the employee realized "he could use his written reflection to enhance his performance by reviewing his thinking before, during and after an event." Further, when questioned about continuing his journaling after the completion of the study, the employee replied: "And as I say, you come back in a year's time and I think I can quite safely say that yes I would still be using that" (p. 441). Because this was a single-case study, it is problematic to generalize from the results.

The intervention studies on reflection addressed thus far relied on participant self-reports to measure their effectiveness. Clearly, more empirical evidence is required to support the hypothesized benefits of workplace reflection. An extensive search of the literature found one study on workplace reflection that measured effectiveness in an objective manner. Kruger and May (1985) conducted a workplace study on transfer of training. Two reinforcement techniques were used following a two-week, in-residence course covering subjects such as stress management and self-awareness. The two strategies were 1) forming support groups to provide peer encouragement, feedback, and accountability, and 2) writing using a personal journal. Based on counts of applying the

skills and principles acquired in the course in the workplace, it was found that the journals were significantly more effective than the support groups as a means of fostering skills transfer.

Reflection and its Relationship to Psychological Empowerment

The antecedents of psychological empowerment discussed previously in this chapter were divided into two categories of variables: social structural and personality variables. None of the models examined addressed actions an individual could take to empower himself or herself. Individual employees were viewed as "objects" who reacted to the conditions around them and to their own personality components. Yet each model included outcomes pertaining to individual employees, such as innovation, upward influence, and effectiveness. Further, the models treated psychological empowerment as a mediating variable; it was of interest because it helped to explain the relationship between the antecedents and the behavioral outcomes.

The antecedents of reflection cited in this chapter were predominantly focused journaling activities. No mention was found in the literature of personality variables as antecedents to reflection. The literature suggested a variety of outcomes of reflection, including the following: self-awareness, professional development, new meaning perspectives, learning, and skill transfer (Ballantyne and Packer, 1995; Daudelin, 1996; Fisher, 1996). In general, the evidence for these outcomes came from self-reports. Often, the results suggested that participants' perceptions had changed. For example, in both the Ballantyne and Packer and the Fisher studies, participants spoke of making new connections and possessing a new sense of meaning.

Zimmerman (1995) provided the crucial link between reflection and psychological empowerment: "For individuals to feel empowered, they must have a critical awareness of their environment" (in Spreitzer, 1995b, p. 607). Spreitzer, and her theoretical predecessors Thomas and Velthouse, stressed that empowerment was primarily about perception. Per Spreitzer, "It is the subjective nature of empowerment that is of interest" (1997, p. 49). People must feel empowered before they can act in empowered ways. This link was substantiated by Thorpe and Loo's study (1999) on reflective learning journals which included empowerment through learning as one of its outcomes.

Reflection and the Cognitions of Psychological Empowerment

Neither Spreitzer herself, nor those upon whom her model is based—Conger and Kanungo and Thomas and Velthouse—explicitly addressed reflection in their models. Rather, it was the researchers and theoreticians upon whose work the models of psychological empowerment were drawn who referred to reflection in their particular areas of theory building and research. Further, there was some overlap found between the outcomes of reflection and the cognitions of psychological empowerment—meaning, competence, self-direction, and impact—and also between the outcomes of reflection and the outcomes of psychological empowerment. Among the outcomes of reflection listed by Langer (1989) are flexibility, innovation, and leadership ability.

Reflection and Meaning

Meaning was the first component or cognition in Spreitzer's model of psychological empowerment. Spreitzer (1997) defined meaning as "the value of a work goal or purpose, judged in relation to an individual's own ideals or standards" (p. 40).

For Spreitzer, meaning was the engine of psychological empowerment; individuals become energized when they perceive meaning in their actions.

The relationship between reflection and meaning was clearly situated in the works of Brookfield and Mezirow. Brookfield (1987) recommended critical reflection to workers as a means of identify affirmation. Further, Mezirow's work on adult learning (1991) dealt extensively with reflection and meaning. Per Mezirow, "Through content and process reflection we can change (elaborate, create, negate, confirm, problematize, transform) our meaning schemes; through premise reflection we can transform our meaning perspectives" (p. 117)."

Reflection and Competence

Spreitzer (1997) equated competence to self-efficacy, and described it as "an individual's belief in his or her capability to perform activities with skill" (p. 40). Bandura's work (1997) clearly supported the link between reflection and self-efficacy. Among the activities he listed for developing self-efficacy were the following: "self-appraisal of personal efficacy to fulfill particular goal challenges" and "self-reflective metacognitive activity focused on the accuracy of one's efficacy appraisals" (p. 132).

Reflection and Self-Determination

Spreitzer (1997) defined self-determination as "an individual's sense of having choice in initiating and regulating actions" (p. 41). The link between reflection and self-determination was found in the works of Deci and Flaste (1995), Swenson (1988), and Tough (1979). Deci and Flaste wrote "Being autonomous...is about managing onself and one's own inner experience" (p. 187). Both Swenson (1988) and Tough (1979) noted

that learning logs helped participants take charge of their own learning and develop professionally.

Reflection and Impact

Spreitzer (1997) defined impact as "the degree to which an individual can influence strategic, administrative, or operating outcomes in the organization or larger environment" (p. 43). There was no direct link between reflection and impact presented in the literature. This could be explained by the finding that the cognition of impact was preceded by self-determination.

A Proposed Refinement to Spreitzer's Model of Psychological Empowerment

Spreitzer's contribution to the field of empowerment was to develop a cognitive model that moved beyond the simplistic, behaviorist model of stimulus (environment) and response (behavioral outcomes). Her model emphasizes the perception of empowerment as a mediating step between a set of social structural antecedents (environment) and a set of behavioral outcomes. This study proposes a refinement to Spreitzer's model: the insertion of an individual intervention—active reflection—between the social structural antecedents and the psychological sense of empowerment (see Figure 4). An understanding of this refinement to the model is crucial to understanding the remaining chapters in this dissertation.

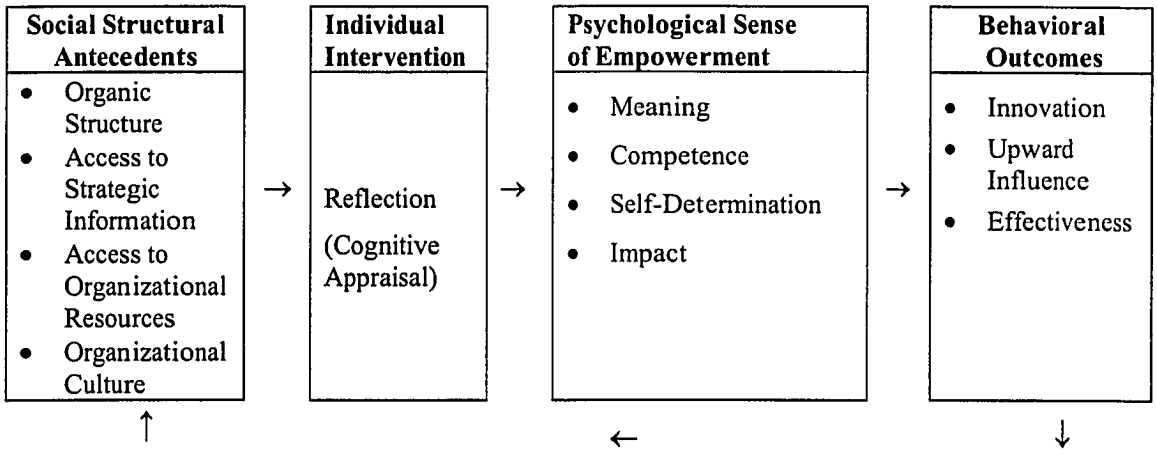

Figure 4. A proposed refinement to the theoretical model of individual empowerment in organizations

By adopting a cognitive model of psychological empowerment, Spreitzer's work is somewhat analogous to that of Lazarus and Folkman. In their work on stress (1984), they posited that between an encounter (stimulus) and an effect (response), there was a mediation that determined both the immediate and long-term effects. Specifically, this mediation is a cognitive appraisal by the individual of that encounter. Though inclusive of mediation, Spreitzer's model does not specifically address an individual's appraisal of the social structural antecedents nor does it address an individual's capacity to alter the perception of those social structural antecedents and subsequent level of psychological empowerment. Reflection addresses both of these issues. It is this refinement to Spreitzer's model that is tested in this study. It is this refinement to Spreitzer's model that is suggested, in part, by Bandura's work on improving self-efficacy (competence) through "self-reflective metacognitive activity focused on the accuracy of one's efficacy appraisals" (1997, p. 132).

Research Questions for this Study

The purpose of this study is to examine the influences of active reflection on the self-perception of empowerment in the workplace. The following research questions are used to test the refinement to Spreitzer's model. The first research question has an associated hypothesis that was tested.

Research Question 1: How does reflection influence the gestalt of psychological empowerment? The associated hypothesis for this question is as follows: participants who engage in active reflection through use of guided journals or learning logs will evidence increased levels of the gestalt of psychological empowerment as measured by total score on Spreitzer's Scale of Psychological Empowerment.

Research Question 2: How does reflection influence the individual dimensions of psychological empowerment: meaning, competence, self-determination, and impact? Based upon the review of the literature, it is impossible to predict which of the dimensions of psychological empowerment will be affected by active reflection. This question is included in the study for exploratory purposes.

Research Question 3: Do onsite and offsite employees possess different levels of the four dimensions of psychological empowerment? This question is included in the study for exploratory purposes.

Research Question 4: What will be the proportion and qualities of the four dimensions of psychological empowerment found in the written self-report journals of participant workplace learning?

CHAPTER III. METHODOLOGY

This study examined the influences of active reflection—expressed through guided journaling for three continuous months—on the psychological empowerment of a randomly selected sample of non-management employees in the software industry. A refinement to Spreitzer's model of psychological empowerment was developed and tested. In addition, a content analysis was conducted on the guided journal entries.

The research site chosen would have to meet the following criteria: technology used on the job changed frequently; continuous employee learning was critical and valued; and employees could be classified as 'knowledge workers' as defined by Drucker (1969, p. 264), that is "the person who creates and applies knowledge to productive ends in contrast to an 'intellectual' for whom information and concepts may only have importance because they interest him or to the manual worker who applies manual skills or brawn". It was determined that the researcher's own employer met these criteria and was an appropriate choice as the research site. After attending a presentation of the proposed study by the researcher, senior management of the host organization gave their permission for the study to be conducted at the site.

The host organization is a developer of human resources and payroll software, and is located in a large Midwestern city. This privately owned organization was founded in 1974. The organization has subsidiaries in Canada, Singapore, and South Africa. Affiliate organizations are located in the United Kingdom, Latin America, and Australia. There are approximately 400 employees worldwide, of whom approximately 200 are based in the U.S.

The host organization stresses continuous learning for all of its employees. All employees are required to complete an annual 'Employee Development Plan' detailing their learning objectives and methods for completing those objectives, such as attending conferences and formal training courses. Success in meeting learning objectives is tied directly to the employee's annual performance appraisal and salary review. In addition, all employees participate in a product certification program, requiring independent study, attendance at courses, and a series of proctored examinations. An annual education allowance of $3000 per employee is offered, in addition to a $5000 per year tuition reimbursement program, along with a $100 per year allowance for subscriptions to trade journals.

At the time the study was conducted, the researcher had been employed by the host organization for over five years. The researcher has held positions in both Performance Support and Learning Services departments in the host organization's corporate headquarters. The researcher currently works as a team lead in the Learning Services department, reporting to the Director of Learning Services.

Sample Selection

The target population consisted of all U.S.-based, non-management employees of the host organization. To obtain participants for the study, the researcher consulted with the host organization's Human Resources department. That unit set a limit of 50 employees for participation in the study.

A master list of all U.S.-based employees was obtained from the Human Resources group. Fifty non-management employees were contacted by e-mail and asked to participate in the study. Employees were not required to participate in the study, and

there were no negative consequences for employees who chose not to participate. Forty-two employees chose to participate in the study. Each employee who agreed to participate in the study signed an informed consent form after speaking with the researcher about the level of commitment required for the study.

Because many employees worked offsite, participants were stratified to ensure equal representation of onsite and offsite employees in the experimental and control groups. It was suspected that employees who worked offsite might have a greater sense of psychological empowerment than those who worked onsite. The percentage of onsite and offsite non-management employees was then calculated to use in the stratification. Separate numbered lists of onsite and offsite employees were constructed from the master list. Participants were selected for the sample from the two lists using a random number assignment. The sample reflected the same percentage of onsite and offsite employees as contained in the target population.

Participants included in the sample were then randomly assigned to experimental or control groups: the even-numbered sample employees from both lists were assigned to the experimental group; odd-numbered sample employees from both lists were assigned to the control group. The control group contained 20 employees. To provide for attrition, the experimental group contained 22 employees.

Sample Characteristics

The focus of this study was on non-management, knowledge workers in the software industry. In the software industry, knowledge workers are typically responsible for the design, development, delivery, and support of software products. Knowledge workers in the software industry have titles such as programmer/developer, consultant,

database analyst, technical writer, instructional designer, project manager, tester, and help desk specialist. Characteristics of the study sample are shown in Table 1.

Table 1

Characteristics of the Study Sample

Variable	Values	Frequency	Percent
Gender	Female	26	61.9
	Male	16	38.1
Time in Organization	Less than 1 yr.	6	14.3
	1 yr to 5 yrs	20	47.6
	More than 5 yrs	16	38.1
Department	Product Development	14	33.3
	Sales/Marketing/Support	17	40.5
	Corporate	11	26.2
Location	Local	29	69.0
	Remote	13	31.0

Approximately two-thirds (61.9%) of the sample were female, and just over one-third (38.1%) were male. Almost half (47.6%) had worked for the host organization between one and five years, and more than a third (38.1%) had worked for the organization for more than five years. Fourteen percent had worked there for less than a year. Approximately one third (33.3%) of the sample worked in Product Development; forty percent worked in Sales, Marketing, or Product Support; and twenty-six percent worked in Corporate. Sixty-nine percent worked in corporate headquarters; 31% worked remotely.

