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Testing an Extension of the Job Demands-Resources Model :The Addition of Personal Resources as Mediators to the Resources - Engagement Relationship

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TESTING AN EXTENTION OF THE JOB DEMANDS-RESOURCES MODEL: THE
ADDITION OF PERSONAL RESOURCES AS MEDIATORS TO THE RESOURCES
– ENGAGEMENT RELATIONSHIP

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Abstract

I review the construct of work engagement and discuss the Job Demands-Resources (JD-R) model, a theory to describe the causes of engagement. The study investigates the inclusion of personal resources in the JD-R model. This research tests the hypothesis that personal resources (self-efficacy, optimism, and self-esteem) will mediate the relationship between organizational resources (method control and social support) and engagement. The hypotheses were tested in a longitudinal design with a sample of nurses from the Northwestern United States ($N = 428$). Method control significantly predicted self-esteem, and coworker support significantly predicted self-efficacy. Further, supervisor support and self-efficacy predicted dedication, and self-efficacy predicted vigor. This study contributed to the literature by providing an extensive theoretical explanation of the resource-engagement processes, testing the mechanisms with a longitudinal design, and providing possible directions for an environmental intervention to enhance personal strengths.

Testing an Extension of the Job Demands-Resources Model: The Addition of Personal

Resources As Mediators to the Resources – Engagement Relationship

In a recent push to study the things that make life worth living, positive

psychology (Seligman & Csikszentmihalyi, 2000) has touched many branches of

psychology. Researchers have categorized personal strengths and values (Peterson &

Seligman, 2004), noted the management of those personal strengths to implement

organizational success in positive organizational behavior (F. Luthans, 2002), and

emphasized the need to study thriving environments through positive organizational

scholarship (Roberts, 2006). The Industrial/ Organizational applications of positive

psychology have focused on engagement (e.g., Kahn, 1990; Macey & Schneider, 2008;

Maslach, Schaufeli, & Leiter, 2001; Schaufeli & Bakker, 2004). Engagement has been

defined as "a positive, fulfilling, and work-related state of mind that is characterized by

vigor, dedication, and absorption" (Schaufeli, Martinez, Pinto, Salanova, & Bakker,

2002, p. 465). Studying engagement is of interest to businesses and employees as both

benefit from the knowledge of fostering engagement in the workplace. The purpose of

this study is to examine the relationships among organizational contexts, personal

strengths, and engagement.

An important area in which to study engagement and its antecedents is in the

healthcare profession. Engagement among nurses is generally thought to be high

(Mauno, Kinnunen, & Ruokolainen, 2007). However, care work is also fraught with

burnout which was first assessed in relation to emotional labor (Maslach et al., 2001).

The Northwest United States can expect that by 2025, 41% of the current Registered

Nurses will retire (Burton, Morris, & Campbell, 2005). New nurses are also likely to leave their jobs; with 13% of nurses leaving after one year and 37% feeling ready to leave (Kovner et al., 2007). These staggering numbers highlight the need to gain further understanding of the antecedents of retention in nursing. Voluntary turnover in the nursing profession may be combated by providing nurturing work environments to foster engagement, as engagement has been linked to employee retention (Leiter & Maslach, 2004).

The health care profession is also an interesting setting in which to study engagement, personal strengths, and organizational resources because of the challenging nature of the work. Nurses face a variety of demands in a given day which range from minor stressors to life or death situations. Such challenges necessitate a combination of organizational resources and personal strength. For these reasons, my investigation of engagement, fostering environments, and personal strengths will center on the nursing context. I will elaborate on the engagement construct, describe a theoretical model to study engagement (the Job Demands-Resources model), and explain how personal resources mediate the relationship proposed in the model.

<div align="center">Engagement</div>

Engagement has been defined differently by many researchers (Macey & Schneider, 2008; Saks, 2006). For the purposes of this study, engagement will be characterized in line with Schaufeli and colleagues (2002), as working with vigor, dedication, and absorption. Vigor is the state of exerting energy and sustaining effort even through challenge and resistance. It is the conceptual opposite of the exhaustion

dimension of burnout (Maslach et al., 2001), and vigor is negatively correlated with exhaustion ($r_{mean} = -.17$) in several cross-cultural samples (Schaufeli, Bakker, & Salanova, 2006). Further, vigor is a part of the idea of engagement as a motivational phenomenon. As motivation results in increased effort and diligence (Mitchell & Daniels, 2003), it is logical that vigor results from a motivational process itself as it is characterized as working with sustaining effort.

Dedication is the state of possessing inspiration, a sense of meaning, and pride for one's work (Schaufeli et al., 2002). It is the positive antipode of the burnout dimension of cynicism (Maslach et al., 2001), and in the development of the short engagement scale (UWES), Schaufeli et al. (2006) found that it was negatively related to cynicism ($r_{mean} = -.47$). Dedication may often be confused with a similar construct, job involvement. In fact, it does have similarities as job involvement is defined as "the internalization of values about the goodness of work or the importance of work in the worth of the person" (Lodahl & Kejner, 1965, p. 24). Mauno, Kinnunen, and Ruoklainen (2007) suggest that dedication is a more expansive concept, including enthusiasm and passion; whereas job involvement focuses on the significance of the job to the worker.

Finally, absorption involves being merrily engrossed in work, such that an employee will lose track of time and resist distractions easily (Schaufeli et al., 2006). This facet of engagement is not analogous to one of the dimensions of burnout. Absorption in one's work is beyond merely feeling efficacious, it is closer to the concept of flow (Schaufeli et al., 2002). Working in "flow" is to work with complete abandon and effortless focus (Csikszentmihalyi, 1990). Flow and absorption may be distinguished

as flow is a relatively atypical peak experience which may occur in any area of life; absorption is more constant, pervasive, and limited to the work domain (Schaufeli et al., 2006). However, this distinction is rather blurred. One study found that absorption may have different relationships with predictor variables from the other two facets (vigor and dedication), and the authors noted that this finding is not so unusual (Salanova, Llorens, Cifre, Martinez, & Schaufeli, 2003). Taking from this experience, perhaps, Salanova and Schaufeli (2008) decided to exclude the absorption dimension from a later study. For my thesis, I measured absorption because I believe that it is an important and interesting aspect of engagement.

Engagement, while similar to job satisfaction, organizational commitment, and involvement, has been shown to be conceptually and empirically distinct from these concepts (Hallberg & Schaufeli, 2006; Macey & Schneider, 2008; Saks, 2006; Schaufeli et al., 2006). Engagement can be thought of as an antecedent to these constructs. Engaged employees will most likely also be satisfied with and committed to their organizations, and involved in their jobs (Saks, 2006).

To make note of further conceptual differences, the job satisfaction construct is the employee's positive affective result of a cognitive appraisal of an employee's job (Locke, 1969). Employees' evaluation of their jobs is usually based on both intrinsically and extrinsically rewarding aspects (Judge, Parker, Colbert, Heller, & Ilies, 2001). For example, intrinsic factors include the work itself and coworkers; extrinsic components include salary and promotions. It is the cognitive evaluation of each component that will result in a feeling about the job. A positive feeling is reflected as being satisfied with

one's job, and a negative feeling is dissatisfaction. The two are on a single continuum.

Job satisfaction is a positive regard about the job and does not carry with it the idea of

increased effort or passion that engagement does (Macey & Schneider, 2008). Thus,

despite the similarities between job satisfaction and engagement, they clearly differ from

one another.

Further, engagement is distinct from organizational commitment because

commitment does not capture working with passion. Job involvement does not have the

facet of absorption and self-presence that engagement exemplifies, and thus it is a

similar, yet distinct construct. Organizational commitment and job involvement are also

empirically distinct from engagement (Hallberg & Schaufeli, 2006). Hallberg and

Schaufeli found that while work engagement was moderately correlated with

commitment and involvement, a three factor model fit the data better than a one factor

model, indicating conceptual and empirical distinctions.

Engagement has been identified as an antecedent to many desirable organization-

level outcomes. This relationship includes employee retention (J. J. Hakanen, Bakker, &

Schaufeli, 2006), and work engagement negatively correlates with turnover intentions

(Hallberg & Schaufeli, 2006). Engagement is also a predictor of employee proactive

behaviors, (Salanova & Schaufeli, 2008), customer loyalty and employee performance

(Salanova, Agut, & Peiro, 2005a), and financial returns (Xanthopoulou, Bakker,

Demerouti, & Schaufeli, 2009). Further, engagement has been linked to individual level

outcomes such as job satisfaction and organizational citizenship behaviors (Saks, 2006).

Along with the intrinsic value of feeling pleasant, engagement contributes to a variety of

benefits for employees and the organizations for which they work. A valuable model for understanding the antecedents of engagement is the Job Demands-Resources model.

Job Demands-Resources Model

The Job Demands-Resources (JD-R) model describes the distinct processes that lead to burnout and engagement (Demerouti, Bakker, Nachreimer, & Schaufeli, 2001). Demands are the aspects of a job that require change or effort, and these can eventually lead to burnout. Burnout is the state of being emotionally exhausted, depersonalized, and the perception of low achievement at work (Halbesleben & Buckley, 2004). Burnout can lead to negative health outcomes and intentions to leave the organization. Resources are the aspects of the job that help an employee to accomplish work tasks, reduce demands, or enable personal growth (Demerouti et al., 2001). In a broader context, Hobfoll (1989) defined resources as, "objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions, or energies" (p. 516). Resources can lead to engagement through motivational processes, and are able to buffer the effect that demands have on burnout. Demerouti and colleagues (2001) argue that organizational resources are motivating through the facilitation of the optimal states described in the Job Characteristics Model (Hackman & Oldham, 1976). These critical states include meaningfulness, responsibility, and knowledge of results. Through the experience of these organizational resources, employees will have the optimal environment to be engaged.

Overall, the relationships theorized in the JD-R model have been widely supported. For example, home care employees ($N = 830$) were surveyed about burnout, demands (quantitative workload, physical demands, emotional demands, and patient harassment), and resources (autonomy, social support, performance feedback, and professional development opportunities) to examine the model (Xanthopoulou et al., 2007b). Through structural equation modeling, the authors determined that job demands were important predictors of exhaustion, and a deficit of resources was the strongest predictor of cynicism. Social support, feedback, and professional development opportunities buffered the impact of workload on exhaustion. Also, social support and development opportunities buffered the impact of workload on cynicism. This study provides support for the direct relationship between demands and burnout and the buffering effects that resources have on this relationship.

In a study including Finnish school teachers, the JD-R Bakker, Hakanen, Demerouti, and Xanthopoulou (2007) included six resources: job control, supervisor support, information flow, organizational climate, innovativeness, and appreciation. The authors found that all but job control were related to absorption and vigor and had buffering effects to protect engagement from student misbehavior. This provides support for the resource-engagement relationship in the JD-R model, as well as contradictory evidence to the matching hypothesis. The matching hypothesis states that affective, behavioral, and cognitive processes will be related to other affective, behavioral, and cognitive processes, respectively (de Jonge & Dormann, 2003). Further, the job resources did not predict high engagement unless

there were also demands (e.g., student misbehavior). This finding indicates that job resources are exceptionally important when job demands are elevated.