Measures

Spreitzer's Psychological Empowerment Scale (Spreitzer, 1995) was used to measure and to operationalize the dependent variable, psychological empowerment. The scale (Appendix A) consists of 12 questions, three each on the four cognitions of Spreitzer's model of psychological empowerment: meaning, competence, self-determination, and impact. Each set of three questions is considered a subscale. Spreitzer's scale is not commercially available. Rather it is available as an appendix to her article "A Model of Intrapersonal Empowerment in the Workplace" published in the American Journal of Community Psychology, Vol. 23, No. 5, 1995.

Spreitzer's scale was initially validated on two samples. The first sample consisted of 393 middle-level employees of a Fortune 50 industrial organization. To cross-validate the results of the model, a second sample was used. This sample consisted of 128 employees from an insurance organization, selected using a stratified random sampling technique. Table 2 contains demographic data for the two samples. This first validation test of the overall construct of psychological empowerment yielded the following Cronbach's Alpha reliability coefficients: .72 for the industrial sample and .62 for the insurance sample. While neither of these scores is particularly high, they are both above the generally acceptable level of .60.

Table 2

Demographic Data for Validation Samples of Spreitzer's Scale

Variable	Values	Sample1	Sample 2
Gender	Female	7%	84%
	Male	93%	16%
Position	Management	100%	17%
	Non-management	0%	83%
Level of Education	College or Beyond	70%	**
	High School	30%	54%
Average Tenure in Organization		13 years	15 years
Mean Age		46	40
N		393	128

**Not reported.

Further validation of Spreitzer's scale on a sample with a different composition than those used by Spreitzer was conducted by Kraimer, Seibert, and Liden (1999). They examined the construct validity of Spreitzer's model and scale through a confirmatory factor analysis on a non-management, nursing sample. This sample was composed of 160 nurses, with a mean age of 37.7 years; 34% were Asian, 61% were Caucasian, the remainder were either Hispanic or African American; 90% were women. Participant education levels ranged from associate degrees in nursing (35%), to a three-year nursing diploma (27%), to a Bachelor of Science degree in Nursing (37%).

The researchers twice administered Spreitzer's scale to the same participants; the second administration was conducted one year after the initial administration. Through structured equation modeling, they tested the nomological network of supposed

relationships among the components of Spreitzer's model to three job characteristics, job meaningfulness, autonomy, and task feedback. As expected, job meaningfulness related positively to the psychological empowerment dimension of meaning (B = .43, SE = .07); job meaningfulness related positively to the psychological empowerment dimension of self-determination (B = .93, SE =.07); and task feedback related positively to the psychological dimensions of competence (B = .21, SE =.06) and impact (B = .30, SE =.11). These results support the convergent and discriminant validity of scores on Spreitzer's scale. They also found a stronger correlation between self-determination and impact than did Spreitzer in her initial validation of her scale, R^2 = .59 versus R^2 =.42.

In this study, scores were computed for each participant by adding together the rating assigned to each of the 12 questions. With 12 questions and a 7-point Likert scale, the maximum possible score for the scale is 84. In addition, participants' scores were also computed for the four subscales by adding together the rating assigned to each of the three questions for each subscale. The maximum score for a subscale is 21.

To date, there is no published normative data for comparison purposes. However, Miranda (1999) administered Spreitzer's scale to a group of workers in a human services organization; Table 3 shows the reported mean scores and standard deviations for the subscales. Miranda did not total the scores before computing the means for the subscales.

Table 3

Reported Mean Scores on Spreitzer's Scale in Miranda (1999).

Subscale	*M*	*SD*
Meaning	5.9	1.04
Competence	6.1	.81
Self-Determination	5.1	1.35
Impact	3.9	1.6

Procedures

The study used a pretest posttest control group design to measure the effect of the two-level independent variable (reflection) on the dependent variables (the gestalt of the four cognitions of psychological empowerment: meaning, competence, self-determination, and impact, and the subscale scores for the cognitions). A content analysis looking for evidence of the four cognitions was conducted on the learning log entries.

Spreitzer's Psychological Empowerment Scale was administered to all participants at the beginning and at the end of the study. The scale was sent to participants in an e-mail message; no paper copies of the scale were distributed. Participants sent their completed scales as an e-mail message. The following demographic data were collected for descriptive purposes: gender, department, and length of time on the job.

One week after the completing Spreitzer's scale, participants in the experimental group started to keep electronic learning logs using Microsoft Word for a period of three

months. The use of a word processing package to keep the logs eliminated problems with interpreting poor handwriting. Prior to the treatment, participants were e-mailed instructions for completing logs, including sample entries gathered during a pilot of this study. (See Appendix B, The Knowledge Worker Project Papers, for a sample of the instructions that were given to study participants.)

A separate theme was provided for each month of the study to provide focus for the participants in completing the logs. Table 4 lists these questions.

Table 4

Logging Focus Questions

Month	Questions
1	What did you learn?
	How did you learn it?
2	What difficulties did you encounter in doing your job?
	How did you overcome these difficulties?
3	What recommendations do you have for improving on-the-job learning at "host organization name"?

These questions were initially developed for a pilot of this study. They were refined after the analysis of the results from that pilot study.

To encourage completion of the learning logs, participants were sent periodic reminders, via e-mail, to continue with their learning logs. Learning logs were collected monthly; neutral responses—using language designed to be helpful but not to lead participants—were sent to participants who had questions and/or issues. It was important that the researcher not influencing the participants. The written instructions given to participants set the expectations for the time commitment for completing learning logs as

between fifteen minutes to a half-hour per week. In addition, all participants who completed the study were included in a drawing for $100.

As participants in the experimental and control groups are dispersed throughout the host organization and communicate with each other on a regular basis, treatment diffusion was possible. To minimize treatment diffusion, participants in the experimental group were asked to refrain from discussing their logging activities with other employees.

To protect participant anonymity, each participant was assigned an alphanumeric code; that code (and only that code) was associated with the participant's data. Participants sent their completed surveys and log files to the home e-mail address of the researcher; therefore, the data neither passed through the host organization's e-mail system nor resided on their network servers. Further, participants were encouraged to complete their log files from home, thus preventing potential access of their hard drives at work. Participants were also encouraged to back up their electronic log files to prevent loss of study data.

All participant e-mails and attached log files were stored on external media (CD ROM). The media containing the participant e-mails and attachments were kept in a secured file. Only the researcher had access to the media.

Though initially a password-protection scheme for the log files was planned, the implementation of this scheme was considered likely to cause problems and jeopardize the timely completion of the study. The file-naming convention and the convention of e-mailing the log files to the author's home e-mail address were considered sufficient to protect the anonymity of participants during the period in which the study was conducted.

Analysis Plan

To answer the question, "How does critical reflection influence the gestalt of psychological empowerment?", and test the hypothesis, a comparison was made between the mean pretest and posttest scores of the control and experimental groups on Spreitzer's Scale of Psychological Empowerment. A repeated measures ANOVA was run on the variables score1 and score2 using an alpha level of .05.

To answer the question, "How does critical reflection influence the individual dimensions of psychological empowerment: meaning, competence, self-determination, and impact?", a repeated measures MANOVA was run to examine differences between the control and the experimental groups on the subscale scores. Though psychological empowerment is a gestalt of the four dimensions, it was useful to examine scores on the dimensional subscales to determine which dimensions were most affected by guided reflection.

To answer the question, "Do onsite and offsite employees possess different levels of the four dimensions of psychological empowerment?" comparisons were made of the mean total and subscale scores on Spreitzer's scale for both groups. A One-Way ANOVA was used to compare the total mean scores of the experimental and control groups. Separate MANOVAs were used to compare the means of both groups on the first and second administration of Spreitzer's scale. In addition, a repeated measures ANOVA and a repeated measures MANOVA were run to test for within-group changes.

To answer the question, "What will be the proportion and qualities of the four dimensions of psychological empowerment found in the learning logs?" a content analysis was conducted on the single, continuous time period for which the learning logs

were kept. The coding was done by two doctoral candidates in the School of Education at DePaul University. Initial coding categories were developed during an abbreviated pilot of the proposed study; they are shown in Appendix C – Coding Categories for Content Analysis. Proportion was computed as a simple ratio of mention of a dimension of empowerment to the total number of logging entries made. The qualities of the dimensions were determined by rating the tone of each entry as 'positive', 'neutral', or 'negative'. A sample of 145 log entries was selected using "typical case sampling" (Patton, 1990) to minimize the chances of obtaining sample entries containing atypical log content. Consequently, log entries in which the sole content consisted of terms such as 'Weekend' or 'None' were not included in the sample.

The unit of analysis was a log entry. Because of the different ways in which participants made entries, a log entry was defined as all text associated with a given logging date or all text associated with a given topic. The following log entry contains all the text for a particular date from a participant. For purposes of analysis, a brief entry such as this constitutes a single entry because it represents the individual's single thought for that time period:

> 5/10/2001
> I had to do some discovering today for a regulatory document I am writing. I met one-on-one with an SME and we discussed the best approach for documenting this item. It was a simple matter that only took a few minutes, but I preferred to sit down with him rather than discuss the matter over email. I think it's often much easier to meet face-to-face with someone to solve a problem.

Though written on a single date, a lengthy learning log entry containing several thoughts, such as the following one, might be interpreted by the raters as multiple entries. Each entry would then be coded separately:

> May 2, 2001
>
> Today I participated in a Regulatory Committee meeting – what a long one! I was glad that I had prepared thoroughly since I was able to field the questions thrown at me. There were several items on the agenda. One of the items presented by my boss was a reiteration of the process of how government legislation actually makes it into our product. (i.e. the Regulatory Committee purpose and process). This was restated for the benefit of a participant who will be acting as project manager for all projects approved by the Committee for an interim period. As I am a "recent" member of the Regulatory department, I was pleased to note to myself during the meeting that I have participated several times now in the process he formally laid out for the project manager's benefit. It dawned on me then that I felt more an "insider" (in terms of understanding the process as it was explained) rather than feeling like I was hovering around the process like a moth around a porchlight. (And getting burned as I make mistakes—although I expect that will always happen.)
>
> In the past with other jobs, I've found that it takes me a good six months before I start to feel comfortable in the new role. I started this one in early December 2000, so I guess I'm right on track. Although I feel quite capable of performing any job I've ever held (I would not have applied or

been hired without the appropriate qualifications), it's always disconcerting at first because there is the procedural/policy portion of the job that needs to be ingrained, until it's second nature. Obviously, I know that I have a lot to learn, but feeling like I'm "getting into the groove" of my present job gives me a sense of satisfaction.

Another thing that was reiterated in the meeting (albeit in a subtle manner) was the fact that I need to make sure that the product managers are kept informed of all possible issues with their respective products. One of the members of the committee, also a product manager, expressed disappointment (as was done at last week's meeting on the same topic) that the regulatory issues we brought up were not communicated long ago (so that the person have time to prepare for the storm to come). I completely understand and agree that she was not given ample time to handle the situation correctly. A client had brought these items to our attention some time ago, but with all the changes in personnel and other more pressing concerns, we only recently had an opportunity to deal with the issue at hand. I can understand where this person is coming from and have always believed in keeping people informed. Until I did the research, I didn't have the details necessary to form an opinion about whether the client was right or not, so I couldn't have told her any specifics earlier. However, I think that a "heads-up" in general is appropriate for any future issues.

Prior to coding of the actual sample learning log entries for this study, a pilot analysis was conducted on a sample of 25 entries to help refine both the content analysis instructions and the coding categories. The researcher met with both raters simultaneously, and presented them with a brief introduction to the study. Following this meeting, the researcher sent written instructions and the sample learning log entries to both raters through email. Approximately one week later, the researcher again met with the raters to review their coding and to answer any follow-up questions.

Cohen's kappa was used to assess inter-rater reliability. The larger the kappa value, the better the inter-rater reliability. Kappa reliability coefficients are grouped as follows: values less than .40 indicate poor agreement; values of .40 to .75 indicate fair to good agreement, and values greater than .75 indicate excellent agreement (Landis & Koch, 1977).

Though given what the researcher determined were 25 entries based upon logging entry content for a particular date, both coders consistently determined that there were in fact 31 entries based on the definition for the unit of coding analysis, that is "A log 'entry' is defined as all text associated with a given logging date or all text associated with a given topic." All four cognitions were accounted for by the coders. Kappa for coding cognitions found in the logging entries was .592. Due to four missing values in coding the cognitions, only 27 entries were included in calculating the kappa. Kappa for coding the tone (positive, neutral, or negative) of the logging entries was .622. Due to three missing values in coding the tone of the entries, only 28 entries were included in calculating the kappa.

Following the pilot, the coding instructions were refined based upon the suggestions made by the pilot coders. The substantive refinements in coding symbols are shown in Table 5.

Table 5

Revised Coding Symbols for Content Analysis

Dimension of Psychological Empowerment	Symbol
Meaning	1
Competence	2
Self-Determination	3
Impact	4
Tone of entry	
Positive	+
Neutral	0
Negative	-

CHAPTER IV. RESULTS

This chapter presents the results for each of the research questions addressed by this study. In addition, it presents a brief explanation of those results. A detailed analysis of the study results can be found in Chapter V, Discussion. Figure 5 presents the research design used in the study: a pretest, posttest, control group design. To clarify the context for the study and to aid in interpreting the results shown in this chapter, a timetable of the research activities and commentary of the events occurring at the host organization are also included in the figure. During the month of July, the host organization conducted a reorganization and laid off a number of employees. Consequently, the sample size dropped from 42 at the beginning of the study to 29 after the layoffs.

Timetable	April	May – July	August
	Observation 1 (Spreitzer's Scale)	Intervention (Learning Logs)	Observation 2 (Spreitzer's Scale)
Control Group	O[1]		O
Experimental Group	O	X	O
Events	Sales do not rebound, as predicted after the year 2000 (Y2K) sales slump	• Rumors of reorganization and layoffs • July: reorganization and layoffs	Host organization's annual learning event, bringing remaining US-based employees together

Figure 5. An overview of the study design and context

[1] The symbols used to denote an observation or measurement (O) and a treatment or intervention (X), are those originated by Campbell and Stanley (1966).

Research Question 1

To answer the question "How does reflection influence the gestalt of psychological empowerment?", and to address the principal hypothesis in this study—those who use active reflection will demonstrate increased levels of psychological empowerment as measured by the total score on Spreitzer's scale—a comparison was made between the mean pretest and posttest scores of the experimental (logging) and control (no logging) groups on Spreitzer's Scale of Psychological Empowerment. A one-way repeated measure analysis of variance (ANOVA) was run on the variables score1 and score2 using an alpha level of .05.

The repeated measures ANOVA did not reveal a significant increase in psychological empowerment for those participants who kept the learning logs (experimental group), $F(1, 27) = .563$, $p = .459$. The means and standard deviations of the control and experimental groups for the two administrations of Spreitzer's Psychological Empowerment Scale are shown in Table 6.

Table 6

Psychological Empowerment Scores Before and After Logging

	Logging (Experimental Group)		No Logging (Control Group)	
	Test 1	Test 2	Test 1	Test 2
M	64.55	66.88	61.89	59.46
SD	7.76	7.30	6.80	6.62

The psychological empowerment scores did not vary significantly within group on either administration of Spreitzer's scale, and the standard deviations for both groups are similar. The experimental group scored higher than did the control group on the first (64.55 versus 61.89) and second (66.88 versus 59.46) administrations of the scale, though

not significantly so. Scores for participants who kept learning logs increased over two points (64.55 to 66.88) from the first to the second administration, while scores for participants who did not keep learning logs decreased over two points (61.89 to 59.46).

One outlier control group case was excluded from the statistical analyses. The participant scored a 31 on the first administration of Spreitzer's scale. This participant was laid off by the host organization during the study, and did not complete the second administration of Spreitzer's scale.

Research Question 2

To answer the question "How does reflection influence the individual dimensions of psychological empowerment: meaning, competence, self-determination, and impact?", a repeated measures multivariate analysis of variance (MANOVA) was run to examine differences in the mean scores on the four dimensions of psychological empowerment between the first and second administration of Spreitzer's scale. There is a three-question subscale for each dimension of psychological empowerment. No analyses were done on the scores for the individual questions of the subscales, as such analyses would not directly relate to the research questions for this study.

The repeated measures MANOVA did not reveal a significant increase in the individual dimensions of psychological empowerment between the first and second administration of Spreitzer's scale for those participants who kept the learning logs: meaning, $F(1, 27) = 1.549, p = .224$; competence, $F(1, 27) = 1.436, p = .241$; self-determination, $F(1, 27) = .160, p = .692$; impact, $F(1, 27) = .042, p = .840$. The means and standard deviations for the subscale scores of the control and experimental groups on

the two administrations of Spreitzer's Psychological Empowerment Scale are shown in Table 7.

Table 7

Subscale Means and Standard Deviations for Logging (Experimental) versus No Logging (Control) Groups

		Logging (Experimental Group)		No Logging (Control Group)	
		Test 1	Test 2	Test 1	Test 2
Meaning	*M*	17.91	18.31	17.32	16.54
	SD	2.62	2.36	3.80	4.25
Competence	*M*	17.05	17.19	17.74	16.31
	SD	2.26	1.72	2.45	2.29
Self-Determination	*M*	17.00	16.86	15.79	14.77
	SD	3.01	2.85	2.55	3.52
Impact	*M*	12.59	14.50	11.05	11.85
	SD	3.80	3.08	3.05	4.58

The mean subscale scores for the experimental group on both administrations of Spreitzer's scale are ordered, from highest to lowest, as follows: meaning, competence, self-determination and impact. For the first administration, their mean scores range from a high of 17.91 for meaning to a low of 12.59 for impact. For the second administration, their mean scores range from a high of 18.31 for meaning to a low of 14.50 for impact. The ordering of the mean subscale scores for the control group closely parallel those of the experimental group; the only variation is a higher score for competence than meaning on the first administration of Spreitzer's scale. For the first administration, their mean

scores range from a high of 17.74 for competence to a low of 11.05 for impact. For the second administration, their mean scores range from a high of 16.54 for meaning to a low of 11.85 for impact.

While no significant differences were found within the groups, significant differences were found between the groups. A significant difference between the groups was found for the cognitions of self-determination: $F(1,27) = 5.972$, $p = .021$, and impact: $F(1,27) = 4.750$, $p = .038$. Such a finding suggests that learning logs may help to maintain or to increase psychological empowerment. The experimental group scored consistently higher than the control group on both administrations of Spreitzer's scale, except for the first subscale score for competence. Further, scores for the experimental group also increased from the first to the second administration of Spreitzer's scale on all cognitions of psychological empowerment, except for a decrease in self-determination (17.00 to 16.86). Scores for the control group decreased on all cognitions of psychological empowerment, except for an increase in impact (11.05 to 11.85).

Research Question 3

To answer the question "Do local (onsite) and remote (offsite) employees possess different levels of the four dimensions of psychological empowerment?", two types of comparisons were performed as described in Table 8.

Table 8

Statistical Analysis Designs for Research Question 3

Design	Purpose	Test
2x2	Compare the means of local and remote employees regardless of group on the composite scale scores at time 1 and time 2	Repeated Measures ANOVA
	Compare the means of local and remote employees regardless of group on the subscale scores at time 1 and time 2	Repeated Measures MANOVA
2x2x2	Compare the means of local and remote employees by the experimental and control groups on the composite scale scores at time 1 and time 2	Repeated Measures ANOVA
	Compare the means of local and remote employees by the experimental and control groups on the subscale scores at time 1 and time 2	Repeated Measures MANOVA

Results for the 2x2 Design

The repeated measures ANOVA revealed no significant changes within the local and remote groups between the first and second administration of Spreitzer's scale ($F = .144, p = .707$). The means and standard deviations of the local and remote employees for the two administrations of Spreitzer's Psychological Empowerment Scale are shown in Table 9. The maximum possible score is 84 (12 questions, using a 7-point Likert scale).

Table 9

Psychological Empowerment Scores for Local versus Remote Employees

	Test 1		Test 2	
	Local	Remote	Local	Remote
M	62.913	64.833	63.391	64.167
SD	8.112	5.345	8.004	7.834

Between-group differences were also non-significant ($F = .172, p = .682$). However, remote employees scored higher than did local employees on both administrations of Spreitzer's scale. Total mean scores for local employees increased slightly from 62.913 to 63.391. Total mean scores for remote employees decreased slightly from 64.833 to 64.167.

No significant within-subjects main effects were found by the repeated measures MANOVA for employee location for any of the cognitions: meaning ($F = 1.029, p = .319$), competence ($F = .976, p = .332$), self-determination ($F = .799, p = .379$), and impact ($F = 1.560, p = .222$). Between-group analyses were also non-significant: meaning ($F = .004, p = .948$), competence ($F = .050, p = .825$), self-determination ($F = 1.344, p = .257$), and impact ($F = .000, p = .993$). Though none of these changes are significant, the local group increased their scores on impact by almost two points, 11.782 to 13.522. Table 10 shows the means and standard deviations for local versus remote employees on the subscales on the first and second administration of Spreitzer's scale. The maximum possible score on a subscale is 21 (3 questions, using a 7-point Likert scale).

Table 10

Subscale Means and Standard Deviations for Local versus Remote Employees

		Local		Remote	
		Test 1	Test 2	Test 1	Test 2
Meaning*M*		17.739	17.391	17.333	18.000
	SD	3.840	3.667	3.665	2.280
Competence	*M*	17.348	16.739	16.667	17.000
	SD	2.516	2.092	2.658	1.789
Self-Determination	*M*	16.043	15.739	18.000	16.667
	SD	2.804	3.374	1.549	3.077
Impact	*M*	11.782	13.522	12.833	12.5000
	SD	3.567	3.629	3.545	5.468

Results for the 2x2x2 Design

The repeated measures ANOVA revealed no significant changes within the local and remote groups by experimental and control groups between the first and second administration of Spreitzer's scale ($F = 2.732, p = .111$). The means and standard deviations on total test scores by location (remote versus local) by group (experimental versus group) for both administrations of Spreitzer's scale are shown in Table 11. The maximum possible score is 84 (12 questions, using a 7-point Likert scale).

Table11

Psychological Empowerment Scores by Local versus Remote Employees by Group

	Test 1		Test 2	
	Local	Remote	Local	Remote
Experimental				
M	66.250	64.500	66.750	67.250
SD	7.712	4.359	7.436	7.973
Control				
M	59.273	65.500	59.727	58.000
SD	7.171	9.192	7.198	1.414

Between-group analyses revealed no significant effects. However, there was a trend for the scores of those in the experimental group to increase, particularly remote employees. Total mean scores for local participants in the experimental group increased from 66.250 to 66.750; total mean scores for remote participants in the experimental group increased almost three points, from 64.500 to 67.250. Total mean scores for local participants in the control group increased less than half a point, from 59.273 to 59.727; total mean scores for remote participants in the control group dropped seven and a half points, from 65.500 to 58.000.

No significant within-subjects main effects were found by the repeated measures MANOVA for employee location by group for any of the cognitions: meaning ($F = .866$, $p = .361$), competence ($F = .501$, $p = .486$), self-determination ($F = .406$, $p = .530$), and impact ($F = 2.314$, $p = .141$). Table 12 shows the means and standard deviations for local versus remote employees by group on the subscales on the first and second administration of Spreitzer's scale. The maximum possible score on a subscale is 21 (3 questions, using a 7-point Likert scale).

Table 12

Subscale Means and Standard Deviations for Local versus Remote Employees by Group

		Local		Remote	
		Test 1	Test 2	Test 1	Test 2
Experimental					
Meaning*M*		18.417	18.333	16.750	18.250
	SD	3.029	2.534	1.258	2.062
Competence	*M*	17.750	17.417	15.500	16.500
	SD	2.261	1.621	1.915	2.082
Self-Determination	*M*	17.333	16.750	18.250	17.250
	SD	2.425	2.667	1.893	3.775
Impact	*M*	12.750	14.250	14.000	15.250
	SD	3.223	2.735	3.742	4.349
Control					
Meaning*M*		17.000	16.364	18.500	17.500
	SD	4.604	4.501	3.536	3.536
Competence	*M*	16.910	16.000	19.000	18.000
	SD	2.810	2.366	2.280	.000
Self-Determination	*M*	14.636	14.636	17.500	15.500
	SD	2.579	3.828	.707	.707
Impact	*M*	10.727	12.727	10.500	7.000
	SD	3.374	4.407	2.121	1.414

Between-group analyses showed a significant main effect between the groups for the cognition of competence ($F = 3.611, p = .069$). On the first administration of Spreitzer's scale, remote participants in the experimental group had a mean subscale for competence of 15.500 compared to those in the control group, 19.000; on the second administration of the scale, the difference diminishes to 16.500 and 18.000. Table 13 documents the trends found between the groups.

Table 13

Trends in Mean Subscale Scores for Local versus Remote Employees by Group

Groups	Cognitions			
	Meaning	Competence	Self-Determination	Impact
Local (Experimental)	-	-	-	+
Local (Control)	-	-	-	+
Remote (Experimental)	+	+	-	+
Remote (Control)	-	-	-	-

Scale: - = decrease; + = increase

For local participants in both the experimental and control groups, there was a trend for the mean subscale scores to decrease, except for the cognition of impact. Mean subscale scores increased almost two points for local participants in the experimental group, from 12.750 to 14.250. For those in the control group, it increased exactly two points, from 10.727 to 12.727.

For remote participants in the experimental group, there was a trend for the mean subscale scores to increase, except for the cognition of self-determination, which decreased by one point from 18.250 to 17.250. For remote participants in the control group, mean subscale scores decreased for all four cognitions. The largest decrease was for the cognition of impact, which dropped three and a half points from 10.500 to 7.000.

Research Question 4

To answer the question "What will be the proportion and qualities of the four dimensions of psychological empowerment found in the learning logs?", a content analysis was done on the learning logs produced by the experimental group. Table 14

shows the proportion of the cognitions of psychological empowerment—meaning, competence, self-determination, and impact—found in the 145 learning log entries for all three months of the study as identified by the two independent raters. Because of the low kappa coefficients calculated for overall inter-rater reliability for cognitions of psychological empowerment (.345) and tone (positive, neutral, or negative) of logging entries (.294), only logging entries in which both raters agreed are included in the table entries and in the examples that follow the tables. This methodology is supported by Gardner (1995), who recommends that detailed data analysis should only proceed if kappa is greater than .70.

Table 14

Proportion of Cognitions of Psychological Empowerment Found in the Learning Log Entries

Cognition	# of entries	% of total log entries (# of entries/145)
Meaning	6	4%
Competence	15	10%
Self-Determination	26	18%
Impact	14	9%
Total	61	41%

During each month of the study, participants in the experimental group addressed a different set of questions, referred to as a monthly theme, to guide their reflective journaling for that month. Table 15 shows the overall proportion of the cognitions of psychological empowerment by monthly theme. For a log entry to be included in the total, it must have contained at least one of the cognitions of psychological empowerment

as identified by a rater. Totals for learning log entries rated as having no evidence of any cognition of psychological empowerment are not reflected in this table.

Table 15

Proportion of Cognitions of Psychological Empowerment Found in the Learning Log Entries by Monthly Theme

Month/Theme	# of entries	% of total log entries for month
1 'What did you learn? How did you learn it?'	38 of 85	45% (38/85)
2 'What difficulties did you encounter in doing your job? How did you overcome them?'	19 of 33	58% (19/33)
3 'How can learning be improved at host-organization?'	4 of 27	15% (4/27)

As shown in Table 15, the number of sample learning log entries decreases with each month of the study: from 85 for month one, to 33 for month two, and finally, to 27 for month three. Though typical case sampling was used to eliminate learning log entries from the sample, not a strict percentage for each month, the number of learning log entries used in the sample closely reflects the actual number of learning log entries submitted for the three months: 126 for month one, 54 for month two, and 48 for month three. It should be pointed out that because the host organization laid off employees, including study participants, during month three, there were less participants completing learning logs that month.