Another investigation of the JD-R model concluded that the model is valid across organizations and countries (Llorens, Bakker, Schaufeli, & Salanova, 2006). Using both electronic and written survey methods, the researchers assessed demands (quantitative overload and emotional overload), resources (job control, social support, and feedback), burnout, engagement, and commitment in Spanish and Dutch employees. The authors concluded that the JD-R model fit the data well, indicating separate mechanisms from demands to burnout, health impairment, and from resources to engagement, motivational. In other words, high levels of demands are related to high levels of burnout, and high levels of resources are related to high levels of engagement. Differences in culture and occupation did not change the structure of the model, and the authors concluded that the tenets of the model are robust. However, a fully mediated model was not found in each sample, indicating that there were some direct effects of demands/resources on commitment. The authors note that the direct effects are consistent with previous research, but do not speculate about why this may have occurred.

Two other studies used the JD-R model as a guiding framework for their research, but did not measure engagement with the traditional scale. The first used connectedness to operationalize engagement (Lewig, Xanthopoulou, Bakker, Dollard, & Metzer, 2007). The authors noted the similarity between the constructs, but interpretation of these results should be done with caution. Nevertheless, they found that control was related to connectedness as a job resource in a sample of 546 volunteer ambulance drivers. The

second study used involvement, as characterized by dedication (measured as a facet in the Utrecht Work Engagement Scale) and organizational commitment, in place of engagement (Bakker, Demerouti, & Schaufeli, 2003). The authors found that, in a sample of Dutch call center employees, job control was significantly related to involvement.

In a longitudinal study using a sample of Finnish dentists, Hakanen, Perhoniemi, and Toppinen-Tanner (2008) found that resources at time one (craftsmanship, pride, and results) predicted engagement three years later, at time two. This study indicates that work resources may have a causal relationship with engagement, and is a significant contribution as most research tends to gather data at only one time point. Also, work engagement at time one predicted personal initiative at time two, while personal initiative at time one predicted unit innovativeness at time two. The authors concluded that this finding provided partial evidence for an upwards spiral such that resources lead to engagement, which leads to more acquisition of resources, and so on.

Resources

As these studies demonstrate, the JD-R model has enjoyed a wide array of empirical support across occupations and cultures. For the purposes of this study, I will focus on the relationship between resources and engagement. Conservation of Resources theory posits that humans are motivated to avoid resource loss and seek resource gain (Hobfoll, 1989). Hobfoll's theory was designed as a way to look at stressors: the result of a threat of resource loss, resource loss, or failure to gain resources. He states that when employees are under stress, they will try to alleviate the stress by protecting their

resources, and when employees are not under stress, they will try to gain resources in order to protect against future resource drains. Employees also may use other resources as a means to obtain larger resources in the future as they are capable of thinking about long term gains and short term risk.

Hobfoll (1989) discusses four types of resources: objects, conditions, energies, and personal characteristics. Object resources are important because of their physical nature and ability to sustain life (e.g., food, water) or because of scarcity (e.g., diamonds). Conditional resources are situations which are preferred such as seniority. Energy resources are desired because they can be exchanged for other valued resources (e.g., money, time, effort). Finally, personal characteristics are resources in that they help in stress response and recovery. Wang (2007) modifies the categories of resources while maintaining the core meaning of the construct. He identifies resources as the capability to fulfill needs, including physical, cognitive, motivational, financial, and social resources. The personal resources of self-efficacy, optimism, and self-esteem will be discussed in more depth in the next section. Under Hobfoll's typology, personal resources would be seen as personal characteristics, and using Wang's typology, they could be considered as cognitive and motivational resources. The benefits of each construct, including the cognitive and motivational aspects of each, will be explored in the following sections.

Obviously, in the organizational context, employees are expected to spend some of their resources (e.g., time, effort) in exchange for other resources (e.g., money, status, self-esteem). Organizations that provide sufficient resources are likely to recognize

further resource gain from its employees. Resources are desirable in and of themselves or as a means to obtain other resources (Hobfoll, 1989; Wang, 2007). Employees will conserve and protect their resources from depletion or loss, but under conditions of resource abundance, they will also be willing to risk some resources for the possibility of obtaining more in the future. Thus, organizational resources, such as social support and control, in sufficient amounts should lead to heightened energy exertion in efforts to attain future resources, leading to higher engagement.

Social Support

Social support has been defined by several researchers, usually with the same general meaning but differences in the specifics (House, 1981). It can be thought of as the interpersonal interactions which benefit at least one party in some way. Social support can be received from several sources such as spouses, friends, and coworkers. In the nursing profession, three important sources of support are coworkers, nurse managers, and physicians. Also, there are several types of supporting acts which include emotional support, appraisal support, informational support, and instrumental support (House, 1981). Emotional support received the most frequent reports in semi-structured interview research by Gottlieb (1978), emphasizing its importance. Further, in Burleson's (2003) research review on emotional support, he concluded that it is important across cultures and genders, but may be expressed and sought in different ways. Feeling trust, positive affect and esteem from others is the feeling of emotional support. An example of emotional support in the nursing profession would be when coworkers cheer each other up during a tough day. Appraisal support is the information that employees receive from

others that is later used in self evaluations (House, 1981), such as telling a fellow nurse that she did good work. Informational support is the receipt of information that employees can use to help themselves, such as advice about how to deal with a patient. Finally, instrumental support is received when employees help one another accomplish goals by giving time, effort, or their resources.

This conceptualization of social support indicates that it is an organizational resource that leads to the obtainment of other resources. Emotional support will potentially provide employees with an affective boost, thus deepening the resource pool. Through the receipt of appraisal support, employees will be able to maintain and/or develop a sense of self-worth. Evaluations about the self are important personal resources, as will be discussed in further detail in the next section. Informational support will allow employees to develop better ways to deal with a problem, and thus may potentially increase their level of confidence. Finally, instrumental support may be the most obvious mechanism behind resource gain. Through helping one another accomplish tasks, this type of support lowers the level of personal demands and allows employees to retain resources.

The basic human need to belong also amplifies the importance of social relationships (Baumeister & Leary, 1995). Baumeister and Leary (1995) state that humans continually act in ways that form and maintain interpersonal relationships, and this desire is rooted in evolutionary psychology mechanisms suggesting that interpersonal relationships have survival and reproductive benefits. The authors also summarize research findings on interpersonal relationships and loss and conclude that threats to a

social relationship are often linked with some of the strongest emotions such as jealousy, depression, and anxiety. People frequently form relationships and resist ending them which often results in distress. The need to belong indicates that social support is appreciated and sought in and of itself, often without instrumental function.

Social support is clearly a benefit in the workplace, especially its buffering effects on the stress response. Social support buffered unemployed men from the hazards that stress causes, such as mental and physical health (Liem & Liem, 1979). In two other studies, social support had beneficial main effects on stress level and health (Jayaratne & Chess, 1984; LaRocco & Jones, 1978). As previously discussed, social support has also been related to increases in work engagement (Bakker et al., 2007; Llorens et al., 2006; Xanthopoulou et al., 2007b). From previous empirical and theoretical support, it is logical to conclude that social support is a valuable resource that will be related to higher levels of work engagement.

Hypothesis 1a: Social support at time one will be positively related to engagement at time two.

Control

Control is another organizational resource. Control, and similar facets, have been defined by numerous authors (Skinner, 1996). Generally, control is "the ability to exert some influence over one's environment so that the environment becomes more rewarding or less threatening" (Ganster, 1989, p. 3). There are three broad approaches that researchers have adopted to define control in the workplace: as a work characteristic, as a subjective evaluation, or as an individual difference (Parkes, 1989). The characteristic

approach uses an objective evaluation of work characteristics that evaluate levels of employee control. Three important types of objective control in the nursing practice are method control, decision involvement, and work schedule control. The subjective evaluation is an individual's opinion about the extent to which a particular environment allows for personal control. Finally, control as an individual difference is the extent to which people attribute outcomes as having internal causes or external causes.

In reality, researchers often imply that they have assessed objective control, but have done so by self-report surveys, thus resulting in a subjective report of workplace control. Despite this distinction, Parkes (1989) concluded that objective differences in job control are reflected in subjective responses to control questionnaires. Therefore, any concern about the validity of self-report scales as measures of objective control may be unwarranted.

In Spector's (1986) meta-analysis of perceived control, he made the distinction between autonomy and decision participation. Autonomy was defined as the degree that an employee can control how and when she does her job. Decision participation was conceptualized as the extent to which employees contribute to management decisions. Averaged across both terms, control was associated with general job satisfaction (mean r = .30), commitment (mean r = .26), and physical health symptoms (mean r = -.25). Because this study focuses on method control (more similar to autonomy), I will focus on those results. Autonomy alone was associated with general job satisfaction (mean r = .29), commitment (mean r = .23), and physical health symptoms (mean r = -.24). While these results seem to clearly provide evidence for the importance of autonomy, Spector

points out that many of the study results are heterogeneous. He suggests that more attention to complex relationships is in order, such as when control is beneficial and when it could be harmful.

Objective control is a resource given to employees from the organization or the organizational environment. Control can be used to obtain other intrinsically valued resources, such as positive results (Rodin, Rennert, & Solomon, 1980). Rodin and colleagues argue that this is the mechanism through which control is rewarding- through gaining positive outcomes such as desired rewards or feelings of self-worth. By their nature, positive outcomes breed positive emotions and cognitions, a valued state. In addition to Spector's (1986) findings, job control has been used to predict work engagement, as previously discussed (Bakker et al., 2003; Bakker et al., 2007; Lewig et al., 2007; Llorens et al., 2006). It is easy to conclude that control is an organizational resource that is likely to be related to engagement because control is desired in and of itself, because control serves as a means to obtain other valued resources, and because of previous empirical connections.

Hypothesis 1b: Control at time one will be positively related to engagement at time two.

Personal Resources

The JD-R model has enjoyed extensive empirical support indicating that organizational resources lead to work engagement. However, personal resources are also important and may help explain some of the connections between organizational

resources and engagement. Personal resources are aspects of the self that help one to persist through challenge and obstacles (Hobfoll, Johnson, Ennis, & Jackson, 2003). Only three studies have explored the addition of personal resources within the JD-R model (Llorens, Schaufeli, Bakker, & Salanova, 2007; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007a; Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008). The current study will expand this literature and contribute by fully developing hypotheses theoretically, addressing some of these studies' weaknesses, and contributing to the personal resource literature by examining organizational factors that might lend themselves to interventions. I propose that personal resources such as self-efficacy, optimism, and self-esteem will mediate the relationship between organizational resources and engagement.

Conservation of resources theory posits that people are motivated to avoid resource loss and seek resource gain (Hobfoll, 1989). Also, employees may use their resources as a means to obtain larger resources in the future, thinking of long term gains and short term risk. Organizations that provide sufficient resources are likely to recognize further resource gain in employees because organizational resources will provide the means through which personal resources can be enhanced. The following studies address personal resources in the relationship between organizational resources and engagement.

Personal Resources and JD-R

Xanthopoulou and colleagues (2007a) defined personal resources as the parts of the individual that are associated with the ability to control and impact the environment.

The specific personal resources included in their investigation were organization-based self-esteem, optimism, and self-efficacy, and the organizational resources measured were autonomy, social support, supervisor coaching, and professional development. They found that personal resources partially mediated the link between job resources and engagement. Further, personal resources reduced the level of exhaustion felt by employees but did not mediate the relationship between job demands and exhaustion (Figure 1). However, the cross-sectional study design does not permit a causal inference. This research article also lacks a clear theoretical guidance for the mechanism behind the growth of resources. Xanthopoulou and colleagues mention that, according to COR, resources tend to lead to more resources, but they do not clearly delineate the mechanisms behind the change. Also, the authors fail to give a precise means through which personal resources lead to engagement.

Another study investigated the importance of personal resources in the motivational path to engagement (Llorens et al., 2007). The authors tested a spiral up effect of time control (organizational resource), self-efficacy (personal resource), and engagement. Measurements were taken at two time points, and the researchers found that time one control increased time two levels of self-efficacy and engagement. Further, time one levels of engagement led to increased organizational resources at time two, with self-efficacy as a mediator (Figure 2). The research design included a laboratory setting and students as participants, which potentially limits the external validity and generalizability of these results. In the theoretical explanation of the effects, the authors focused on the back end of the spiral (the engagement → organizational and personal

resources and personal resources → organizational resources relationships). While this part of hypothesis development seemed solid, the specific mechanisms through which organizational resources lead to personal resources and personal resources lead to engagement were lacking.

The last study to address personal resources in the JD-R model examined the relationship between social support and performance through a boost in self-efficacy and engagement (Xanthopoulou et al., 2008). To investigate their hypotheses, they employed a diary approach with flight attendants ($N = 83$, with 44 usable diaries returned). The diaries included measures for engagement, in-role and extra-role performance, state social support, self-efficacy, engagement, and performance. Xanthopoulou and colleagues found that social support was positively related to self-efficacy. Also, the relationship between self-efficacy and in-role performance was partially mediated by work engagement, and the support - in-role performance relationship was partially mediated by work engagement but not self-efficacy. Finally, engagement fully mediated the relationship between self-efficacy and extra-role performance.

The research inspecting the role of personal resources in the resource-engagement relationship has provided some support for this idea. Self-esteem, optimism, and self-efficacy partially mediated the relationship between organizational resources and engagement, but the cross-sectional design limits the conclusions that can be drawn (Xanthopoulou et al., 2007a). Secondly, self-efficacy had a relationship between time control and engagement in an interesting longitudinal design, however due to use of a student sample the results' generalizability is limited (Llorens et al., 2007). Finally, the

relationships between social support and engagement were positively related, with self-efficacy as an outcome of social support and a predictor of engagement (Xanthopoulou et al., 2008). The first two research articles did not provide the reader with a fully developed theoretical model through which the relationships may take place, but the last does plainly provide the mechanisms. Unfortunately, the third article also only included self-efficacy as a personal resource (Xanthopoulou et al., 2008). The present study will contribute to the literature by addressing some of the methodological weaknesses of these studies and by fully developing the theoretical mechanisms in these relationships.

Broaden and Build Theory

The broaden and build theory rests on the idea that the experience of positive affect and occurrences will broaden one's mindset and deepen one's resource pool (Fredrickson, 2001; Fredrickson & Joiner, 2002). Broadened mind-sets enable making abstract connections and widening the scope of action repertoires, including creative thinking and a broader inclusion of work role behaviors. The more positive experiences an employee encounters, the more resources are collected in their pool and thus, the more resources available to cope with challenges and persist through obstacles. Those who have been given the opportunity to develop these resources will be more likely to survive through challenging environments; these successes provide further resources to use the next time. In this sense, positive resources triggered by positive experiences will have a "spiral up" effect to reach an optimal emotional well being (Fredrickson & Joiner, 2002).

The spiral-up effect of organizational and personal resources is also likely, and has been supported in the literature, as previously discussed (Llorens et al., 2007). For

example, experiencing control will increase the likelihood of success, which breeds positive affect and further personal resources. Because of an increase in personal resources, employees will be more likely to approach challenges and make behavioral choices that will persist through obstacles. The following sections will discuss self-efficacy, optimism, and self-esteem in depth and explore their relationships with organizational resources and engagement.

Self-Efficacy

"Perceived self-efficacy refers to beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). This positive belief is the outcome of an appraisal process in which people assess the situation and weigh information about their capabilities in that context (Bandura, 1982). Gist and Mitchell (1992) review these processes and developed a simple model through which information is combined to determine the level of self-efficacy (Figure 3). Bandura (1982) suggests that employees use cues from personal experience, others' experiences (i.e., modeling), persuasion from others (i.e., social support), and arousal to make self-efficacy judgments about a certain task. It is important to note that these four information sources influence self-efficacy, but ultimately it is the individual's appraisal of the cues that determines levels of self-efficacy.

Appraisal is conducted through three processes: the analysis of the task, attributions of past experiences, and the evaluation of available personal and situational resources (Gist & Mitchell, 1992). These analyses help employees' connect their past experience and current knowledge about a situation and task to predict future

performance on that task. It is through these cognitive processes that self-efficacy is determined and then goes on to influence future cognitive and behavioral actions. It is an accumulation of assessments made about cognitive and behavioral abilities and environmental implications that mold the prediction of performance. This indicates that beliefs about capabilities can change over time as one has new experiences or encounters environmental changes. Further, these appraisals can be influenced by normal attributional processes (Gist & Mitchell, 1992). Because self-efficacy decisions rely on past experiences, whether a person attributes previous successes or failures as internal or external will determine how that information is used in forming self-efficacy beliefs. For example, an employee who attributes her task completion to external factors (e.g., luck) is not likely to have a higher self-efficacy belief despite her previous successful experience.

Self-efficacy is not to be confused with self-esteem (Gist & Mitchell, 1992). Self-esteem involves a person's feelings of self-worth and how she values herself. This is typically an affective evaluation of the self, while self-efficacy is a cognitive appraisal of one's capabilities to perform a specific task. Self-efficacy can also be thought of in conjunction with expectancy theory (Vroom, 1964). Expectancy theory has two future beliefs: effort leads to performance, and performance leads to rewards. Self-efficacy is closely related to the first relationship, and is not associated with the second (Gist & Mitchell, 1992). Individuals who are high in self-efficacy are more likely to attempt a task than those who believe that they cannot succeed, similar to expectancy beliefs (Bandura, 1977).

Self-efficacy has been investigated in a variety of contexts, including stress in first year college students (Chemers, Hu, & Garcia, 2001). Students who scored higher in academic self-efficacy were more likely to view academic work as a challenge (as opposed to a threat), more likely to expect academic success, and more likely to succeed. Further, the students who viewed academic work as a challenge were less likely to experience stress which resulted in higher levels of adjustment and fewer reported health problems. Jimmieson (2000) found that the relationship between work control and job satisfaction was moderated by self-efficacy. This interaction shows that employees with higher self-efficacy will reap more of the positive benefits of work control than low efficacious employees. Self-efficacy clearly has important implications in a variety of areas, and is a personal resource that enables employees to persist through challenges and bounce back after hardships.

In a meta-analysis, self-efficacy was found to be significantly correlated with work performance (Stajkovic & Luthans, 1998). Stajkovic and Luthans examined self-efficacy's relationship to work performance in 114 studies ($k = 157$, $N = 21,616$), including advanced technology, management, and naval performance. They also examined the moderating effects of task complexity and lab vs. field studies. In lab and field studies, the average correlation between self-efficacy and performance was highest for low task complexity and lowest for high task complexity. This suggests that in order to predict performance from self-efficacy, it is important to measure task-specific self-efficacy, as highly complex tasks usually require multiple mini-tasks. Further, high complexity usually involves more ambiguous situations and requires several evaluations

of capabilities, thus increasing predictive error (Gist & Mitchell, 1992). The authors concluded that self-efficacy is always positively related to work related performance and suggest investigating other interesting aspects of self-efficacy.

Schwarzer and Hallum (2008) investigated the relationship between self-efficacy and burnout, with job stress as a moderator. They surveyed 1203 teachers in Syria and Germany, reporting on teacher specific self-efficacy, general self-efficacy, job stress, and burnout. Teacher and general self-efficacy were both negatively correlated with each burnout dimension, and job stress operated as a mediator all of these relationships. Further, they found that self-efficacy predicted burnout one year later, but burnout did not predict self-efficacy a year later. These results indicate that self-efficacy influences burnout, not the reverse. It may provide evidence that the burnout mechanisms are not reciprocal, but engagement mechanisms have seen some reciprocal support (Llorens et al., 2007; Xanthopoulou et al., 2007a; Xanthopoulou et al., 2008).

Self-efficacy has been explored in relation to emotional labor as well (Heuven, Bakker, Schaufeli, & Huisman, 2006). The authors asked flight attendants ($N = 154$) to report on emotional job demands, feeling rules, emotional dissonance, emotion work-related self-efficacy, emotional exhaustion, and engagement. They found that self-efficacy moderated the relationship between emotional job demands and emotional dissonance, such that those high in self-efficacy did not have a positive relationship between emotional dissonance and emotional demands. Further, self-efficacy had a direct effect on emotional exhaustion, but did not interact with emotional dissonance in its relationship with exhaustion. Finally, both main effects and interactions between self-

efficacy and emotional dissonance were found to influence levels of engagement. The interaction indicated that more efficacious employees were less likely to suffer from the negative effects of emotional dissonance on engagement. These findings support the conclusion that self-efficacy is an important personal resource in emotional work and has beneficial effects regarding emotional exhaustion and work engagement.

Clearly, self-efficacy is an important factor for work success and predicting engagement and burnout. This is particularly relevant given that self-efficacy can be enhanced through a variety of methods (Gist & Mitchell, 1992). First, direct self-efficacy interventions will demonstrate to participants that they can perform the task at hand. This may be done through practice or modeling. Through new experiences with success at a given task, the participant will incorporate the new information into the assessment of self-efficacy beliefs. Second, self-efficacy can be indirectly improved through teaching appropriate changes in participants' task strategy or the participant's skill level. Through task or environmental changes, a participant will include the new knowledge about the task and/or environment in the assessment which determines self-efficacy levels. By changing the self, participants will incorporate their new capabilities into the information used to determine self-efficacy beliefs. This method is particularly effective when low self-efficacy is a result of low capability. Third, employees' self-efficacy can be improved through attributional training (Forsterling, 1985). One of the most basic goals with attributional training is to show participants that failure was due to inefficient effort, and not a permanent condition (e.g., inability, physical deficit). Using a positive

attributional style influences the information assessment and accumulation process, which will lead to more positive self-efficacy beliefs.

Gist and Mitchell (1992) discuss conditions that may influence self-efficacy enhancement. First, participants may face a ceiling effect if their self-efficacy is high pre-treatment and are thus unable to improve much. Participants with low self-efficacy should be able to increase their self-efficacy to the extent that it was inaccurate at pre-treatment. Second, if the predicted task requires a high amount of ability and is not reliant on effort, changes in self-efficacy will be limited. Effort is immediately changeable, but ability may take extensive training or practice in order to improve, restricting the effectiveness of an effort approach.

Training to develop self-efficacy has been supported empirically was well. For example, Frayne and Latham (1987) provided a self-management training course to 42 union employees. Half were given the training, and the others were assigned to the control group and were told that they would receive it later. The training was designed to teach employees to identify problem behaviors and the conditions in which those behaviors were likely to occur, to self-monitor behavior, set goals, and administer reinforcement and punishment. Through this program, those in the experimental group increased in perceived self-efficacy after the treatment, and this difference with the control group increased over time, with measurements taken pretreatment, posttreament, and three months after treatment. In this research study, participants were able to incorporate new capabilities (new self-control methods) and experiences (practice with

the techniques) into their self-efficacy assessments, resulting in higher self-efficacy

levels.

Gist (1989) found that self-efficacy could be enhanced through the training of

research and development managers ($N = 59$). The managers were given training to

improve their idea generation ability, including instruction for the proper brainstorming

and brainwriting[1] techniques. Participants were allowed to practice their new skills, and

were given reinforcing feedback. All participants had an increase in self-efficacy

pertaining to the generation task. In this study, participants' self-efficacy increased

because of the new knowledge and capability gain and new successful experiences. They

could then incorporate this information while forming self-efficacy beliefs.