Table 16 identifies the individual cognitions of psychological empowerment found by monthly theme. The number of cognitions found per month vary by the

monthly theme, and also decrease each month. The proportion of each cognition found also varies by monthly theme.

Table 16

Proportion of Individual Cognitions of Psychological Empowerment Found in the Learning Log Entries by Monthly Theme

Month/Theme	Meaning	Competence	Self-Determination	Impact	Total
1 'What did you learn? How did you learn it?'	4	14	15	5	38
2 'What difficulties did you encounter in doing your job? How did you overcome them?'	2	1	9	7	19
3 'How can learning be improved at host-organization?'	0	0	2	2	4
Total	6	15	26	14	61

Meaning

Among the cognitions of psychological empowerment, meaning was the least identified by the raters, occurring in only four percent ($N = 6$) of the logging entries for all three months. As defined by Spreitzer, meaning is "the value of a work goal or purpose, judged in relation to an individual's own ideals or standards" (1997, p. 40). Learning log entries exemplifying meaning typically express insights about a participant's co-workers or the work system at the host organization in relation to the individual's role. For example:

> I learn interesting things at meetings. This was the first encounter I've had with some of the people who were attendees. I learned something about

> their work habits, personalities, and working relationships with each other that will help me deal with at least one of these people in the future.

Further, in some log entries identified as expressing meaning, participants incorporated reflections on their independent, non-work-related reading into their thoughts. For example:

> I learned a number of things about what goes into various manuals based on my manager's review of my detailed designs for a release guide, the support system, and the data model. This will be useful in the future. Even more fun though was a thought I took away from an article I read on architecture: we preserve historic buildings not only because we think them significant and beautiful but because they remind us of who we once were and who we might be again.

Competence

Competence was found in approximately 10 percent ($N = 15$) of the logging entries. Spreitzer defined competence as "an individual's belief in his or her capability to perform activities with skill" (1997, p. 40). Learning log entries exemplifying competence typically express an employee's confidence or assuredness of his or her ability to perform a work-related task. For example:

> Information-Link setup question for ESS and changing text on a web page. I was told that this needed to be done and wasn't sure how to do it. I reviewed the Technical documentation and found that it was not that hard to do. I notified the user who asked that this be done and will work on this as soon as I receive a list of what needs to be changed.

Many log entries identified as exemplifying competence contain a participant's recording of new knowledge or skills. For example:

> One of the writers held a workshop on the DTP [Desktop Publishing] process for documentation. I learned a number of things including the steps for resetting the headers and footers when I add a landscape section to a portrait document.

Other log entries identified as exemplifying competence contain a participant's recording of how competence in a new skill was acquired. For example:

> Today I learned some of the new features of LotusNotes R5. A short (13+ min.) presentation was loaded on the desktop as a WebEx presentation by the inhouse Notes guru. This company is really getting proactive in teaching new software to us. I like the fact that this was sent to us with the new PC. Even though I tried to use the LotusNotes as soon as I got the PC yesterday, I found I was fumbling because initially, it wasn't as intuitive as I suspected. I guess I was used to the old version. However, after watching/listening to the WebEx presentation, I found that the overview helped me to learn the new features and to better navigate the revised desktop presentation. I actually like it now that I'm getting used to it.

Self-Determination

Self-determination was the most frequently found cognition of psychological empowerment, occurring in approximately 18 percent ($N = 26$) of the sample logging entries. Spreitzer defined self-determination as "an individual's sense of having choice in

initiating and regulating actions" (1997, p. 41). Learning log entries exemplifying self-determination typically express an employee's insights about an issue and action taken to resolve an issue. For example:

> In trying to pull together all the pieces of information I need for the new version updates I learned how to access PTF [Program Temporary Fix] and RB [Regulatory Bulletin] information as well as the designs used for the RBs. I determined what information I needed and the sources on the LAN where I could get the information.

Other log entries identified as exemplifying self-determination contain references to a participant's self-initiated learning activities. For example:

> Started some self-learning for new projects. Learning paths on company Intranet. Very useful and not too many customer distractions so I could focus. Will pursue Smart Force courses. Possibly will have to do during lunchtime if normal work starts to intrude.

Another theme in log entries identified as exemplifying self-determination was reference to a participant's need for additional learning. For example:

> Read Training Adm doc that was use[d] for Camp Cyborg last year. This looks pretty easy. A lot of setup time for each class. Need to learn naviagation. [sic]

Impact

Impact was found in approximately nine percent ($N = 14$) of the logging entries. Spreitzer defined impact as "the degree to which an individual can influence strategic, administrative, or operating outcomes in the organization or larger environment" (1997,

p. 43). Learning log entries exemplifying impact typically express a participant's actions or recommendations that affect others within the organization. For example:

> One of the greatest difficulties I have experienced in doing my job is the lack of training and printed documentation available on the upgrade process. Also, the fact that the release was given to clients and not to our department (nor have any of us even seen it). During the department meeting, I made several suggestions on how we could receive this info, suggesting specific subject matters, specific times, etc. that would accommodate a good learning environment. These suggestions are now being put into action and training is scheduled to take place next month.

Other log entries identified as exemplifying impact reflect a participant's insights into actions that could be taken by others in the organization. For example:

> I think it would be helpful if 'host organization' had more of a mentoring program. Because our product is so detailed (application / technical) it would be nice to put small teams together with an expert assigned to that team that can help them out with an assignment.
>
> I think we have made alot [sic] of progress in this area, but we really need to tap into the knowledge of the long time 'host organization' employees and pass some of their knowledge along to the new comers.

Qualities of the learning log entries

The qualities of the learning log entries were determined by rating the tone of the entries. Tone was classified as positive, neutral, or negative. Of the 145 entries in the rating sample, 120 contained ratings for tone by both independent raters; 25 of the entries

contained missing values for one or both of the raters. The raters agreed on the tone for 72 (60%) of the 120 entries. Table 17 shows the tone ratings for the sample entries.

Table 17

Proportion of Tone Ratings Found in the Learning Log Entries

Tone	# of entries	% of total log entries (# of entries/120)
Positive	49	41%
Neutral	1	1%
Negative	22	18%
Total	72	60%

Forty-one percent of the log entries reflected a positive tone. Raters agreed that only one log entry showed a neutral tone. Less than one-quarter (22%) of the entries contained a negative tone. Table 18 shows the tone ratings for the sample entries by monthly theme.

Table 18

Tone of Log Entries by Monthly Theme

Month/Theme	Positive	Neutral	Negative	Total
1 'What did you learn? How did you learn it?'	38	0	7	45
2 'What difficulties did you encounter in doing your job? How did you overcome them?'	6	1	11	18
3 'How can learning be improved at host-organization?'	5	0	4	9
Total	49	1	22	72

Log entries with a positive tone were the most prevalent in the sample entries, spread across all three months of logging, and for months one and three. For month one, a positive tone was found in eighty-four percent ($N = 38$) of the entries; for month two, a positive tone was found in thirty-three percent ($N = 6$) of the entries; for month three, a positive tone was found in just over fifty percent ($N = 5$) of the entries.

Learning log entries exemplifying a positive tone typically express a participant's competence or self-determination. For example:

> By reading the technical designs I began to learn the process for using the Quarterly Processor software and its impact on online help,

Log entries with a negative tone were the second most prevalent in the sample entries, spread across all three months of logging and the most prevalent for month two, in which the question was about difficulties encountered. For month one, a negative tone

was found in fifteen percent ($N = 7$) of the entries; for month two, a negative tone was found in sixty-one percent ($N = 11$) of the entries; for month three, a negative tone was found in just under fifty percent ($N = 4$) of the entries.

Learning log entries exemplifying a negative tone can be categorized into two groups: first, entries that express a participant's lack of competence or self-determination; second, entries that express a frustration with the host organization in general, or with a direct manager. An example of the first category is as follows:

> I am at my new job now. The difficulties I am having now is trying to figure out what my new responsibilities are and what is expected of me. I am familiar with the some of the processes, but not as comfortable as I'd like to be. I think once I am on a project I will start feeling better because I will be making contributions to the team.

An example of the second category of negative tone—frustration with a direct manager—found in the log entries is as follows:

> No particular difficulties today. Reports needed for upcoming operations meeting. Managers preparing for this meeting are always in filthy moods, which in turn makes everyone else's life miserable. Still just do what I can do.

Raters agreed that only one log entry of the 72 sample entries contained a neutral tone. This log entry was made during the second month of the study in response to the questions "What difficulties did you encounter in doing your job?" and "How did you overcome them?". The text of the log entry is as follows:

> More of the same. As long as I have the information and pricing to pass on I can communicate with the clients fairly easily. My best tool is returning email and phone calls quickly. Doesn't matter if I don't have an answer. Just returning call keeps people happy. Not a difficult thing to do but seems I'm on (sic) of the few to follow this model.

The raters did not agree on the cognition of psychological empowerment for this entry. One rater coded the log entry as illustrative of the cognition of meaning; the second rater coded the log entry as illustrative of the cognition of impact.

Summary of the content analysis of the learning log entries

All four cognitions of psychological empowerment were identified in the sample learning log entries by the raters. Forty-one percent of the sample learning log entries were identified as containing evidence of psychological empowerment. Neither of the raters explicitly identified any additional themes beyond those of the four cognitions of psychological empowerment: meaning, competence, self-determination, and impact.

The most prevalent cognition of psychological empowerment found in the learning log entries was self-determination. It was identified by both raters in 18% of the log entries included in the rating sample. Described by Spreitzer as "an individual's sense of having choice in initiating and regulating actions" (1997, p. 41), self-determination is measured on her Psychological Empowerment Scale with the following items:

7. I have significant autonomy in determining how I do my job.

8. I can decide on my own how to go about doing my work.

9. I have considerable opportunity for independence and freedom in how I do my job.

The prevalence of self-determination in the learning log entries is supported by the quantitative data. There was a significant difference on self-determination scores between the control and experimental groups on Spreitzer's scale ($F(1,27) = 5.972, p = .021$)) on the repeated measures MANOVA, such that the experimental group scored higher. There was also a significant effect on self-determination between the remote and local participants found on the one-way ANOVA ($F=3.363, p = .074$) for the first administration of Spreitzer's scale, with remote participants scoring higher than locals. The earlier finding suggests that individuals who practice active reflection may have higher levels of the cognition of self-determination than those who do not practice active reflection. Further, an organization's remote employees may possess a higher level of self-determination than do local or corporate employees. However, there was no significant between-group difference for self-determination on the second administration of Spreitzer's scale, which occurred only a few days after the layoffs at the host organization. This lack of significance may be attributable to remote employees feeling that they did not have as much access to corporate information as did local employees, particularly information that is informally disseminated (for example, by casual conversation or by rumor) by management and non-management employees at the corporate headquarters. This argument is supported by Spreitzer, whose model of psychological empowerment includes 'access to strategic information' as one of the inputs to psychological empowerment.

The most prevalent tone (positive, neutral, or negative) found in the learning log entries was positive, identified by both raters in 41% of the log entries in the rating sample. A total of 14 learning log entries of the 145 initially included in the rating sample were identified by both raters as illustrative of self-determination and containing a positive tone. These log entries span all three months of the study.

The Relationship Between the Results on Spreitzer's Scale and the Learning Log Entries

The proportion of the cognitions of psychological empowerment identified in the learning log entries does not have a positive correlation with the mean subscale scores on Spreitzer's scale for the participants who kept learning logs. The ordering of the mean subscale scores, from highest (1) to lowest (5) and the proportions, from the most frequently found (1) to the least frequently found (5), are shown in Table 19. The cognition of meaning is the highest mean subscale score, and is the least frequently found cognition in the learning logs. The cognition of impact has the lowest mean subscale score, and is the third-most identified cognition found in the learning logs.

Table 19

Comparison of Scores on Spreitzer's Scale to Learning Log Entries

Number	Order of Mean Subscale Scores on Spreitzer's Scale	Order of the Proportions of Cognitions Found
1.	Meaning	Self-Determination
2.	Competence	Competence
3.	Self-Determination	Impact
4.	Impact	Meaning

Post-Study Analysis of the Learning Log Entries

Because the kappa coefficients for inter-rater reliability were low for both evidence of psychological empowerment and for the quality of the learning log entries, and because log entries were included in the analysis sample only if both raters coded them in the same way, it is difficult to estimate the true representation of the cognitions of psychological empowerment in the log entries. To address the issue of the low kappa coefficients for the raters in this study, a post-study coding exercise was conducted using two additional raters. These raters examined 75 learning log entries randomly selected from the 145 learning log entries included in the study, and coded them following the same instructions as did the study raters. Randomization was achieved by selecting every fifth learning log entry from the master log file of all entries, selecting from beginning to the end of the file, and starting over until 75 entries had been selected.

The post-study raters agreed on 52 of the 75 entries (69%) for evidence of psychological empowerment; they agreed on 56 of the 75 entries (74%) for tone. As shown in Table 20, the kappa coefficients of inter-rater reliability for the post-study raters were much higher than those of the study raters. These kappas fell well into the 'fair to good range' for inter-rater reliability of .40 to .75 (Landis & Koch, 1977).

Table 20

Comparison of Kappa Coefficients for Study and Post-Study Raters

Psychological Empowerment		Tone	
Study	Post-Study	Study	Post-Study
.345	.550	.294	.566

Table 21 shows a comparison of the two rater teams for the proportion of psychological empowerment found in the learning log entries. Though the total percentage of representation of psychological empowerment increased to 68% from 41% in the post-study exercise, the percentages of individual cognitions found show the same trends. The most frequently found cognition was self-determination, followed in order by competence, impact, and meaning.