In a computer software training study, participants ($N = 108$) were divided into

two training groups, a tutorial training method and a modeling training method (Gist,

Schwoerer, & Rosen, 1989). The tutorial gave instructions on how to use the software

and had short practice segments. The modeling training presented the same content,

modeled the correct actions to use the software, and allowed time for short practice as

well. The researchers found that those in the modeling condition reported a higher self-

efficacy than those in the tutorial conditions, but both training conditions showed an

increase in self-efficacy. The participants who experienced modeling incorporated this,

their new knowledge, and their practice into their self-efficacy assessments. Those in the

tutorial design were only able to include their new knowledge and experiences. This

could indicate that the more sources of confirming information available, the better for

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[1] Brainwriting is essentially brain storming individually by writing down all of the ideas that participants have, instead of saying them aloud.

enhancing self-efficacy. The examples noted here provide empirical support for the enhancement of self-efficacy, even with brief training programs.

The theory and empirical support behind the manipulation of self-efficacy provides evidence that self-efficacy is not a stable trait, but in fact a relatively plastic personal characteristic. The link between organizational resources and self-efficacy is similar to specific training scenarios such that training often provides information and resources needed to be successful. It has been theorized (Bandura, 1977) and supported by empirical research (Betz & Schifano, 2000; Jimmieson, 2000; F. Luthans, Avey, Avolio, Norman, & Combs, 2006) that the experience of success fosters self-efficacy. This is because employees who experience success can incorporate that experience into their assessment of self-efficacy beliefs. Further, the perception of an environment as being conducive to success is important in changing efficacy beliefs (Gist & Mitchell, 1992). Because organizational resources, such as method control, will lead to an increased likelihood of success, method control should enhance self-efficacy. Also, favorable environmental conditions, including method control, will be a part of the self-efficacy assessment, and thus will lead to positive performance predictions. Further, positive interactions among coworkers will provide information to incorporate into evaluations about employees' capabilities.

Hypothesis 2: Organizational resources (method control and social support) at time one will be positively related to self-efficacy at time two.

By its nature, self-efficacy contributes to approaching challenges (Bandura, 1982). Employees who believe that they will succeed will be more likely to try. This

relates to expectancy in VIE theory (Pinder, 1998), Conservation of Resources theory (Hobfoll, 1989). VIE theory posits that employees who believe their effort will lead to satisfactory performance will be more likely to put in the effort to perform. Self-efficacy is analogous to this link in VIE theory (Gist & Mitchell, 1992); employees who are more efficacious will be more likely to exert effort. This means that because an employee believes that her effort will lead to a certain level of performance, this will influence her behavioral choices (e.g., putting forth effort, staying on task). The behavioral choices are similar to those seen in engaged employees; those who expect to perform successfully are more likely to work with vigor, dedication, and absorption. In relation to Conservation of Resources theory, those who have a stable resource pool are likely to invest resources for a future gain (Hobfoll, 1989). Therefore, employees who have higher self-efficacy levels will be more likely to be engaged in their work through maintained effort (or vigor) and passion (or absorption) that constitutes engagement. Because engagement leads to other valuable resources (e.g., status, success, positive affect), the engagement state is likely to be sought after by efficacious employees. Through the motivating aspects of self-efficacy, employees will make behavioral choices that are parallel with engagement.

Hypothesis 3: Self-efficacy at will be positively related to engagement at time two.

In previous work, organizational resources have predicted engagement (Bakker et al., 2003; Bakker et al., 2007; Llorens et al., 2006; Schaufeli & Bakker, 2004). I believe that the motivational mechanisms of this relationship can be better explained through personal resources, particularly self-efficacy. As I have delineated the relationships of

organizational resources to self-efficacy, and the relationships of self-efficacy to engagement, I believe that I will find an indirect effect of organizational resources on engagement through self-efficacy.

Hypothesis 4: Self-efficacy will mediate the relationship between organizational resources (control and social support) and engagement.

Optimism

Seligman (1991) defines optimism as an explanatory style. The optimist habitually believes that negative events are caused by factors external to the self, are temporary in nature, and are limited in scope. This definition is closely aligned to the discussion of attributional beliefs, as discussed in the self-efficacy section. Optimism has also been defined as a disposition that a person has to believe that good will generally prevail over bad (Scheier & Carver, 1992). Those who are high in optimism have a realistic, positive outlook about the future and a positive attribution of events (F. Luthans, Avolio, Avey, & Norman, 2007). Optimism, if not grounded in reality, could lead to the avoidance of responsibility and/or the fruitless pursuit of impossible goals (Seligman, 1991). While Scheier and Carver view optimism as a stable trait, Seligman (1991) and Luthans, Lebsack, and Lebsack (2008) believe that optimism is a characteristic than can be learned and developed.

Optimism is correlated with success in wide variety of disciplines such as sports and academics (Snyder, 2002). Further, optimism has been linked with positive social relationships (Buchanan & Seligman, 1995) and better health (Buchanan, Gardenswartz, & Seligman, 1999; Mann, 2001; Scheier & Carver, 1987). HIV patients, after

participating in a writing activity designed to enhance optimism, reported higher

adherence to medication administration (Mann, 2001). Another study assessed optimism

levels and health symptoms in college students at two time points (Scheier & Carver,

1985). Students with higher levels of optimism at time one reported fewer physical

symptoms at time two, even after controlling for initial symptoms. Further evidence for

the health benefits of optimism are demonstrated in a longitudinal study which followed

students over several months after a cognitive-behavioral intervention (Buchanan et al.,

1999). Students who participated in the optimism intervention had better health and

fewer doctor's visits than students in the control group. Clearly, there is support that

indicates optimism has significant benefits that justify its label as a personal resource.

Optimism has also been beneficial in the realm of work. In an investigation of

working college students ($N = 293$), researchers found that optimism was negatively

correlated with stress and burnout (Chang, Kevin, & Strunk, 2000). They also found

evidence to support their hypotheses that optimism has direct effects on the three facets

of burnout and indirect effects on emotional exhaustion and cynicism through stress as a

mediator. Because the inclusion of stress as a mediator did not lower optimism's impact

on burnout significantly, the authors concluded that optimism is as strong as or stronger

than stress in the prediction of burnout.

Optimistic attributional styles are also beneficial in the sales world, having

implications for how salespeople interpret failure and chose to move forward (Dixon &

Schertzer, 2005). Dixon and Schertze asked salespeople ($N = 296$) to describe their most

recent failure in sales. Participants then filled out attributional and behavior intention

scales about the incident, an optimism measure, and a self-efficacy measure. Those who reported high levels of optimism and/or high levels of self-efficacy reported significantly more unstable attributions, and attributed failure to a lack of effort rather than a personal trait. Further, optimism and self-efficacy had positive relationships with the behavioral intention to increase effort.

Also in the sales industry, optimism has been particularly useful in predicting turnover and performance (Seligman & Schulman, 1986). Here, life insurance salespeople filled out surveys assessing attributional style and their aptitude index for selling insurance. Seligman and Schulman found that salespeople who were in the top 10% of optimistic explanatory style sold 88% more life insurance than those in the bottom 10%. Further, salespeople who had a more optimistic explanatory style stayed in the organization at twice the rate of more pessimistic salespeople. Finally, using both the attributional style questionnaire and the aptitude index battery to predict sales and retention was better than using either test alone.

While optimism is particularly important in the sales profession, it is also important in healthcare (K. W. Luthans et al., 2008). Seventy eight nurses participated in the study which investigated the relationship between optimism and performance. Luthans and colleagues found that optimism was significantly correlated with all performance measures, including customer satisfaction, commitment to the hospital's mission, and overall performance. After dividing the participants into four quadrants of performance scores, those with the best performance ratings reported more optimism than those in the lowest quadrant. Finally, the researchers found that years of experience was

significantly correlated with optimism. This study provides evidence in support of optimism's importance in healthcare work.

Optimism can also be enhanced. There are interventions for specifically developing optimism, for example, Seligman (1991) writes about "learned optimism" and demonstrates support for its effectiveness. This intervention is heavily cognitive such that the goal is to change one's habitual thoughts to a more optimistic attributional style. The steps for doing so are to first identify the habitual thoughts that are pessimistic, and then to replace them with more optimistic explanations. This can include arguing with the self to make more logical and productive explanations of events than the detrimental ones which pessimists continually have. Or, simply distraction from the negative and counterproductive thoughts can be helpful. While Seligman reports this technique to be effective, it is also time consuming and presumably rather difficult.

Another intervention has demonstrated support for a more externally driven method (Mann, 2001). Mann used a writing technique to help enhance optimism. She notes that previous studies have used journaling about traumatic events in order to improve coping skills and reduce the risk of depression, and the participants in this case were given special instructions. The HIV patients wrote about a positive future, one in which they would only have to take one pill a day, and thought about many aspects of that future. Mann found that participants who were low in optimism pre-treatment displayed an increase in optimism post-treatment, but participants who were high in optimism pre-treatment had a slight decrease in optimism post-treatment. Interestingly, those who had an increase in optimism also reported better adherence to their prescribed

drug regimen. This study provides support that optimism can be enhanced, but it is important to use caution here because the participants who were already optimistic seemed to experience detrimental effects.

Similar to Seligman's (1991) learned optimism, attributional retraining studies have largely been effective at increasing optimism and changing attributional styles (Forsterling, 1985). In this review, Fosterling notes that attributional retraining stems from Bandura's work on self-efficacy, Seligman's learned helplessness, and Weiner's model of achievement motivation. "The central assumption is that many behaviors, affects, and cognitions… are the consequences of causal attributions one makes about events or behavioral outcomes, such as successes or failures" (Forsterling, 1985, p. 497). When employees experience failure, it is better for future persistence that they attribute it to variable causes (e.g., luck), and when employees experience success, it is best for them to attribute it to internal causes (e.g., ability). Training programs have been developed to change participants' causal attributions in the attempt to change their behaviors, cognitions, and affect. Most of the studies reviewed by Forsterling focused on changing reactions such that the attribution of failure is due to a lack of effort instead of stable, permanent characteristics. Researchers have done this through operant conditioning (i.e., praising children who selected positive attributions), persuasion, modeling, and deception (i.e., telling participants that a pill has interfered with their concentration ability, thus creating an external explanatory style).

Attribution retraining influenced a number of dependent variables positively (Forsterling, 1985). This includes cognitive changes such as an increase in success

expectancies and expectations following failure and behavioral changes such as increase performance and persistence after failure. It is unclear of the exact mechanisms which make this change, but it is plain that changing attributional style to be more optimistic in nature has positive effects in an achievement setting.

The similarities between self-efficacy enhancement and optimism enhancement are striking. Each focuses on the attributional style that an employee uses, trying to change it so that the employee uses constructive information to explain previous experiences. This includes internal, stable, and pervading causes for successes and the opposite for failures. Using this information, employees are able to gauge their likelihood of success in the future. Clearly, an optimistic explanatory style will dictate a positive evaluation of the probable future.

Therefore, the methods of enhancing self-efficacy will be similar to those enhancing optimism. As is illustrated by Forsterling's (1985) review, attributional style change is addressed through verbal persuasion and modeling, as is true with self-efficacy enrichment (Gist & Mitchell, 1992). Self-efficacy can be enhanced through changing the environment. This way, employees gather information about the new environment and use that to estimate their likelihood of success (Gist & Mitchell, 1992). It is reasonable to assume that the environment, as well as personal characteristics and previous experiences, will influence the explanatory style that an employee uses. For example, an employee who experiences a sufficient amount of control on the job is more likely to be able to regulate the environment such that work related goals are attainable. This

employee is more likely to have an optimistic attribution style, and thus have positive and successful expectancies for the future.