Table 21

Comparison of the Proportion of Cognitions of Psychological Empowerment Found in the Learning Log Entries for Study and Post-Study Raters

Cognition	# of entries		% of total log entries	
	Study	Post-Study	Study	Post-Study
Meaning	6	1	4%	1%
Competence	15	21	10%	28%
Self-Determination	26	26	18%	35%
Impact	14	3	9%	4%
Total	61	52	41%	68%

Table 22 shows a comparison of the two rater teams for the tone of the learning log entries. Though the total percentage of representation of tone increased to 74% from 60%, in the post-study exercise, the percentages of individual tones found show the same trends. The most frequently found tone was positive, followed in order by negative and neutral.

Table 22

Comparison of the Proportion of Tone Ratings for the Learning Log Entries for Study and Post-Study Raters

Tone	# of entries		% of total log entries	
	Study	Post-Study	Study	Post-Study
Positive	49	36	41%	48%
Neutral	1	2	1%	2%
Negative	22	18	18%	24%
Total	72	56	60%	74%

The post-study results suggest that whether the kappa coefficients for inter-rater reliability were low or good, the same trends emerged for both proportion of psychological empowerment cognitions and tone found in the learning log entries. These same trends were also found in the pilot coding exercise. See Appendix D for further information on the results of the pilot coding exercise.

CHAPTER V. DISCUSSION

This chapter begins with a summary of the findings from this study, followed by a detailed discussion of the results for each research question addressed in Chapter IV. It then presents the limitations of the study and implications for further research based upon the analyses of the study results. The chapter ends with concluding thoughts on the results of the study and how the results contribute to the body of knowledge for workplace learning.

To interpret the results of the two successive administrations of Spreitzer's Scale of Psychological Empowerment using her model of Psychological Empowerment alone would be to view this study as a time-series analysis. It would entail looking for changes in the scores and attributing them primarily to the components of the model, either to the social structural antecedents, or to the behavioral outcomes, which in turn then reinforce the social structural antecedents. Because this study explores the development of a model that builds upon Spreitzer's model, the interpretation of the results must account for both the foundational model and the additional input included in the developed model. The input or precursor to psychological empowerment added in the developed model occurs between the social structural antecedents and the perception of empowerment in the foundational model. This study did not collect the type of data necessary to statistically separate the effects of the different inputs on a single group. Consequently, a pretest, posttest control group design was used for the study; such a design allows for the direct comparison of groups who differ on only one significant point, the independent variable of the practice of active reflection.

Summary of Study Findings

This is the first study to explore the use of the variable reflection to directly influence the variable psychological empowerment. It sought to answer the overarching question 'How does the simple act of reflection affect the perception of self-empowerment in the workplace?' The literature reviewed as a foundation for this study suggested that reflection might be an influencer of psychological empowerment. As Zimmerman (1995) asserted, "For individuals to feel empowered, they must have a critical awareness of their environment." It is also thought that a critical awareness of one's environment can be obtained through reflection (Langer, 1989; Novak, 1998; Watkins & Marsick, 1993). Based upon the literature reviewed, a refinement or expansion to Spreitzer's model of Psychological Empowerment was proposed: including an individual intervention as an additional antecedent to the social structural antecedents already included by Spreitzer. This variation is depicted in Figure 6.

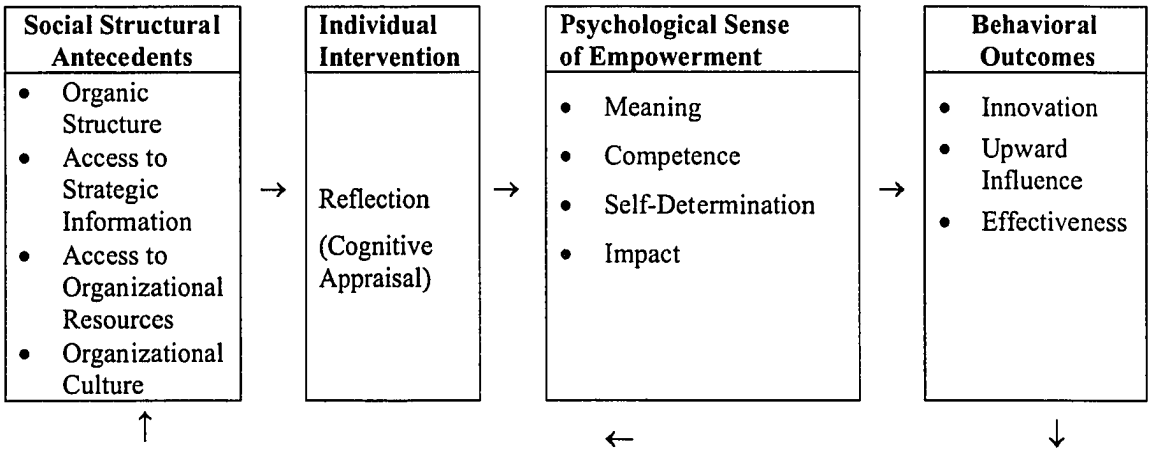

Figure 6. The proposed refinement to the theoretical model of individual empowerment in organizations used in this study

To obtain data to support the proposed variation to Spreitzer's model, two exploratory research questions were posed. The theoretical bases for the proposed variation were deemed sufficient to also allow for a specific hypothesis to be made as to how the study variables of reflection and psychological empowerment would interact. These exploratory questions and the hypothesis are shown in Table 23 to guide the discussion that follows.

Table 23

Exploratory Questions and Hypothesis for this Study

Question 1	How does reflection influence the gestalt of psychological empowerment?
Question 2	How does reflection influence the individual dimensions of psychological empowerment: meaning, competence, self-determination, and impact?
Hypothesis	Those who use active reflection will demonstrate increased levels of psychological empowerment as measured by the total score on Spreitzer's scale.

The results of the within-group analyses did not support the hypothesis of the study; participants in the experimental group did not significantly increase their levels of psychological empowerment. However, the study results do suggest that individuals who practice active reflection can sustain relatively high levels of psychological empowerment[1], even in a negative or turbulent work environment, such as that experienced at the host organization during the time period in which the study was conducted. The particular cognitions of psychological empowerment that are potentially sustained by active reflection are self-determination and impact.

[1] The term 'relatively high levels of psychological empowerment' is operationally defined in this study as a mean total score of 60 or greater. There is no published normative data for Spreitzer's scale that allows for exact categorizations of low, medium, and high levels of psychological empowerment.

Two additional exploratory questions were posed to obtain data on how psychological empowerment is manifested by knowledge workers in the workplace. These additional questions are shown in Table 24 to guide the discussion that follows.

Table 24

Additional Exploratory Questions for this Study

Question 3	Do onsite and offsite employees possess different levels of the four dimensions of psychological empowerment?
Question 4	What will be the proportion and qualities of the four dimensions of psychological empowerment found in the written self-report journals of participant workplace learning?

The study results suggest that during stable, non-turbulent times, remote or offsite employees possess a higher level of psychological empowerment than do local or onsite employees, particularly the cognition of self-determination. However, during turbulent times, the differences between the groups diminish. In particular, the mean composite scores of psychological empowerment for remote employees who did not practice active reflection dropped several points. These findings are corroborated by the first administration of Spreitzer's Scale of Psychological Empowerment, which was given at the beginning of the second financial quarter of the year at the host organization, and the second administration of the scale, which was given soon after the reorganization and layoffs at the host organization.

The content analysis findings supported the statistical results of the study. All four cognitions of psychological empowerment were identified in the learning log entries. The most prevalent cognition of psychological empowerment found in the learning log entries was self-determination. The most prevalent tone (positive, neutral, or negative) found in the learning log entries was positive.

Research Question 1

The first objective of the study was to determine how the practice of active reflection through guided journaling would influence the manifestation of the gestalt of psychological empowerment; that is, the construct that represents the sum of all four cognitions. This first objective also sought to test the hypothesis that participants who engaged in active reflection would demonstrate increased levels of psychological empowerment as measured by the total means scores on Spreitzer's Scale of Psychological Empowerment.

An analysis of the descriptive statistics revealed a trend for the mean scores of participants who kept learning logs to increase, and for the means scores of participants who did not keep learning logs to decrease over time. These findings suggest that active reflection may contribute to an increase, or at least to the maintenance of the level of psychological empowerment of employees. This trend occurred despite the negative circumstances occurring at the host organization during the study period. Such a trend is supported by the outcomes of reflection through journaling discussed in the review of the literature: self-awareness, professional development, and new meaning perspectives (Hobson, 1996; Marienau & Fiddler, 1997; Swenson, 1988).

Within-group results of the repeated measures ANOVA did not support the hypothesis that participants who engaged in active reflection through guided self-reflection would increase their scores on Spreitzer's scale. There were no significant findings of increased mean scores on Spreitzer's Scale of Psychological Empowerment for the experimental group. Despite the disruptive events occurring at the host organization, however, many participants did increase their levels of psychological

empowerment. Of the participants from the experimental group who did complete the second administration of Spreitzer's scale ($N = 15$), two-thirds ($N = 10$) had increased scores on the second administration; these increases ranged from 2 to 13 points. One participant had the same score on the first and second administration of Spreitzer's scale.

There are a number of reasons that may explain why significant results were not obtained. First, mean scores on Spreitzer's scale for the experimental group were almost three points higher than those of the control group at the beginning of the study (64.55 versus 61.89). At the second administration of Spreitzer's scale the mean scores for the groups were 66.88 for the experimental group versus 59.46 for the control group.

Second, during the month of July—the third and last month of logging—the host organization conducted a reorganization, resulting in layoffs of employees (including study participants) and in the shifting of employees (including study participants) to new positions within the organization. Total sample size dropped from 42 at the beginning of the study to 29 after the layoffs. The months immediately preceding the reorganization were fraught with rumors of the impending reorganization, possible layoffs, and of the potential sale of the host organization to a competitor. These factors may have contributed to the non-significant within-groups results.

Third, the mean gain from the first to the second administration of Spreitzer's scale for the experimental group was only 1.063 points. This is attributable, in part, to a range on the gain score of 26 points: the minimum gain was –13 points, and the maximum gain was +13 points. Such an extreme range may be due to a change in position for the affected participants. The participant whose score increased by 13 points was moved into a new position in which she expressed increased satisfaction; this

participant was also dissatisfied with her prior position. The participant whose score decreased by 13 points was moved into a new position in which the manager has a very poor reputation within the host organization in terms of 'people skills'. Such changes in psychological empowerment scores support Spreitzer's thesis that psychological empowerment is a contextual variable, not a personality variable (Spreitzer, 1997); the changes in the scores are attributable to the participants' changes in position, not to any change(s) in the personalities of the participants.

Certainly it would be difficult to generalize from these specific instances. In fact, the psychological empowerment score of one participant in the control group also dropped 13 points on the second administration of Spreitzer's scale. This researcher was unable to identify any work-life events that may have contributed to such a change in score during a brief interview with this participant after the completion of the data collection.

Fourth, not all participants in the experimental group actually completed learning logs. One participant in the experimental group ($N = 16$) did not complete learning logs, but did take Spreitzer's scale during the second administration. Additionally, the length and quality of the learning log entries varies considerably by participant, suggesting comparable variations in the commitment to logging, time spent logging, and the personal and professional value attributed to the activity. For example, some participants typically wrote daily log entries; other participants wrote weekly entries; and a few participants wrote monthly summaries. Monthly word counts for participants ranged from 99 words in three entries to well over 2,000 words in ten entries.

Research Question 2

The second objective of the study was to determine how the practice of active reflection through guided journaling would influence the manifestation of the individual cognitions of psychological empowerment—meaning, competence, self-determination, and impact. No specific hypotheses were proposed as to which of the cognitions of psychological empowerment would be most affected by the practice of active reflection. An analysis of the descriptive statistics revealed a trend for the mean subscale scores of participants who kept learning logs to increase, and for the mean subscale scores of participants who did not keep learning logs to decrease. Specifically, the experimental group increased their mean scores on the cognitions of meaning, competence, and impact. The largest increase was on the mean score for impact, which rose almost two points, from 12.59 to 14.50. The mean score for the subscale of self-determination decreased less than one quarter of a point, from 17.00 to 16.86. On the second administration of Spreitzer's scale, the control group's mean scores decreased on all subscales excluding impact, which increased less than one point, from 11.05 to 11.85.

Between-group analyses revealed significant findings on the repeated measures MANOVA for the cognitions of self-determination and impact. Such a finding suggests that active reflection through guided journaling may sustain or increase these particular cognitions of psychological empowerment. Again, these findings are based upon data collected during a turbulent time at the host organization. If reflection, especially active reflection through guided journaling, does indeed increase self-awareness, it is logical that the two cognitions of psychological empowerment most improved were self-determination and impact, two of the most subjective of the cognitions. Spreitzer (1997)

defines self-determination as "an individual's sense of having choice in initiating and regulating actions" (p. 41); she defines impact as "the degree to which an individual can influence strategic, administrative, or operating outcomes in the organization or larger environment" (p. 43).

For a participant to assess his or her self-determination and impact, even to complete Spreitzer's scale, requires an act of self-reflection. The reflection practiced in this study was self-reflective, even for thematic questions that focused on the organization. For example, the thematic question for the final month of journaling was 'How can learning be improved at host-organization?'. Journaling helped to reinforce or to increase participant self-awareness of self-determination and of impact. The following journal example was identified by raters as exemplifying self-determination. The participant who wrote this entry clearly feels that he or she can initiate or regulate his or her own actions.

> Today I created project files for a new manual I'll be writing. This is a long, drawn out process, involved 8 or 10 steps, and since I don't do it everyday, I always forget what needs to be done. So, I went to my handy One-Stop-Doc Developer's Guide and ran through the tasks. I did, however, get stumped about half-way through and uncovered an unwritten additional step . I asked my manager for clarification and she informed me that you have to repeat some of the tasks for each master document you create. I sent an email to our copyeditor to include this step with the next update.

The following journal example was identified by raters as exemplifying impact. In this entry, it is clear that the individual perceives that he or she is influencing the organization and the larger environment, the client.

> Assisting client with batch load of NH-SCR, which I personally have never done. Found very helpful information on CUBBS relating to the batchl for the NH-SCR, which could not be found in any of the manuals. Client found this helpful also.

The results suggest that participants who practice active reflection increased their cognitions of self-determination and impact by achieving the "critical awareness of their environment" that Zimmerman (in Spreitzer, 1995b, p. 607) insists is required for an individual to feel empowered, but also a critical awareness of their own professional development, a subjective self-awareness brought into focus by the written recording of specific acts. Such journaling requires the cognitive examination of experience, the definition of reflection used in this study.

The cognition of impact resulted in the lowest scores for both the experimental and control groups on both the first and second administration of Spreitzer's scale. Mean scores for the experimental group were 12.59 and 14.50; means scores for the control group were 11.05 and 11.85. The low impact scores may be due to working with a non-management sample who do not believe that they have a broad sphere of influence in the organization or even within their own workgroups. The impact subscale items on Spreitzer's scale specifically reference the term 'department'. For example, item 10 is worded as follows: "My impact on what happens in my department is large."

Both groups increased their subscale scores for impact, though it is the experimental group that experienced the greater increase. It is perhaps that the second administration of the scale occurred soon after the reorganization and layoffs to which this increase is partly attributable. It may be that managers looked to their scaled-down teams to assume more responsibility, and employees may have been asked to make greater contributions to the teams, particularly in setting direction. Had the second administration of the scale occurred during the reorganization and layoffs, it is suspected that the subscale scores for impact would have remained the same for participants who practiced active reflection.

Research Question 3

The third objective of the study was to determine whether local employees—those who work in corporate headquarters—possess different levels of psychological empowerment than do remote employees—those who work in the field. Based upon the review of the literature, particularly the literature concerning virtual organizations, it was suspected that those who work in the field might possess higher levels of psychological empowerment than do their counterparts who work in the corporate headquarters of the host organization due to less restrictions and to less contact with management, particularly their direct supervisors. Because of this supposition, the study sample was stratified on the variable 'Location' to ensure that the sample reflected the same percentage of local and remote employees as did the available population from the host organization. These same percentages of local and remote employees were also reflected in the control and experimental groups. The next sections discuss the findings from the 2x2 and 2x2x2 designs used to address Research Question 3.

Interpretation of the 2x2 Design Findings

The 2x2 design examined differences between local and remote employees regardless of whether they belonged to the experimental or to the control group. Viewed through this paradigmatic filter, remote employees scored higher than did local employees on both administrations of Spreitzer's Scale of Psychological Empowerment, though not significantly so, as evidenced by the results of the repeated measures analyses of variance of the means for the composite scores. Mean composite scores for the local employees increased just over one point between administrations of the scale (62.913 to 63.391), while mean composite scores for the remote employees decreased less than one point (64.833 to 64.167) during the same time period. The comparative results for local versus remote employees are similar to those for the experimental and control groups discussed in Research Questions 1 and 2: scores for both the local and remote employees are fairly close on all four cognitions, and the cognition of impact has the lowest mean. This trend applies to both the first and second administrations of Spreitzer's scale.

Because the difference between the two groups was not statistically significant on the composite scores for psychological empowerment, it is difficult to discuss why this may be so without examining the underlying subscale scores. The largest difference between the groups was on the subscale scores for self-determination. For this cognition, remote employees scored higher than did local employees on both administrations of Spreitzer's scale, before and after the reorganization and layoffs. However, both groups' scores for self-determination decreased on the second administration of Spreitzer's scale, after the reorganization and layoffs. Further, scores for the cognition of impact of local employees increased almost two points, from 11.782 to 13.522.

A detailed examination of the psychological empowerment scores for the remote employees on the first administration of Spreitzer's scale—prior to the reorganization and layoffs at the host organization—reveals that they did have higher composite scores than did local employees, though not significantly so. In particular, remote employees scored higher than did local employees on the cognitions of self-determination (18.000 versus 16.043) and impact (12.833 versus 11.782). Local employees scored slightly higher than did the remote employees on the cognitions of meaning (17.739 versus 17.333) and competence (17.384 versus 16.667). The following discussion suggests reasons for these findings.

As defined by Spreitzer (1997, p. 41), self-determination reflects "an individual's sense of having choice in initiating and regulating actions". Like many organizations that provide products and services, the host organization has a published set of corporate values. One of these values is 'Exceptional customer service'; the host organization seeks to instill this value in its employees. This published corporate value contributes to the organizational culture, a social structural antecedent of psychological empowerment in Spreitzer's model. Certainly remote employees have a responsibility of directly meeting the needs of clients, more so than their counterparts in corporate headquarters. They are often at client sites, under the direct scrutiny of the client; and they must fulfill the agreed-upon 'statement of work' with the client or the client may refuse to pay for the services or annual maintenance fees, or even sue the host organization for breach of contract. Remote employees have a work ethic of 'doing whatever it takes' to provide exceptional service to their customers. Further, remote employees have less direct contact with their managers than do employees who work in the host organization's

corporate headquarters, possibly causing them to be more self-reliant. These reasons help to explain why remote employees have a greater sense of self-determination than do local employees.

Impact, as defined by Spreitzer (1997, p. 43), reflects "the degree to which an individual can influence strategic, administrative, or operating outcomes in the organization or larger environment". For remote employees, direct contact with customers causes them to perceive that they have influence in the "larger environment", that is beyond that of the host organization. Remote employees see the direct impact of their efforts upon customers' organizations through the successful installation, implementation, and customization of the host organizations' software products.

A detailed examination of the psychological empowerment scores for the remote employees on the second administration of Spreitzer's scale—following the reorganization and layoffs at the host organization—reveals that they did again have higher composite scores than did local employees, though again, not significantly so. There was a trend for the composite scores of psychological empowerment for remote employees to decrease (64.833 to 64.167) and for those of the local employees to increase (62.913 to 63.391). In particular, remote employees scored higher than did local employees on the cognitions of meaning (18.000 versus 17.391), competence (17.000 versus 16.739), and self-determination (16.667 versus 15.739). Local employees scored higher than did remote employees on the cognition of impact (13.522 versus 12.5000). The following discussion suggests reasons for these findings.

The trend for the mean composite scores to decrease for remote employees, though still remain higher than those for local employees, may be due to environmental

factors, the social structural antecedents that Spreitzer lists in her model as precursors to psychological empowerment. It is possibly the very fact that remote employees are physically remote from the corporate headquarters that may explain the difference. Though electronically connected with their counterparts in the host organization's headquarters through email and through an extensive Intranet connected by a Virtual Private Network (VPN), remote employees do not have the day-to-day, face-to-face access to other employees and to managers who provide information formally or informally. Further, remote employees establish their own informal networks with other remote employees, creating an 'us versus them' mentality. This strategy often leads to the spreading of unfounded rumors that become exaggerated with each email sent. Especially during the unsettling times covered by the study period, remote employees sense of psychological empowerment may have decreased because of their lack of access to information available to local employees.

Interpretation of the 2x2x2 Design Findings

The 2x2x2 design examined differences between local and remote employees, also factoring in (experimental or control) membership. Viewed through this paradigmatic filter, the results of the repeated measures analysis of variance suggest that group membership takes precedence over location. For the experimental group, total mean scores of psychological empowerment increased between the first and second administration of Spreitzer's scale for both local (66.250 to 66.750) and remote (64.500 to 67.250) participants. For the control group, the total mean score increased slightly for local employees (59.273 to 59.727), but dropped seven and a half points for remote employees, from 65.500 to 58.000.

The results from the repeated measures multivariate analysis of variance are even more revealing. Subscale scores for remote participants in the experimental group increased for three of the four cognitions of psychological empowerment: meaning (16.750 to 18.250), competence (15.500 to 16.500), and impact (14.000 to 15.250). Simultaneously, subscale scores for remote employees in the control group decreased on all four cognitions of psychological empowerment: meaning (18.500 to 17.500), competence (19.000 to 18.000), self-determination (17.500 to 15.500) and impact (10.500 to 7.000). These results suggest that especially for remote employees, active reflection through guided journaling may help to maintain or increase their levels of psychological empowerment, even during turbulent times. During such times, active reflection provides a means for employees to evaluate information, particularly distressing information, they receive on potential reorganizations and layoffs, and to determine the best course of action for their own careers. This reframing of potentially difficult situations can lead to a greater perception of self-empowerment. There is the potential for this reflection to lead to what Davey (1993) terms "positive reappraisal", allowing employees to change the meaning of a potential stressor in their environment, and focus on the positive side of the information. For example, an employee may realize what is important and what is not important to himself or herself about a job.

Research Question 4

The fourth objective of the study was to examine how psychological empowerment would be expressed in the participants' learning log entries. Though the primary tool for analysis of the learning log entries was a quantitative content analysis, as explained by Krippendorff (1969), the interpretation of the results of the content analysis

also relies on the concept of 'situated meaning' as explained by Gee (1999). Recognition was given to the importance of context of the language used in the learning log entries within the social and cultural models of knowledge workers and the software industry.

There were 145 learning log entries included in the sample for rating, selected through "typical case sampling" (Patton, 1990). As there were a total of 228 entries submitted in the learning logs, the rating sample represents just fewer than two-thirds of the total entries.

Evidence of psychological empowerment was identified in 41% of the 145 sample log entries. The individual cognitions of psychological empowerment most frequently identified in the sample learning logs by the independent raters were competence—appearing in 10% of log entries—and self-determination—appearing in 18% of log entries. The cognitions of psychological empowerment least frequently identified by the independent raters in the sample learning logs were impact—appearing in 9% of log entries—and meaning—appearing in only 4% of log entries. There were large variations in the proportion of psychological empowerment evidenced by month. For month one, 45% of sample log entries contained evidence of psychological empowerment. For months two and three, the numbers were 58% and 15%, respectively.

Such variations may be more a reflection of the monthly theme used than a fluctuation in participant level of psychological empowerment. For month one, participants responded to these two questions: "What did you learn?" and "How did you learn it?" For month two, participants responded to these two questions: "What difficulties did you encounter in your job?" and "How did you overcome them?" For month three, participants responded to the question: "How can learning be improved at

'host organization'?" While it may be argued that the thematic questions for months one and two are self-reflective and that the thematic question for month three is less so, it is month two that contains the lowest percentage of evidence of psychological empowerment, 10%, compared to 15% for month three. It is unclear how the choice of thematic question impacts the content or length of the learning log entries. Further, during the third and final month of logging, participants from the experimental group were laid off; thus there were fewer participants submitting log entries during that month.

Due to the relatively low kappa coefficients calculated for overall inter-rater reliability for the four cognitions of psychological empowerment (.345) and tone of logging entries (.294), only logging entries were in which both raters agreed were analyzed (61 of 145 [41%]). Limiting the analysis to only 61 logging entries may have artificially lowered the true proportion of psychological empowerment found in the learning log entries. The low kappa coefficients may be a reflection of differing interpretations of the coding categories by the two raters. For example, during the rating debriefing, one rater viewed participants seeking help from a manager or from a co-worker as not representing self-determination, while the other rater interpreted the same action as evidence of self-determination as it was a realization of a lack of knowledge or direction, followed by a self-directed action to ameliorate the knowledge or direction gap.

Only 72 log entries were considered for analyzing the tone (positive, negative, or neutral) of the entries. Of these, a positive tone was the most frequently found ($N = 49$). The second-most prevalent tone was negative ($N = 22$). These findings may also reflect the monthly themes used in the study. For example, month one's guided questions of "What did you learn?" and "How did you learn it?" are likely to produce positive feelings

in participants. Well over three-quarters (84%) of the log entries included in the sample for month one contain a positive tone. Similarly, month two's questions of "What difficulties did you encounter in doing your job?" and "How did you overcome them?" may engender negative feelings in participants. Almost two-thirds (61%) of the log entries included in the sample for month two contain a negative tone. Tone ratings for month three ("How can learning be improved at 'host organization'?") were almost evenly split between positive (5 of 9 log entries) and negative (4 of 9).

Both the pilot and the post-study coding exercises supported the trends for the proportion of cognitions found in the study. The most frequently identified cognitions were, in order, self-determination, competence, impact, and meaning. The most frequently identified tones were, in order, positive, negative, and neutral. These trends held whether the kappa coefficients for inter-rater reliability were low, as in the study, or good, as in the pilot and in the post-study coding exercises.

The relatively high prevalence of the cognitions self-determination and competence found in the learning log entries fits well with the definition of a knowledge worker: "the person who creates and applies knowledge to productive ends in contrast to an 'intellectual' for whom information and concepts may only have importance because they interest him or to the manual worker who applies manual skills or brawn" (Drucker, 1969, p. 264). These workers 'create' knowledge and they 'apply' knowledge. They are action oriented. It is not surprising that these workers wrote so frequently of their sense of self-determination ("an individual's sense of having choice in initiating and regulating actions" (Spreitzer, 1997) and their sense of competence ("an individual's belief in his or her capability to perform activities with skill" (Spreitzer, 1997).

The study participants were also non-management workers, and as both Spreitzer (1995a) and Kanter (1989) noted, in organizations with fewer layers of management, such as the host organization, workers are expected to function more autonomously. The relatively low prevalence of the cognitions of impact ("the degree to which an individual can influence strategic, administrative, or operating outcomes in the organization or larger environment" (Spreitzer, 1997)) and meaning ("the value of a work goal or purpose, judged in relation to an individual's own ideals or standards" (Spreitzer, 1997)) are also supported by the definitions of these cognitions and by the non-management status of the participants.