Organizational resources found in the environment, such as method control and social support, are logically related to optimism. Organizational resources make work goal success more likely, and employees who have more organizational resources available to them are likely to experience this success. It is logical that employees who experience success repetitively will expect success again in the future. Along with a favorable attribution style, the expectation of successful outcomes is a reflection of a gain in optimism.

Hypothesis 5: Organizational resources (control and social support) at time one will be positively related to optimism at time two.

Optimism is likely to be positively related to engagement. Optimists expect that their efforts will not go unrewarded; they expect more good outcomes than bad. As mentioned previously, VIE theory posits that employees who believe that their effort will lead to satisfactory performance will be more likely to put in the effort to perform (Vroom, 1964). Optimism clearly has an important role in people's likelihood of expecting favorable outcomes (Scheier & Carver, 1992) because optimism positively influences this expectancy, the optimistic employee is likely to put discretionary effort towards work tasks. The expectancy of success influences behavioral choices such as effort and persistence. Effort and persistence are important aspects of engagement, especially the vigor and dedication dimensions. Further, optimists who expect positive outcomes are likely to experience positive affect because of this belief (Scheier & Carver,

1992). Employees who believe that their work goals are attainable will be more likely to look forward to going to work and engage in their jobs.

According to Conservation of Resources theory, those who have a plentiful resource pool are likely to invest resources for a future gain (Hobfoll, 1989). Therefore, employees who are more optimistic will be more likely to be engaged in their work through maintained effort and passion that constitutes engagement. Because engagement leads to other valuable resources (e.g., status, success, positive affect), the engagement state is likely to be sought after by optimistic employees, who have an abundance of personal resources. It is through the motivational process of optimism that engagement will follow.

Hypothesis 6: Optimism will be positively related to engagement at time two.

Previously researchers have found support for organizational resources predicting engagement (Bakker et al., 2003; Bakker et al., 2007; Llorens et al., 2006; Schaufeli & Bakker, 2004). I believe that the motivational mechanisms of this relationship can be better explained through personal resources, especially optimism. As I have delineated the relationships of organizational resources to optimism, and the relationships of optimism to engagement, I believe that I will find an indirect effect of organizational resources on engagement through optimism.

Hypothesis 7: Optimism will mediate the relationship between organizational resources (social support and control) and engagement.

Self-esteem

Self-esteem is a general evaluation of the self. A positive self-esteem demonstrates an individual's belief in his/her general adequacy and positive self-regard (Gelfand, 1962). As mentioned in the discussion of self-efficacy, self-esteem is distinct from self-efficacy (Gist & Mitchell, 1992). Self-esteem involves a person's feelings of self-worth and how she values herself. Self-esteem typically has an affective result from an evaluation of the self, while self-efficacy is a cognitive appraisal of one's capabilities to perform a specific task. Self-esteem has also been characterized as an attitude, made up of cognitive and affective components (Coopersmith, 1967). Self-esteem is an evaluation of the self based on the person's self-concept. The self-concept is a cognitive construct which refers to a collection of beliefs about the self. Not all cognitions about the self are included in the self evaluation, only those that are important to the individual.

Correlations between self-esteem and health benefits suggest self-esteem's importance as a personal resource. In a student sample, self-esteem accounted for 17 to 28% of the variance of stress in mental health (Zuckerman, 1989). Zuckerman also found that self-esteem was negatively related to stress in family situations for both men and women and negatively related to relationship stress for women. In the work context, employees with high self-esteem were more likely to experience less emotional exhaustion than employees with low self-esteem (Xanthopoulou et al., 2007a). Further, self-esteem mediated the relationship between job resources and employee engagement. Self-esteem was also negatively related to perceived job stress and positively related to health in a variety of blue-collar workers (Oginska-Bulik, 2005). These findings imply

that self-esteem may buffer people from the anxiety-producing effects of stressful situations and is an important personal resource.

Self-esteem, like self-efficacy and optimism, is not necessarily a stable trait. In fact, researchers found that state self-esteem, varying over time, was a better predictor of depression than trait self-esteem (Butler, Hokanson, & Flynn, 1994). In another example, Baumeister, Dori, and Hastings (1998) concluded that self-esteem is relatively malleable through first person accounts of changes in self-esteem. One hundred seventy nine women completed surveys that asked them to write about an event that either raised or lowered their self-esteem. The participants were able to remember and describe self-esteem changes and the events that led to the change. The stories about loss of self-esteem largely included incidents of social exclusion, and narratives describing an increase in self-esteem were likely to indicate social acceptance and inclusion. Emphasis is placed on social relationships and the importance of belongingness in this study. This idea leads to the theory of self-esteem as a sociometer (Leary, Tambor, Terdal, & Downs, 1995).

Leary and colleagues (1995) proposed that self-esteem serves as an indicator of whether a person's belongingness needs are being met. Because positive self-esteem is desirable, people are motivated to behave in ways that enable them to gain or maintain self-esteem. If self-esteem is a gauge of social inclusion, people should behave in ways that increase the likelihood of acceptance (or decrease the likelihood of rejection). Leary and colleagues, drawing on evolutionary psychology, assert that self-esteem serves as a protection from social exclusion. Social inclusion was, and perhaps still is, essential to

human functioning and survival (Baumeister & Leary, 1995). The need to belong has been described as a basic human motivation (see Baumeister & Leary, 1995 for a review), and self-esteem serves as a guide for seeking and maintaining social support (Leary et al., 1995).

In a series of five studies, Leary and colleagues (1995) assess the relationship between social inclusion and self-esteem. In the first study, undergraduate participants responded to 16 different behaviors by ranking social desirability of the behavior and how they would feel about themselves if they performed each behavior. There was a strong relationship between participants' predictions of others' reactions and their own feelings of self worth, indicating that the more harshly that someone else would react to a behavior, the worse someone would feel about herself. In the second study, participants wrote a paragraph in response to either social inclusion cues or social exclusion cues. Participants then indicated how they felt in the situation described. Ratings of how excluded they felt were likely to be associated with ratings of negative self evaluations. Leary and colleagues knew that correlational research was pointing in the hypothesized direction, but they conducted more studies to demonstrate causality.

In the third study, inclusion or exclusion from a work group was experimentally manipulated, as well as method of determining group composition (random assignment vs. group member selection). Exclusion affected self-esteem only in conditions which group membership was based on rejection by the group members (Leary et al., 1995). Interestingly, self-esteem was not enhanced by this single incident of inclusion, but only deteriorated in conditions of exclusion. Study four successfully replicated study three

using a different scenario and measures. The last study, using measures of self-esteem and perceived inclusionary status, concluded that individual differences in stable self-esteem were related to individual differences in their reports of general social inclusion or exclusion. From these studies, Leary and colleagues were able to confidently draw the conclusion that self-esteem is an indicator of social inclusion.

Organizational resources, specifically social support, are likely to lead to an increase in the personal resource of self-esteem. While Leary et al. (1995) found that increases were not associated with social inclusion, it is possible that the benefits of social support were limited to one incident of inclusion, as opposed to frequent positive interactions. Frequent and meaningful connections with coworkers may be a more valuable contribution to social inclusion than a onetime interaction, as is important in other social relationships (Baumeister & Leary, 1995). This idea is also reflected in study five, which concludes that a more stable self-esteem is an evaluation based on a host of previous social experiences (Leary et al., 1995). Thus, social support in the work setting is proposed to be related to high self-esteem.

Hypothesis 8: Organizational resources (control and social support) at time one will be positively related to self-esteem at time two.

I propose that self-esteem will be positively related to engagement. The self-esteem as a sociometer hypothesis also suggests that self-esteem is a motivating factor in behavior (Leary et al., 1995). As employees feel their levels of self-esteem change (due to social in/exclusion), they will react in ways to gain and maintain self-esteem (by behaviors that are likely to increase social inclusion and decrease exclusion). In fact, a

need to belong is an important part of understanding human behavior, as it is a core motivation (Baumeister & Leary, 1995). When coworkers are the source of social cues, employees will be likely to engage in positive work behaviors in order to maintain relationships with their coworkers, and thus self-esteem (Leary et al., 1995). These behaviors include working with energy and persistence, or being engaged. Through working in this way, the employee is maintaining a high level of accomplishment and is likely to impress upon coworkers that she is a competent and reliable worker who should be accepted.

Additionally, self-esteem is a personal resource, and Hobfoll (1989) would assert that those who have a stable resource pool are likely to invest resources for a future gain through his Conservation of Resources theory. Therefore, employees who have a higher self-esteem will be more likely to work with maintained effort and passion that constitutes engagement. Because engagement leads to other valuable resources (e.g., status, success, positive affect), the engagement state is likely to be sought after by employees with a positive self regard, or who have an abundance of personal resources. It is through the motivational process of self-esteem as a resource and as a sociometer that engagement will follow.

Hypothesis 9: Self-esteem at time two will be positively related to engagement at time two.

In previous research, organizational resources have consistently predicted engagement (Bakker et al., 2003; Bakker et al., 2007; Llorens et al., 2006; Schaufeli & Bakker, 2004). I think that the motivational mechanisms of this relationship can be better

explained through personal resources, specifically self-esteem. As I have explained the relationships of organizational resources to self-esteem, and the relationships of self-esteem to engagement, I believe that I will find an indirect effect of organizational resources on engagement through self-esteem.

Hypothesis 10: Self-esteem will mediate the relationship between social support and engagement.

Method

Participants and Design

I used an archival data set for this study. Supported by the Institutional Review Board at Portland State University, the research project that collected the data mainly focused on positive and negative nursing experiences that led to retention or turnover. Before the data were collected, a focus group of subject matter experts was given the surveys in order to determine that the material was relevant to the nursing practice and that the language used was appropriate. From this information, minor changes were made to address the issues raised by the focus group. The participants were asked to complete two self-report surveys, about five months apart. At Time 1, organizational resources (control and support), personal resources (self-efficacy, optimism, and self-esteem), and engagement were measured. At Time 2, personal resources and engagement were measured again. Surveys were distributed by mail if participants preferred completing a paper questionnaire, but otherwise, electronic surveys were administered.

Participants were recruited by the state nurses' association who mailed a letter and flyer to nurses in the area, advertising the study. Willing participants were directed to a website where they could register for the study. On this website, participants learned that they would be reimbursed for their time ($20 for Time 1, and $10 for Time 2), and they were ensured of confidentiality. From the research pool, an e-mailed invitation (or a packet with a letter and full survey, if requested) was sent to each registrant. All of the participants from Time 1 were sent a follow-up survey according to their preferred method.

The study obtained a response rate of 79.9%, indicating that almost 80% of the participants at Time 1 also participated in Time 2. This was achieved in a couple of ways. First, the participants were promptly reimbursed for their time by issuing checks directly after the survey was completed. Second, many of the participants received a hand-written thank you note from a research team member in between the two waves of data collection. Third, the research team made communication with the participants a top priority by responding quickly to any questions or comments and by keeping everyone updated with information about the study.

The final Time 1 sample consisted of 422 participants, with 337 completing Time 2, from several hospitals in the Northwest United States. For Time 1 participants, the average age was 45 years ($SD = 11.6$), and the average age for Time 2 participants it was 45.7 years ($SD = 11.2$). Females made up 86.7% of the participants in Time 1, with 90.5% of the Time 2 participants being female. Of our Time 1 sample, 92.1% identified themselves as White, with the next highest response being Multi-ethnic at 3.5%, and

90.5% of the participants in Time 2 were White with 4.2% identifying as Multi-ethnic.