Though the ordering for the proportion of the cognitions of psychological empowerment identified in the learning logs is self-determination, competence, impact, and meaning, the mean subscale scores for participants who kept learning logs is ordered differently: meaning, competence, self-determination, and impact. Such differences may be due to the characteristics of the study population and to the fact that this is a workplace study. For example, the cognition of meaning is the highest mean subscale score for the experimental group on both administrations of Spreitzer's scale, yet it is the least frequently found cognition in the learning logs. Because knowledge workers have often consciously chosen their field of work, they may have relatively high perceptions of meaning. However, as action oriented individuals, they may have chosen, consciously or otherwise, to focus their reflections on their self-determination and competence, and to avoid the topic of meaning. Further, participants may have felt uncomfortable with addressing the issue of meaningfulness and their work, knowing that the researcher is also employed at the host organization. The discrepancy in findings may also be a

product of the thematic questions asked in the study that did not engender thoughts of meaningfulness. A more substantive analysis of the learning log entries than that allowed by a content analysis is necessary to address the discrepancy between mean subscale scores on Spreitzer's scale and the proportions of the cognitions found in the learning log entries.

It is impossible to determine the effect of the participants' perception of the social structural antecedents (organic structure, access to strategic information, and organizational culture) in the host organization and the effect of personality on the tone of the log entries through an analysis of the learning log entries alone. Such an analysis would require the use of instruments that measure those specific constructs. Such measurement was deemed beyond the scope of this study, but should be included in a full evaluation of the model.

Limitations

There are three limitations of this study that must be noted: sample size, generalizability, and researcher status. These limitations affect the results of this particular study. The limitations also affect the generalizability of the study.

First, this study used a relatively small sample. As noted earlier in this chapter, the sample size dropped from 42 at the beginning of the study, to 29 after the layoffs at the host organization. Such a small sample makes it difficult for a significant treatment effect to emerge, even if one is present. Second, the research was conducted only on employees of the host organization. This limitation affects the generalizability of the results to different types of employees and to different industries. Third, it may be that

the researcher's 'indigenous-insider'[2] status detracted from the objectivity of the study in two ways. One is that some participants expressed a willingness to complete their learning logs more as a favor to the researcher, rather than as a professional development tool. The second related limitation is that some participants did not complete the second administration of Spreitzer's scale, even though they were still employed at the host organization at that time. When contacted, these participants indicated that the researcher would understand that their workloads did not permit them time to complete the survey. It is unlikely that participants would have used this avoidance technique with an outsider researcher.

Implications for Further Research

In this study, a simple definition of reflection was used: "the cognitive examination of experience" (Siebert & Daudelin, 1999). As such, the questions used for the guided journaling (for example, "What did you learn?" and "How did you learn it?") sought to cause this level of cognitive examination to occur. In their work on professional development, Justice and Marineau (in Siebert & Daudelin, 1999) suggest posing questions that have the participant/journalist first identify a problem with which to work, and then answer a series of questions about that problem. The adoption of such a questioning strategy might produce a deeper level of reflection and commitment to journaling than that encountered in this study as participants would then have a vested interest in the topic for their journals. Further research may be warranted to determine

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[2] Banks (1998) describes the indigenous-insider as one whose behavior and knowledge "is perceived by people within the community as a legitimate community member who can speak with authority about it." (p. 78). Merton (1972) writes about the issues associated with both insider and outsider researchers, concluding that both have valuable contributions to make.

whether guided journaling alone is sufficient to increase the perception of psychological empowerment, or if guided journaling should perhaps be combined with discussion, or that dialogue journaling be used instead. These techniques proved useful in the intervention studies discussed in the review of the literature that formed a theoretical basis for this study.

Prior studies conducted to improve either the cognitions of psychological empowerment (Frayne & Geringer, 2000; Neck & Manz, 1996) or to improve reflective skills (Daudelin, 1996; Kruger & May, 1985; Rigano & Edwards, 1998) involved direct instruction of participants. It was made clear to participants what particular skills were being developed or improved, perhaps setting an expectancy of improvement. Such direct instruction was also recommended by Thomas and Velthouse, upon whose work Spreitzer's model is based. They recommend that organizations implement interpretive style interventions, making employees aware of their negative interpretive styles and teaching them to replace them with more objective and positive interpretive styles (Thomas & Velthouse, 1990). This study did not provide direct, or indirect, instruction on reflection to participants. Neither did the study inform participants of any specific benefits or skills to be obtained. The informed consent forms explained the benefits of participating in the study as follows: "You will not directly benefit from participating in this study. However, you may view your work and workplace learning in a different light." Future research using direct instruction on reflective techniques should be conducted to determine if such techniques contribute to producing statistically significant changes in psychological empowerment.

This study might be repeated in situations in which the study population has low psychological empowerment, as measured by Spreitzer's scale, or a sample with low psychological empowerment is derived from a population with medium to high psychological empowerment. The sample in this study consisted of knowledge workers in the software industry, workers who are fairly well-educated, and possess highly marketable workplace skills. In addition, the sample participants are also expected to work fairly autonomously. The few participants whose scores differed significantly from others in the experimental group can potentially be explained by their shifting positions within the host organization, lending credence to Spreitzer's supposition that psychological empowerment is not a personality variable.

Though this study treated the variable psychological empowerment as a dependent variable, Spreitzer (1997) and others treated psychological empowerment as a mediator variable. In Spreitzer's model psychological empowerment mediates between a set of social structural antecedents—organic structure, access to strategic information, access to organizational resources, and organizational culture—and a set of behavioral outcomes—innovation, upward influence, and effectiveness. It would be useful to have instruments that measured the social structural antecedents within an organization, and correlate the results from the administration of those instruments with the scores on Spreitzer's scale. Such a comparison would allow for an additional quantification of the environment within the host organization. Further it would provide evidence of how social structural antecedents relate to the four dimensions of psychological empowerment.

Conclusion

The underlying premise of this study is that "the development of individual learning power is clearly a top priority" (Claxton, 1999, p. 313) for knowledge workers struggling to keep up with the ever present changes in technology and processes in today's workplace. The three qualities cited by Claxton as requisite for successful, continuous learning were as follows: resilience, resourcefulness, and reflectivity. The proposed refinement to Spreitzer's model developed and tested in this study sought to address these three qualities.

The results suggest that workers who practice active reflection were able to sustain their high levels of psychological empowerment even during turbulent times at the host organization. These workers even increased their levels of two cognitions of psychological empowerment: self-determination and impact. These workers demonstrated the qualities of resilience and resourcefulness, documented outcomes of psychological empowerment. By keeping learning logs, they also demonstrated the quality of reflectivity. Conversely, workers who did not practice active reflection during the turbulent times at the host organization tended to have lowered levels of psychological empowerment. Though the results did not support the hypothesis that active reflection would increase levels of the gestalt of psychological empowerment, it is unclear whether the non-significant results are due to the negative environment of the host organization during the study period, the unexpectedly high psychological empowerment scores for the experimental group as compared to the control group at the beginning of the study despite randomization, to the small sample size, or to a combination of those factors.

This study contributes to the body of knowledge on workplace learning in a variety of ways. Through the development and testing of a refinement to Spreitzer's model, it broadens the theoretical base of information on the construct of psychological empowerment in the workplace, conceptualized by Conger and Kanungo, Thomas and Velthouse, by Spreitzer herself, and by those who have worked with Spreitzer's model and scale, particularly Rulle (1999) and Schroeder (1998). By including the concept of individual, cognitive appraisal—in this case measured by reflection—the model becomes a more complete picture of how individuals interpret and assign meaning to their environment. Further, the study introduces an individual-level intervention into the model, allowing workers to improve their levels of psychological empowerment without changes to the social structural antecedents over which they may have no control. Empirical evidence is provided for this potential means of increasing psychological empowerment and subsequent characteristics of individual learning power. The study also provides additional normative data on scores for Spreitzer's Scale of Psychological Empowerment that will be useful to other researchers for comparative purposes.

Future research will need to be conducted to determine whether active reflection involving either dialogue journaling and/or direct instruction can significantly improve the psychological empowerment of knowledge workers in the workplace. By conducting a study in an organization larger than the host organization used in this study, it would be possible to directly compare a number of groups simultaneously: one group who practiced reflection using self-reflective journals, as was done in the current study; another group who used dialogue journals, another group who used direct instruction for their reflection, and a control group. Samples for such research should include

knowledge workers possessing low, medium, and high levels of psychological empowerment at the beginning of the study, as measured by Spreitzer's Scale of Psychological Empowerment. Though continuous learning is a requisite for knowledge workers, it is also increasingly important for other types of workers, and consideration should be given to conducting research with these types of workers, particularly those whose work encourages reflection, such as those in the social services and education. Other types of industries, such as retail and manufacturing, should also be considered for inclusion in future research.

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Appendix A. Spreitzer's Scale of Psychological Empowerment

1. The work I do is very important to me.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

2. My job activities are personally meaningful to me.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

3. The work I do is meaningful to me.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

4. I am confident about my ability to do my job.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

5. I am self-assured about my capabilities to perform my work activities.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

6. I have mastered the skills necessary for my job.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

7. I have significant autonomy in determining how I do my job.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

8. I can decide on my own how to go about doing my work.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

9. I have considerable opportunity for independence and freedom in how I do my job.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

10. My impact on what happens in my department is large.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

11. I have a great deal of control over what happens in my department.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

12. I have significant influence over what happens in my department.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

Appendix B. Participant Instructions and Informed Consent Forms

Note: This activity is for both the control and experimental groups. The scale used in this activity was used again at the end of the study as a separate activity for both groups.

The Knowledge Worker Project – Activity 1

About the project

The Knowledge Worker Project will explore how employees such as yourself create and disseminate knowledge throughout an organization. This project is associated with the Cyborg core value of 'continuous personal and professional growth.'

This project is being conducted under the auspices of DePaul University under the direction of Dr. Barbara Radner. The Institutional Review Board of DePaul University has reviewed the research design and given their approval for the research to be conducted.

Things to know about your participation in the project

What's expected of you

The project will be conducted over the next three months. Today, you will be asked to complete a brief survey. You may be asked to participate in other activities during the project period.

What's in for you?

In addition to helping you focus on your own learning goals, at the end of the project, you will be eligible for a drawing for $100.00.

Frequently asked questions about the project

1.How did I get picked?
Your name was randomly selected from a list of full-time, non-management exempt employees. Your manager has approved your participation in the project.

2.How long will the project run?
The project will run for three months.

3.How much time is this going to take?
At the most, the time commitment will be from a half-hour to one hour per week for the duration of the project.

4.Wil l Cyborg see the results of the scale or other activities in which I participate?

No. All information is completely confidential and will be reviewed only by myself. To ensure your privacy, you will send your completed surveys to my home e-mail (vcybor@megsinet.com). In addition, I have assigned you a 'number' to ensure anonymity. Only I will have the list of names and numbers. Cyborg will only see a summary of the information.

The Survey

Taking the survey

Circle the number that best reflects your response to the statement.

1. The work I do is very important to me.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

2. My job activities are personally meaningful to me.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

3. The work I do is meaningful to me.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

4. I am confident about my ability to do my job.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

5. I am self-assured about my capabilities to perform my work activities.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

6. I have mastered the skills necessary for my job.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

7. I have significant autonomy in determining how I do my job.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

8. I can decide on my own how to go about doing my work.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

9. I have considerable opportunity for independence and freedom in how I do my job.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

10. My impact on what happens in my department is large.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

11. I have a great deal of control over what happens in my department.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

12. I have significant influence over what happens in my department.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

Submitting your survey results

Submit your results in an e-mail to: vcybor@megsinet.com. Simply list the numbers 1 through 12 and list your answer for each choice (from 1 to 7) next to the appropriate number. For example:

1: 5
2: 7

The Knowledge Worker Project, Activity 2: Learning Logs

What's expected of you

Over the next three months, you will keep an 'electronic' learning log. Use the log to record and reflect on the daily events, challenges, successes and frustrations that you experience at work. Pay particular attention to your role in these events.

Theme for Month 1

Each month will have a different theme to guide your writing and reflecting. For the first month, keep these questions in mind:

1. **What did you learn?**
2. **How did you learn it?**

The themes for months two and three will be sent to you by e-mail after you submit your log for the first month.

Note: There are example log file entries at the end of this document that you can review.

What's in it for you?

Keeping a learning log gives you a chance to take control of what you're doing. It allows you to assess yourself. It can help you clarify your goals and focus on what's important in your work life. Consider the following scenario:

Imagine it's time for your annual performance review. Your boss has sent you the 'self-appraisal' portion. You have a mere 24 hours to evaluate your performance over the past 12 months. And, you need to elaborate on ways in which you can improve. Add to this a list of things you want to accomplish over the next 12 months. And, by the way, jot what you will you need to learn to ensure those accomplishments really do happen. No problem, right? If you have been keeping a learning log, completing your part of a performance review form will be much easier.

Frequently asked questions about Activity 2

1.How did I get picked to do the logs?
Your name was randomly selected from the list of study participants.

2.How much time is this going to take?
For completing the logs, your time commitment will be approximately one half-hour per week for the duration of the study. In many cases, it will take only a few minutes a day to complete the logs.

3.Are all participants in the study keeping logs?
No. There will be different types of activities for different participants. With that said, I ask that you not discuss your logging activities with your co-workers.

4.Wil l Cyborg see what I write?
No. Your logs are completely confidential and will be read only by myself. To ensure your confidentiality, you will e-mail your logs from your home computer to my home e-mail account: vcybor@megsinet.com, and you will be assigned a participant 'number'. This number will be used as part of the name of the electronic file that you will submit.

5.Do I need to keep a record of everything I did during the day?
No. It's not an activity log. Pick something that is meaningful to you. Include why you did something the way you did it. Was it easy to do? Was it hard to do? What would have made it easier? Were you able to do it on your own? Did you need help? If so, what kind of help did you need? Where did you find the help? A co-worker? Did you check the intranet? The Internet? The documentation?

And keep it work-related. If you booked your next vacation online, great. But don't include it in the log.