Most of the participating nurses worked in a hospital or acute care facility (82% in Time

1, 85% in Time 2), and had an average occupational tenure of 17.6 years for Time 1

respondents ($SD = 12.1$) and 17.2 years for Time 2 respondents ($SD = 12.1$).

Measures

Demographics. Demographic information was collected by the nurses'

association, so as to ensure confidentiality. As reported above, many demographic

questions were asked such as age, sex, race, and tenure with the organization.

Method Control. Method control was assessed using the Work Design

Questionnaire (Morgeson & Humphrey, 2006) and with one item from the method

control scale (Jackson, Wall, Martin, & Davids, 1993). The current method control scale

consists of 4 items to which respondents rated on a 5 point Likert scale ranging from 1 =

"strongly disagree" to 5 = "strongly agree". An example items is, "I have independence

and freedom in how I do my work." Reliability of this scale was assessed with the Time

1 data, indicating an alpha of .86.

Decision Involvement. Decision Involvement, part of control, was assessed with

four items developed from factors on the Decision Involvement Scale (Havens & Vasey,

2005). Participants were asked to respond to a 5 point Likert scale where 1 = "strongly

disagree" and 5 = "strongly agree". An example item is, "I can influence my unit's

decisions about staffing." The alpha level of this scale was .86.

Work Schedule Control. Work schedule control was measured with four items

that were developed for the purpose of the grant with which the data were gathered.

Participants responded to a 5 point Likert scale where 1 = "strongly disagree" and 5 = "strongly agree". An example item from this scale is, "I can influence how my work schedule is determined." The reliability from Time 1 of this study was .91.

Perceived Support. Support was assessed using three different scales. These scales were modifications of the Perceived Organizational Support (POS) Scale (Eisenberger, Huntington, Hutchinson, & Sowa, 1986). Four items from the short form of the scale were kept for each of the targets. Each item was changed so that the word "organization" is replaced with "physicians," "coworkers," or "manager" with four items per target, as has been done previously (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002; Hutchinson, 1997a, 1997b; Kottke & Sharafinski, 1988; Rhoades, Eisenberger, & Armeli, 2001). Participants will respond to each item on a 5 point Likert scale such that 1 = "strongly disagree" and 5 = "strongly agree". Example items from each scale are, "The physicians I work with strongly consider my goals and values," "My coworkers really care about my well-being," and, "My manager cares about my opinion." The alpha level of this scale was .85 for physicians, .86 for coworkers, and .92 for managers indicating adequate internal reliability.

Self-Efficacy. Self-efficacy was assessed with five items, three of which were from the self-efficacy subdimension of the Core Self Evaluations measure (Judge, Erez, Bono, & Thoresen, 2003). In addition, the self-efficacy measure included two items from a general self-efficacy measure (Chen, Gully, & Eden, 2001). The two least redundant items were selected. The scale contains 5 items, and participants were asked to respond to a 5 point Likert scale where 1 = "strongly disagree" and 5 = "strongly agree". An

example from Judge's self-efficacy scale is, "When I try, I generally succeed." An example item from Chen's scale is, "I will be able to successfully overcome many challenges." The reliability of this scale from Time 1 data was .74.

Optimism. Participants took the Life Orientation Test in order to assess their level of optimism (Scheier, Carver, & Bridges, 1994). Participants responded to five items (the four filler items and the lowest loading item were dropped) on a 5 point Likert scale where 1 = "strongly disagree" and 5 = "strongly agree". An example of an item is, "I expect more good things to happen to me than bad." Cronbach's alpha for this scale is sufficient at .78.

Self-Esteem. Self-esteem was assessed with five items, three of which came from the subdimension of the Core Self Evaluations measure (Judge et al., 2003). Also, two items from the Rosenberg self-esteem scale were used (Rosenberg, 1965). The selection of the two items to add was based on factor analysis and IRT analysis conducted by Gray-Little, Williams, and Hancock (1997). Participants were asked to respond using a 5 point Likert scale where 1 = "strongly disagree" and 5 = "strongly agree". An example from the Core Self Evaluations subscale is, "Overall, I am satisfied with myself." An example item from the Rosenberg scale is, "I take a positive attitude toward myself." The Time 1 Cronbach alpha for this scale is sufficient at .76.

Engagement. In order to assess the nurses' level of engagement, the Utrecht Work Engagement Scale was used (Schaufeli et al., 2006). It is a 9 item measure that consists of three subscales: vigor ($alpha_{Time\ 1}$ = .86), dedication ($alpha_{Time\ 1}$ =.89), and absorption ($alpha_{Time\ 1}$ =.83). Participants responded to each item on a 5 point Likert

scale ranging from 1 = "strongly disagree" to 5 = "strongly agree". An example item from the vigor subscale is, "At my work, I felt bursting with energy," from dedication, "I was enthusiastic about my job," and from absorption, "I was immersed in my work."

Analyses

I first checked minimum and maximum values of each item to make sure that data were entered correctly in the data set. I did not anticipate a problem here because most of the data were essentially entered by the participants themselves due to the electronic methods and the response options were limited to the permissible answers. There were no values outside of the scale range. I also recoded any variables that were reverse coded. Next, I investigated missing data. I calculated frequencies of each item to determine the extent of missing values. The proportion of missing values was below 5% for all items, and SPSS cannot conduct Missing Values Analysis for such a small percentage. Because the missing values are very low, I allowed SPSS to exclude those cases in the analyses, as is the default.

Next, I conducted confirmatory factor analyses (CFA) to test the construct validity of the scales used. I analyzed the control items in the same factor analysis, which confirmed that the scales did measure the different constructs of method control, work schedule control, and decision involvement (Table 1). I found that the 3 factor model was a better fit than the 1 factor model ($\Delta\chi^2 = 1233.92$, $df = 3$, $p < .01$), the model fit indices along with the chi square difference test are presented in Table 2. The model fit of the three factor model was adequate (CFI = .95, RMSEA = .09). I accepted CFI values above .95 or RMSEA values below .06 (Hu & Bentler, 1999).

I also used CFA to investigate the social support variables. I found that a 3 factor structure best fit the data (Table 3). The 3 factor model had a significantly better fit than the 1 factor model ($\Delta\chi^2 = 1364.48$, $df = 3$, $p < .01$), the model fit indices along with the chi square difference test are presented in Table 4 (CFI = .93, RMSEA = .11).

Next, I analyzed the personal resource items (self-efficacy, optimism, and self-esteem) to compare a 1-factor model with a 3-factor model. It is important to note that the personal resource items were displayed on the computer screen in a random order that varied across participants, which reduces common method bias in response patterns. From Time 1, I found that with the three factor model, the reverse scored items had poor factor loadings (.39 for self-efficacy, .48 for optimism, and .38 for self-esteem). Therefore, I reran the CFA excluding these items on a 3 factor model to compare with a 1 factor model. The 3 factor model provided the best fit for the data ($\Delta\chi^2 = 255.64$, $df = 3$, $p < .01$), the model fit indices along with the chi square difference test are presented in Table 5 (CFI = .93, RMSEA = .08). The factor loadings are presented in Table 6.

Finally, I investigated the engagement scale using CFA. In investigating the 3 factor model, I found that the fit was not as adequate as I would like (CFI = .93, RMSEA = .15), and several of the modification indices indicated cross loadings of the absorption items. I opted to exclude the absorption dimension from analyses, as suggested by Salanova and Schaufeli (2008). Therefore, I focused on investigating a comparison between a 1 factor and a 2 factor structure involving vigor and dedication. I found that the two factor model provided a better fit to the data ($\Delta\chi^2 = 152.49$, $df = 1$, $p < .01$), the

model fit indices along with the chi square difference test are presented in Table 7 (CFI = .98, RMSEA = .12). The factor loadings are presented in Table 8.

After calculating mean composite variables for participants who completed at least 80% of the items, I screened for normality in the individual scales. I visually inspected histograms to determine normality. Substantial nonnormality was not present, and therefore no transformations were needed. Because the assumption of normality is met, relationships between variables are homoscedastic.

Next, I checked for any univariate outliers. To do this, I examined z-scores of the calculated mean variables and used graphical methods, as is consistent with the procedure recommended by Tabachnick and Fidell (2007). Values larger than $\pm$ 3.29 and some distance from the rest of the group are potential outliers. Given the size of the sample, some values close to $\pm$ 3.29 are expected. Therefore, I visually examined box plots of the variables and found only six univariate outliers. I decided that the deletion of cases was acceptable, eliminating any over-influence of those cases without decreasing power substantially. After univariate outliers were managed, I used Mahalanobis distance and Cook's distance to identify multivariate outliers. The Mahalanobis distance value was examined against the χ^2 distribution to determine if it is an outlier, values significant at the $p < .001$ were considered multivariate outliers and were examined using boxplots. Only one additional case was found to be a problem, and it will be excluded from additional analyses. Cook's distance is a value given to influence. Cases with a score larger than 1.00 are suspects. No cases met this criterion.

I also examined the linearity of the relationships among the variables by examining bivariate scatter plots. A linear relationship can be seen in a scatter plot as an oval shape, but this is often a difficult distinction to make. None of the scatter plots between the independent and dependent variables seem suspicious.

It is also important to examine the data for multicollinearity and singularity. The structural equation modeling analysis will fail if singularity and/or multicollinearity are a problem, but there were no problems.

Descriptive Statistics. Using the mean composite variables computed earlier, I computed means, standard deviations, and scale reliabilities, and calculated correlations between the scales.

Model Testing. In order to test my hypotheses, I tested a structural equation model such that individual items were loaded onto their corresponding factors (Figure 4). Circles represent latent variables, and rectangles represent measured items. I tested the mediation hypotheses (4, 7, and 10) in two ways- through comparing partially and fully mediated models and examining direct and indirect effects. First, I estimated the fully mediated model, such that organizational resources predict engagement through personal resources (i.e., with no direct effects from organizational resources to engagement). Next, I examined the partially mediated model such that the direct paths from organizational resources to engagement are added. In addition, I asked for modification indices to identify paths which are compromising model fit. When new paths were theoretically sensible, I explored these additions and their implications for model fit (Muthén & Muthén, 2006). For example, because the relationships were partially

mediated, the modification indices suggested to add direct relationships from the organizational resources to the engagement factors.

To contrast the models, I calculated a change in chi square significance test. I selected the most parsimonious model that best fits the model, or fit equally well as the best fitting model. I examined the comparative fit index (CFI) and root mean square error of approximation (RMSEA). The value of CFI should be greater than .95, and the value of RMSEA should be below .06 to indicate good fit (Hu & Bentler, 1999).

Using the most appropriate model, I examined the indirect effects. I used bootstrapping in order to maintain sufficient power; this technique randomly samples from the data with replacement to generate an approximate sampling distribution. To test the mediation effects, I calculated the product of the organizational resources – personal resources relationship and the personal resources – engagement relationship. If zero is within the 95% confidence intervals presented by these analyses, indirect effects are not significantly different from zero at the $p < .05$ level.

<div align="center">Results</div>

Descriptive Statistics

Means, standard deviations, and correlations of the variables are presented in Table 9 for Time 1, Table 10 for Time 2, and Table 11 for correlations between Time 1 and Time 2 variables. In Time 1 (Table 9), all of the correlations seem reasonable, such that each of the factors in the control scales, personal resource scales, and engagement factors were significantly and positively correlated, respectively. Age was significantly correlated with optimism ($r = .14$, $p < .01$) and absorption ($r = .11$, $p < .05$), but because

absorption was not included in the model age was not significantly correlated with any of the outcome variables, thus was not controlled for in the analyses. In Time 2 (Table 10), we see the same pattern: self-efficacy, optimism, and self-esteem are all highly correlated with one another ($r = .48$ to $.65$, all $p < .01$). Also, vigor and dedication are highly positively correlated ($r = .79$, $p < .01$). Finally, the correlations between Time 1 and Time 2 variables are shown in Table 11. Each of the variables measured at Time 1 and Time 2 were significantly correlated, as expected.

Model Testing

Using the factors previously defined, I tested the measurement model, in which each item was loaded on to its respective factor and all factors were correlated ($\chi^2 = 1806.70$, $df = 764$; CFI $= .90$; RMSEA $= .06$). Loadings for the measurement model are shown in Table 12. In the next step, I added all of the hypothesized paths (Figure 5). This was a full mediation model, and the modification indices suggested that direct paths from the organizational resources to the engagement factors may improve fit. For the next step, I added those paths, yet there were several variables that had no significant relationships with any of the other variables, including physician support, decision involvement, work schedule control, and optimism. I eliminated each of these variables, one by one, in order to improve fit and investigate other paths that were nearly significant.

I decided to first eliminate work schedule control because none of the relationships with this variable approached significance and it was the least theoretically plausible. The deletion of this variable did not lead to other significant paths becoming

apparent, but did reduce the amount of error in the model ($\Delta\chi^2 = 613.05$, $df = 144$, $p < .01$). The next variable I eliminated was physician support, and it did not reveal any additional significant paths but did reduce error ($\Delta\chi^2 = 278.77$, $df = 129$, $p < .01$). The same was true for the elimination of optimism ($\Delta\chi^2 = 320.11$, $df = 114$, $p < .01$), and decision involvement ($\Delta\chi^2 = 199.95$, $df = 99$, $p < .01$). The resulting model is depicted in Figure 6 with standardized path coefficients, and provided adequate fit statistics (CFI = .94, RMSEA = .06). The fit indices for all models, as well as the change in chi square significance tests are presented in Table 12.

The significant path from supervisor support to dedication provides partial support for Hypothesis 1a. The significant paths from method control and coworker support to self-esteem and self-efficacy, respectively, provided some support for Hypotheses 8 and 2. Finally, the significant relationships between self-efficacy and vigor and self-efficacy and dedication provide full support for Hypothesis 3.

The medication hypotheses (4, 7, and 10), were tested with the Sobel test (Sobel, 1982). The mediation effect of self-efficacy between coworker support and vigor was not significant ($z = 1.64$, $p > .05$). The mediation effect of self-efficacy between coworker support and dedication was also non-significant ($z = 1.68$, $p > .05$). The other mediation effects were obviously not significant because there were no paths from the mediators (optimism and self-esteem) to the engagement factors. Other hypotheses were not supported.

<center>Discussion</center>

Findings

The purpose of this study was to investigate the relationships between, and possible causal flow of, organizational resources, personal resources, and engagement. The hypotheses were tested in a longitudinal design with a sample of nurses from the Northwestern United States. Using structural equation modeling, I found support for some of the hypotheses. I found support for the organizational resources – engagement relationship that is predicted in the JD-R model (Demerouti et al., 2001). Further, the addition of personal resources as mediators of this relationship was partially supported.

The organizational resource of coworker support did predict self-efficacy at time 2, providing support for Hypothesis 2. This indicates that coworker support provides an environment in which self-efficacy can be developed and improve. It is interesting to note that supervisor support and physician support were not significant predictors. This may be because coworkers are more likely to be working alongside one another, and thus provide support that may lead to the experience of successes.

Self-efficacy also predicted both vigor and dedication, supporting Hypothesis 3. This indicates that self-efficacy is a key player in engagement prediction. This also supports the Conservation of Resources argument, in which those who have a stable resource pool are more likely to invest their resources in order to obtain future resource gain (Hobfoll, 1989). Nurses' self-efficacy was positively related to their engagement, indicating that those who were more efficacious were also more likely to work with high levels of energy (vigor) and find meaning in their work (dedication). Self-efficacy did not significantly mediate the relationship between coworker support and engagement, thus Hypothesis 4 was not supported.

Optimism was not related to any of the other variables in the model, rejection Hypotheses 5, 6, and 7. Despite being highly correlated with self-efficacy and self-esteem, the relationships among the organizational resources and engagement were not significant. This may indicate that optimism is either oscillating at a faster or slower rate, restricting the ability to detect predictable change. Or, the relationship between organizational resources and optimism and optimism and engagement is simply too weak to be meaningful.

Self-esteem was predicted by method control, supporting Hypothesis 8. Method control, as measured in this study, may seem to reflect the organization's positive regard for employees, thus providing employees with more external cues about their self-worth. For example, the organization which gives nurses "independence and freedom in how [they] do [their] work," is sending the message that they are worthy of that independence, possibly contributing to nurses' positive self image. Interestingly, social support was not related to self-esteem, contradicting the self-esteem as a sociometer theory. While employees certainly experience social inclusion and exclusion at work, this setting is not the only place in which nurses have social interactions. We measured social support from physicians, managers, and coworkers but measured general levels of self-esteem. Perhaps participants are thinking of relationships from non-work sources when assessing the extent to which their belongingness needs are being met.

Self-esteem did not predict engagement, thus rejecting Hypotheses 9 and 10. This indicates that being satisfied with oneself may not lead to exerting more energy and resources into one's work. Perhaps self-esteem serves as a personal resource such that it

can prevent resource loss and is a motivating force when it is low, but it is not a motivating factor when individuals are satisfied with themselves. Employees who have low levels of self-esteem may behave in ways to make them feel better about themselves, but once any negative self-evaluations are alleviated it is no longer necessary to invest energy in the venture. Therefore, any motivating power that self-esteem may have is short-lived and does not lead to excess and resource investment.

Also interesting to note is the correlation between the personal resources at Time 1 with Time 2. Self-efficacy measured at Time 1 is correlated with self-efficacy at Time 2 ($r = .44$, $p < .01$); optimism at Time 1 with optimism at Time 2 ($r = .60$, $p < .01$); and self-esteem at Time 1 with self-esteem at Time 2 ($r = .58$, $p < .01$). These are fairly high correlations, but none are so high that we can assume that personal resources are perfectly stable or nonmalleable. This indicates that individuals do vary in levels of personal resources over time, but there does seem to be a baseline level of each resource given the significant correlations between the two time points.

Contributions

The significant findings are consistent with Hobfoll's (1989) COR theory and Fredrickson's (2001) broaden and build theory, indicating that resources are positively related to the investment of resources and further gain. The significant model provides partial support that organizational resources lead to a growth of personal resources, which lead to an increase in engagement. Although, I cannot make any causal claims because of the non-experimental design. The significant model also provides further support for the resources to engagement relationship of the JD-R model (Demerouti et al., 2001), and

expands on the theory to include personal resources. Including individual differences as a part of the JD-R model will provide a more comprehensive model with which to study engagement and burnout. While the JD-R model has massed a large body of support, its propositions indicate that the organizational context has important implications on the individual in terms of burnout and engagement. Adding personal resources to the model incorporates the important role of the individual within the context. This is an important first step for evolving the JD-R model.

Failure to find significant relationships between all kinds of organizational resources and engagement may suggest that certain types of organizational resources will be more beneficial than others in the relationship with personal resources and engagement. For example, decision involvement may be an organizational resource that is important to employees, but only if it is missing. Giving employees more decision involvement may not enhance their levels of personal resources or engagement, but a lack of decision involvement could result in a decline of positive or burnout.

Also, the time between measurement occasions may have implications for resource gain. The question of how long an employee needs to experience control, social support, and thus successes at work before becoming engaged or developing a spiral up effect of resource gain is an interesting question. Perhaps the time of five months is either too much or too little time to see significant results.

It is also interesting to note that all of the personal resources were highly correlated with one another at the same measurement occasion and across the two measurement occasions. It is possible that personal resources are not as distinct from one

another as is typically discussed. Two exceptions that come to mind are Core Self

Evaluations (Judge, Locke, & Durham, 1997) and Psychological Capital (F. Luthans et

al., 2007). Judge and colleagues (1997) use self-efficacy, locus of control, emotional

stability, and self-esteem in a high order factor, which predicts job and life satisfaction

better than any of the factors alone (Judge, Locke, Durham, & Kluger, 1998). Luthans

and his colleagues (2007) treat self-efficacy, self-esteem, resilience, and optimism in a

similar fashion- on a higher order factor. This body of research along with my results

indicate that the personal resource constructs may not have clear divisions between one

another. The same is true for the facets of engagement, which are often used as a higher

order factor or a single factor construct (Jari J. Hakanen et al., 2008; Salanova, Agut, &

Peiro, 2005b; Schaufeli & Bakker, 2004). This shared variance may account for part of

the failure to find significant results because the coefficients represent the unique amount

of variance that the variable accounts for in the outcome variable. Thus, when two

predictor variables share a substantial amount of variance in predicting the outcome, that

part of the variance is not represented by the coefficient.

Another contribution of this study is its longitudinal design. From this I was able

to investigate the implications that organizational context has on employee personal

resource levels and engagement over time. The sample of nurses also strengthened the

generalizability of the found relationships. Another contribution is a thorough theoretical

development of the hypotheses. In previous journal articles, a limited review of theory

and empirical evidence to guide hypotheses has been provided. Usually the authors

failed to dictate the mechanisms through which resources would lead to more resources,

instead assuming that it was so. Writing the introduction has allowed me to delineate the expected relationships and possible mechanisms. Finally, this study contributed to the personal resource literature by suggesting evidence for possible environment-level interventions.

Practical Implications

There are also practical implications with the current research focus. It is important to managers to be able to foster engagement in their employees. This study provides further understanding about the causes of engagement which provides needed information for the development of interventions and work design. My findings may also lead to better theory regarding training programs. Because both organizational and personal resources are important in engagement, training could include a component to enhance personal resources as well as teaching the knowledge needed to do the job. To my knowledge, no research has been done to examine possible personal resource interventions through changing the environment. By examining the relationship among the organizational context and personal resources, my study should encourage further investigation of potential environment-level interventions.

Further, the relationship between supervisor support and employee dedication suggests that giving nurse managers training in supportive behaviors would be useful. Also, encouraging coworker support could be beneficial for employee self-efficacy. Because coworker support and supervisor support are highly correlated, supervisors may serve as role models and thus encourage a supportive environment. Clearly, a supportive environment is beneficial for employee well-being and engagement.

It is also interesting and valuable to note that organizational resources may be an important aspect of employee thriving. While providing sufficient resources is clearly important for employees' engagement, it also has implications for their well-being and ability to flourish outside of work as well. Employers should consider what implications organizational decisions may have on their employees and not only on their organizational functioning.

Limitations

As with any research study, the current study has limitations. First, I was not able to gather a random sample of nurses. This may limit generalizability because respondents may belong to some sort of special subset of nurses. However, because of the large sample gathered, this is probably not a significant problem. Second, all of the measures were self-report which may contribute to same method bias. Although, Spector (2006) has reviewed empirical research which suggests that the common method bias may be overstated. Further, this study had several design elements to help combat this concern as well, including the randomization of the personal resource items and a substantial amount of time between the two surveys. Using predictors from Time 1 and outcomes from five months later will reduce common method bias.