6.Sh ould I discuss how I feel?
No and yes. This isn't merely introspection and contemplating how you feel. Granted, we all think/act/feel simultaneously all day. Consider your work challenges. Consider an area you'd like to improve about yourself and what actions you are taking to make that happen. For example, perhaps you talk too much at meetings; perhaps you don't talk enough. Perhaps you really don't understand the 'big picture' of a project you're working on, or where you fit in, how your work contributes.

7.Sh ould I use real names in the log?
No. If possible, refer to work associates by their positions: "my boss" "the project manager" or "another Marketing specialist". If it helps, make up names: call your boss "Susan"; call the project manager "John"; call the Marketing specialist "Barbara". Please do not include personal information about yourself or others that would be inappropriate to disclose.

8.Is there a specified length for log entries?
No. Only you can determine whether what you've written is long enough. Consider: is there enough there that you will understand it in a few months?

Instructions for keeping learning logs

- Use Microsoft Word.
  - Name the file as follows: nnn-month.doc. Where 'nnn' is your assigned number, and 'month' is the three-letter abbreviation for the month. For example, if your assigned number is '001', you would name your log file for April as follows: 001-APR.doc.
  - Submit your learning log file to me weekly. If you prefer, you can submit the logs whenever you update them.

Tips for completing learning logs

Here are some things you may want to consider when keeping your log:

- Write for a set period of time without stopping, say five minutes. Just keep writing. Don't edit; don't rewrite; don't censor your thoughts. Just keep writing. Good grammar doesn't matter. Spelling doesn't matter. What matters are your thoughts.
- Write at a specified time: at the end of the day or at the beginning of the day. Whatever works for you. The end of the day can be great as you can reflect on the day and think about the next day.
- Try to write at least three times a week.

Example log file entries

Example Log #1

3/1/01
Another delay. They're late with the system. So the documentation isn't finished either. But I still have to finish my test scripts on time. Of course!
So. What can I do? Some ideas: get drafts of the documentation (in any shape or form). Work with the design documents (have they been updated?). Get suggestions from the project manager. It's all her fault anyway. Or, is it? Who knows? Who cares?

Example Log #2

3/5/01
People seem to like the new look of the intranet. And they're using it, or so they say. Still need to get that counter software. It's built into Domino (I think). Or, if we need to buy, how much could it cost? Tomorrow I'll get some prices. And I'll bug the boss again about it. Make sure it gets into the budget.

Non-example log file entries

Non-example Log #1

4/2/01
Finished coding another JavaBean and unit tested it.

Non-example Log #2

4/10/01
Today I learned not to rely on Metra. I was late for the third time this month!!

CONSENT TO PARTICIPATE IN RESEARCH
Group 2501 [Control Group]

The Influence of Critical Reflection on Psychological Empowerment Among Non-Management Knowledge Workers in the Software Industry

1. My name is Vince Cyboran.
2. I am asking you to take part in a research study because I am trying to learn more about what facilitates the ownership of learning in the workplace. As a knowledge worker in the software industry, you are well aware that continuous learning is becoming the norm for staying current in the field. You will be asked to complete a brief questionnaire about how you view your job and the work that you do. It should take no more than fifteen minutes to complete the survey.

   Further, after both surveys are completed and returned, your name will be entered into a drawing for $100.
3. If you agree to be in this study you will complete the questionnaire twice, once in a week or so, and again three months later.
4. The questionnaire will be emailed to you. To assure your confidentiality, you will email from your home computer the completed questionnaire to me at my home email address: vcybor@megsinet.com. In addition, you will be assigned a 'number' to maintain confidentiality of this information and only I will have the list of names and numbers. Cyborg will only see a summary of the information and no individual's specific information.
5. You will not directly benefit from participating in this study. However, you may view your work and workplace learning in a different light. In addition, you will help to contribute to the body of research on workplace learning and psychological empowerment.
6. If you do not want to be in this study, you do not have to participate. Remember, being in this study is entirely up to you and no one will be upset if you do not want to participate or even if you change your mind later and want to stop and withdraw your agreement to participate.
7. All information that you provide in this research study will be kept strictly confidential and any report of this research will not identify you personally in any way.
8. You can ask any questions that you have about the study. If you have a question later that you did not think of now, you can call me at 312.279.6628 or at 312.943.8874.

9. Signing your name at the bottom means that you agree to be in this study. You will be given a copy of this form after you have signed it.
10. Investigator's Responsibility: I have fully explained to (participant) _____ the nature and the purpose of the above described research procedures and the risks and benefits involved in its performance. I have answered all (and will continue to answer all) questions to the best of my ability. I will inform the participant of any changes in the procedures or risks and benefits if they should occur during or after the course of this study. I have provided a copy of the consent form for the participant.

    Investigator's signature _____ Date_____

11. Participant's Consent: I have been satisfactorily informed of the above described procedure with its possible risks and benefits. I agree to participate in this research study. If I have any questions regarding my rights as a participant in this research study, I may request to speak to a member of the DePaul University Institutional Review Board for the Protection of Research Participants by calling (773) 325-7388. I understand that my participation in this research study is voluntary and that I am free to stop participating at any time, without any consequences, even after signing this form. I have been offered a copy of this form.

    Name of Subject_____ Date_____

    Signature_____

DPU-IRB approval number _____

CONSENT TO PARTICIPATE IN RESEARCH
Group 2601 [Experimental Group]

The Influence of Critical Reflection on Psychological Empowerment Among Non-Management Knowledge Workers in the Software Industry

1. My name is Vince Cyboran.
2. I am asking you to take part in a research study because I am trying to learn more about what facilitates the ownership of learning in the workplace. As a knowledge worker in the software industry, you are well aware that continuous learning is becoming the norm for staying current in the field. You will be asked to complete a brief questionnaire about how you view your job and the work that you do. It should take no more than fifteen minutes to complete the survey.

   In addition, you will be asked to complete an electronic learning log of your learning activities. It should take no more than five minutes a day to complete the learning logs, though certainly you can spend as much time writing as you see fit. Nevertheless, please do not include in your log any personal information about yourself or others that would be inappropriate to disclose.

   Further, after both surveys and the learning logs are completed, your name will be entered into a drawing for $100.
3. If you agree to be in this study you will complete the questionnaire twice, once in a week or so, and again three months later. You will also keep an electronic learning log for a period of three months. Each month, a series of questions will be sent to you to help focus your attention while keeping your log.
4. The questionnaire will be emailed to you. To assure your confidentiality, you will email from your home computer the completed questionnaire and learning logs to me at my home email address: vcybor@megsinet.com. In addition, you will be assigned a 'number' to maintain confidentiality of the information and only I will have the list of names and numbers. Cyborg will only see a summary of the information and no individual's specific information.

   Instructions for completing the learning logs and the questions will be emailed to you separately from this form.
5. You will not directly benefit from participating in this study. However, you may view your work and workplace learning in a different light. In addition, you will help to contribute to the body of research on workplace learning and psychological empowerment.
8. If you do not want to be in this study, you do not have to participate. Remember, being in this study is entirely up to you and no one will be upset if you do not want to participate or even if you change your mind later and want to stop and withdraw your agreement to participate.

9.All inf ormation that you provide in this research study will be kept strictly confidential and any report of this research will not identify you personally in any way.

8. You can ask any questions that you have about the study. If you have a question later that you did not think of now, you can call me at 312.279.6628 or at 312.943.8874.

9.Si gning your name at the bottom means that you agree to be in this study. You will be given a copy of this form after you have signed it.

12. Investigator's Responsibility: I have fully explained to (participant) _____ the nature and the purpose of the above described research procedures and the risks and benefits involved in its performance. I have answered all (and will continue to answer all) questions to the best of my ability. I will inform the participant of any changes in the procedures or risks and benefits if they should occur during or after the course of this study. I have provided a copy of the consent form for the participant.

Investigator's signature _____ Date_____

13. Participant's Consent: I have been satisfactorily informed of the above described procedure with its possible risks and benefits. I agree to participate in this research study. If I have any questions regarding my rights as a participant in this research study, I may request to speak to a member of the DePaul University Institutional Review Board for the Protection of Research Participants by calling (773) 325-7388. I understand that my participation in this research study is voluntary and that I am free to stop participating at any time, without any consequences, even after signing this form. I have been offered a copy of this form.

Name of Subject_____ Date_____

Signature_____

DPU-IRB approval number _____

Appendix C. Coding Guidelines for Content Analysis

General Instructions and Background

1. A log 'entry' is defined as all text associated with a given logging date or all text associated with a given topic.
2. The categories are not mutually exclusive, so an entry can contain evidence for more than one dimension of psychological empowerment. For example, a message can contain evidence of Competence and Self-determination.
3. It is possible to have entries that do not contain evidence of any of the dimensions of psychological empowerment.
4. If you think that an entry contains evidence for an aspect of psychological empowerment not captured by the four dimensions being used, make a note of this.
5. Use the example entries to guide you in coding. Consider the definition when determining whether an entry contains evidence of a dimension of psychological empowerment. You are not necessarily looking for exact word matching, but synonyms and evidence of the dimensions.
6. Write directly on the sample entries. For each entry, you will make two notations. First, assign a code to the entry using the following key:
   1 = Meaning, 2 = Competence, 3 = Self-determination, 4 = Impact, N = None
   Second, rank your perception of the tone of each entry using the following key:
   + = Positive, 0 = Neutral, - = Negative
7. It is not necessary to code all entries in a single session. If you become tired or distracted, take a break. It is important that you give ample consideration to each entry.

Dimension 1
Meaning

Definition: "the value of a work goal or purpose, judged in relation to an individual's own ideals or standards"

Based on the following items from the Meaning subscale:

1. The work I do is very important to me.
2. My job activities are personally meaningful to me.
3. The work I do is meaningful to me.

Keywords /Phrases	1. interesting 2. doing things I enjoy 3. enthusiasm 4. lose track of time/timelessness 5. identity 6. vision (personal) 7. believe in what I'm doing 8. matters 9. satisfaction
Examples from Spreitzer	"My work took on a personal dimension that I don't usually feel. It really meant something to me." "Following those things and ideas that I think are important and necessary. It's working toward a personal vision of how I believe that things are supposed to be. It means doing the right thing."
Example from this study	"Obviously, I know that I have a lot to learn, but feeling like I'm 'getting into the groove' of my present job gives me a sense of satisfaction."

Dimension 2
Competence

Definition: equated to self-efficacy, "an individual's belief in his or her capability to perform activities with skill"

Based on the following items from the Competence subscale:

4. I am confident about my ability to do my job.
5. I am self-assured about my capabilities to perform my work activities.
6. I have mastered the skills necessary for my job.

Keywords/ Phrases	1. confident (in ability) 2. able 3. mastery 4. self-efficacy 5. challenge/ing 6. I get it 7. assess 8. learned
Examples from Spreitzer	"As a woman, I always felt that I had to prove myself. I wasn't always very confident about what I had to contribute. But doing [the project], I felt extremely confident in myself—I knew that I did have what it takes, that I could do it and do it well." "...knowing I have the skills and abilities necessary to get a project done. It's feeling confident, believing in myself, trusting myself, knowing that I can do it. I could follow my intuition."
Example from this study	"Was able to copy the three cells to another doc, delete the original, then renamed the copy. Worked OK."

Dimension 3
Self-determination

Definition: "an individual's sense of having choice in initiating and regulating actions"

Based on the following items from the Self-determination subscale:

7. I have significant autonomy in determining how I do my job.
8. I can decide on my own how to go about doing my work.
9. I have considerable opportunity for independence and freedom in how I do my job.

Keywords/ Phrases	1. choose 2. plan 3. self-reliant 4. self-started 5. initiative 6. ownership 7. responsible 8. self-initiated 9. manage 10. establish 11. checked(ed) 12. look(ed)
Examples from Spreitzer	"With the help of my people, we decided the best way to attack [the problem]. It was our baby. It wasn't 'do it the way we tell you.' Instead, it was 'how do you think we approach this?'"
Example from this study	"I began reading a book about web design to supplement the course I took last month..."

Dimension 4
Impact

Definition: as "the degree to which an individual can influence strategic, administrative, or operating outcomes in the organization or larger environment"

Based on the following items from the Impact subscale:

10. My impact on what happens in my department is large.
11. I have a great deal of control over what happens in my department.
12. I have significant influence over what happens in my department.

Keywords/ Phrases	1. recommend 2. share (ideas) 3. suggest 4. make a difference 5. affect 6. effect 7. change agent 8. (I am) listened to
Examples from Spreitzer	"Our division was contemplating some major restructurings, and it was not at all clear where our department would fall in the move...Though our jobs were not immediately on the line, we knew that it would be a mistake for the division to disband our department. I knew we had to take action with top management...In the end, we did save our department and actually had our responsibilities expanded."
Example from this study	"I sent an email to our copyeditor to include this step with the next update."

Appendix D. Content Analysis Pilot Results

Cohen's Kappa for Two-Rater Coding of 25 Learning Log Entries

	Rater 2				
Rater 1	Meaning	Competence	Self-Determination	Impact	Total
Meaning	3 11.1%	0	1 3.7%	0	4 14.8%
Competence	2 7.4%	4 14.8%	2 7.4%	1 3.7%	9 33.3%
Self-Determination	1 3.7%	1 3.7%	8 29.6%	0	10 37.0%
Impact	0	0	0	4 14.8%	4 14.8%
Total	6 22.2%	5 18.5%	11 40.7%	5 18.5%	27 100.0%

Measure of Agreement/Kappa = .592

Rater 2	Rater 1			
Factor	Positive	Neutral	Negative	Total
Positive	14 50%		2 7.1%	16 57.1%
Neutral	1 3.6%	2 7.1%	1 3.6%	4 14.3%
Negative	1 3.6%	1 3.6%	6 21.4%	8 28.6%
Total	16 57.1%	3 10.7%	9 32.1%	28 100.0%

Measure of Agreement/Kappa = .622

VITA

The author is a native of Chicago, Illinois. He received his Bachelor of Education, including two areas of Special Education (Learning Disabilities and Emotional Disturbance) from the University of Illinois. He received his Master of Science in Instructional and Performance Technology from Boise State University.