While the time difference helped alleviate concerns about common method bias, five months may not be the ideal time frame to investigate changes in personal resources and engagement. It is possible that personal resources either vary much more quickly, on a daily basis; or they take longer time periods to change. For example, because self-efficacy was significantly predicted by organizational resources in the time difference of

five months, it is possible that it takes a good deal of experiences with positive outcomes to develop self-efficacy. However, optimism may depend more on daily events. For example, a nurse's day to day experiences may have affective results which impact levels of optimism. Because of the distance between the two time points in this study, it is plausible that I was not able to detect the day to day changes that rely on the organizational resources.

Also, the current study was not able to test a possible reciprocal effect of personal resources leading to organizational resources or engagement leading to personal and/or organizational resources. It is possible that employees with higher personal resources are more apt to notice organizational resources, and a possible feedback loop of engagement to resources is also a plausible explanation. For example, I found that coworker support predicted self-efficacy which then predicted engagement. However, perhaps employees who are more self-efficacious are more likely to help their workers and the helping behavior leads to coworker help through reciprocity.

Future Directions

Future research directions should contribute by improving upon these weaknesses. An interesting and important study could use observational methods to gather information about some of the constructs in order to examine the biases of self-report methods. The ability to collect information about personal resources is probably inadequate, but it could be interesting to gauge organizational resources objectively to determine the extent to which employees' personal resource levels influence the amount

of organizational resources reported. Also, a three wave longitudinal design would be useful in examining the reciprocal effects as well as a possible feedback loop.

Investigating different time frames of change would also be an interesting venture. Using advanced technology such as palm pilots and internet surveys will certainly make the examination of a wide variety of time frames possible. Researchers may find that certain personal resources take only hours to foster or hinder, while others take a matter of months. The stability of personal resources could also vary between individuals, which would be interesting to discover as well.

It will also be exciting to explore a possible nonlinear function of the effects of resources on engagement and performance. It is possible that the relationships between personal resources and organizational success are curvilinear. For example, an employee who is too self-efficacious may waste time and resources by pursuing a fruitless path. In this case, unrealistic self-efficacy may be a hindrance. The investigation and validation of any form of intervention for engagement and resource enhancement would also contribute to the current literature and be valuable to practitioners. The possibility of broadening the research and knowledge of this area of psychology is exciting and clearly may benefit employees and organizations alike.

Finally, studying the role that personal resources play in the demands – burnout relationship is another potential fruitful research path. In this relationship, personal resources may act as moderators, buffering the negative effects of demands. However, it is also possible that personal resources are depleted when employees are faced with repeated demands.

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Table 1.
Confirmatory Factor Analysis for Control Variables

Item	Factor		
	1	2	3
I can decide what methods I use to complete my work.	.81		
I have independence and freedom in how I do my work.	.91		
I can decide how to go about doing my work.	.89		
I can control the quality of my work.	.53		
I have control over decisions about my work schedule.		.85	
My needs are considered when setting my work schedule.		.93	
I can influence how my work schedule is determined.		.88	
If I have a problem with my schedule, my organization would help me address it.		.74	
I can influence my unit's decisions about staffing.			.70
I can influence my unit's decisions about our professional practice.			.78
I can influence my unit's decisions about the selection of unit leaders.			.80
I can influence my unit's decisions about RN support staff management.			.88

Notes. Factor 1 is Method Control; Factor 2 is Work Schedule Control; Factor 3 is Decision Involvement.

Table 2.
Model comparison results for Control

Model	X^2	df	CFI	RMSEA	ΔX^2	Δdf	p
1 Factor Model	1449.69	54	.57	.25			
3 Factor Model	215.77	51	.95	.09	1233.92	3	.00

Notes. CFI = comparative fit index; SRMR = standardized root mean square residual; RMSEA = Root mean square error of approximation.

Table 3.
Confirmatory Factor Analysis for Social Support Variables

Item	Factor		
	1	2	3
The physicians I work with strongly consider my goals and values.	.84		
The physicians I work with really care about my well-being.	.89		
The physicians I work with care about my opinion.	.80		
The physicians I work with would ignore any complaint from me.(R)	.54		
My coworkers strongly consider my goals and values.		.78	
My coworkers really care about my well-being.		.86	
My coworkers care about my opinion.		.90	
My coworkers would ignore any complaint from me.(R)		.60	
My manager strongly considers my goals and values.			.92
My manager really cares about my well-being.			.95
My manager cares about my opinion.			.92
My manager would ignore any complaint from me.(R)			.67

Notes. (R) = items that have been reverse coded. Factor 1 is Physician Support; Factor 2 is Coworker Support; Factor 3 is Manager Support.

Table 4.
Model comparison results for Social Support

Model	X^2	df	CFI	RMSEA	ΔX^2	Δdf	p
1 Factor Model	1624.77	54	.54	.27			
3 Factor Model	291.87	51	.93	.11	1364.48	3	.00

Notes. CFI = comparative fit index; SRMR = standardized root mean square residual; RMSEA = Root mean square error of approximation.

Table 5.
Model comparison results for Personal Resources

Model	X^2	df	CFI	RMSEA	ΔX^2	Δdf	p
3 Factor Model	187.41	51	.93	.08			
1 Factor Model	443.05	54	.78	.13	255.64	3	.00

Notes. CFI = comparative fit index; SRMR = standardized root mean square residual; RMSEA = Root mean square error of approximation.

Table 6.
Confirmatory Factor Analysis for Personal Resources

Item	Factor		
	1	2	3
When I try, I generally succeed.	.67		
I complete tasks successfully.	.66		
I am filled with doubts about my competence.(R)	--		
I believe I can succeed at most any endeavor to which I set my mind.	.71		
I will be able to successfully overcome many challenges.	.74		
I don't expect things to go wrong for me.		.59	
I am always optimistic about my future.		.63	
I hardly ever expect things to go my way.(R)		--	
I count on good things happening to me.		.69	
I expect more good things to happen to me than bad.		.74	
I am confident I get the success I deserve in life.			.54
Sometimes when I fail I feel worthless. (R)			--
Overall, I am satisfied with myself.			.81
I take a positive attitude toward myself.			.79
On the whole I am satisfied with myself.			.83

Notes. (R) = items that have been reverse coded, and were excluded from further analyses. Factor 1 is Self-efficacy; Factor 2 is Optimism; Factor 3 is Self-esteem.

Table 7.
Model comparison results for Engagement

Model	X^2	df	CFI	RMSEA	ΔX^2	Δdf	p
1 Factor Model	203.58	9	.89	.23			
3 Factor Model	230.11	24	.93	.15			
2 Factor Model	51.09	8	.98	.12	152.49	1	.00

Notes. CFI = comparative fit index; SRMR = standardized root mean square residual; RMSEA = Root mean square error of approximation.

Table 8.
Confirmatory Factor Analysis for Work Engagement

Item	Factor	
	1	2
I was enthusiastic about my job.	.93	
My job inspired me.	.87	
I was proud of the work that I did.	.68	
At my work, I felt bursting with energy.		.89
At my job, I felt strong and vigorous.		.88
When I got up in the morning, I felt like going to work.		.80

Notes. Factor 1 is Dedication; Factor 2 is Vigor.

Table 9.
Descriptive Statistics, Alpha Coefficients, and Bivariate Correlations for Time 1 Variables.

Scale Name	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Physician Support	3.12	.81	(.85)												
2. Manager Support	3.43	1.00	.26''	(.92)											
3. Coworker Support	3.84	.65	.35''	.46''	(.86)										
4. Method Control	3.74	.78	.28''	.42''	.38''	(.86)									
5. Decision Involvement	2.84	.94	.40''	.59''	.40''	.46''	(.86)								
6. Work Schedule Control	3.40	.99	.25''	.46''	.25''	.41''	.50''	(.91)							
7. Self-Efficacy	4.11	.44	.01	.07	.09	.14''	.10'	.01	(.80)						
8. Optimism	3.73	.60	.06	.21''	.16''	.18''	.17''	.19''	.40''	(.78)					
9. Self-Esteem	3.92	.57	.18''	.19''	.18''	.21''	.19''	.15''	.57''	.63''	(.83)				
10. Vigor	2.96	.88	.23''	.30''	.22''	.35''	.33''	.27''	.10'	.27''	.32''	(.89)			
11. Dedication	3.63	.77	.21''	.31''	.29''	.37''	.34''	.28''	.15''	.25''	.34''	.76''	(.86)		
12. Absorption	3.63	.79	.23''	.29''	.28''	.31''	.26''	.21''	.23''	.20''	.33''	.60''	.62''	(.83)	
13. Age	45.74	11.35	.03	-.07	-.09	-.07	-.06	.01	-.05	.14''	.07	.09	.05	.11'	n/a

Notes: Values in parentheses are Cronbach's alpha for Time 1 variables. ' indicates significant at the .05 level and '' indicates significant at the .01 level.

Table 10.
Descriptive Statistics, Alpha Coefficients, and Bivariate Correlations for Time 2 Variables.

Scale Name	M	SD	1	2	3	4	5
1. Self-Efficacy	4.13	.43	(.82)				
2. Optimism	3.81	.62	.48''	(.85)			
3. Self-Esteem	3.97	.51	.65''	.64''	(.83)		
4. Vigor	2.99	.83	.29''	.18''	.25''	(.87)	
5. Dedication	3.54	.74	.34''	.19''	.31''	.79''	(.84)

Notes: Values in parentheses are Cronbach's alpha for Time 2 variables. ' indicates significant at the .05 level and '' indicates significant at the .01 level.

Table 11.
Bivariate Correlations for Time 1 with Time 2 Variables

Scale Name	1	2	3	4	5	6	7	8	9	10	11
1. Physician Support	n/a										
2. Manager Support	n/a	n/a									
3. Coworker Support	n/a	n/a	n/a								
4. Method Control	n/a	n/a	n/a	n/a							
5. Decision Involvement	n/a	n/a	n/a	n/a	n/a						
6. Work Schedule Control	n/a	n/a	n/a	n/a	n/a	n/a					
7. Self-Efficacy	.02	.04	.13'	.13'	.11'	.06	.44''				
8. Optimism	.09	.05	.06	.08	.05	.08	.32''	.60''			
9. Self-Esteem	.04	.11'	.09	.17''	.07	.08	.48''	.35''	.58''		
10. Vigor	.12'	.17''	.17''	.19''	.19''	.10	.08	.22''	.31''	.71''	
11. Dedication	.13'	.24''	.23''	.25''	.25''	.15''	.11'	.24''	.27''	.68''	.70''

Notes: ' indicates significant at the .05 level and '' indicates significant at the .01 level.

Table 12.
Model comparison results

Model	X^2	df	CFI	RMSEA	ΔX^2	Δdf	p
All Variables Without Paths	1806.70	764	.90	.06			
Full Mediation Model	1836.30	776	.90	.06	29.60	12	.003
Partial Mediation Model	1806.70	764	.90	.06	29.60	12	.003
Partial Model Without WSC	1472.42	620	.91	.06	613.05	144	.00
Partial Model without WSC & PS	1193.65	491	.92	.06	278.77	129	.00
Partial Model without WSC, PS, & Opt	873.54	377	.93	.06	320.11	114	.00
Partial Model without WSC, PS, Opt, & DI	673.59	278	.94	.06	199.95	99	.00

Notes. CFI = comparative fit index; RMSEA = Root mean square error of approximation. WSC = Work Schedule Control; PS = Physician Support; Opt = Optimism; DI = Decision Involvement.

Table 13.
Full Measurement Model

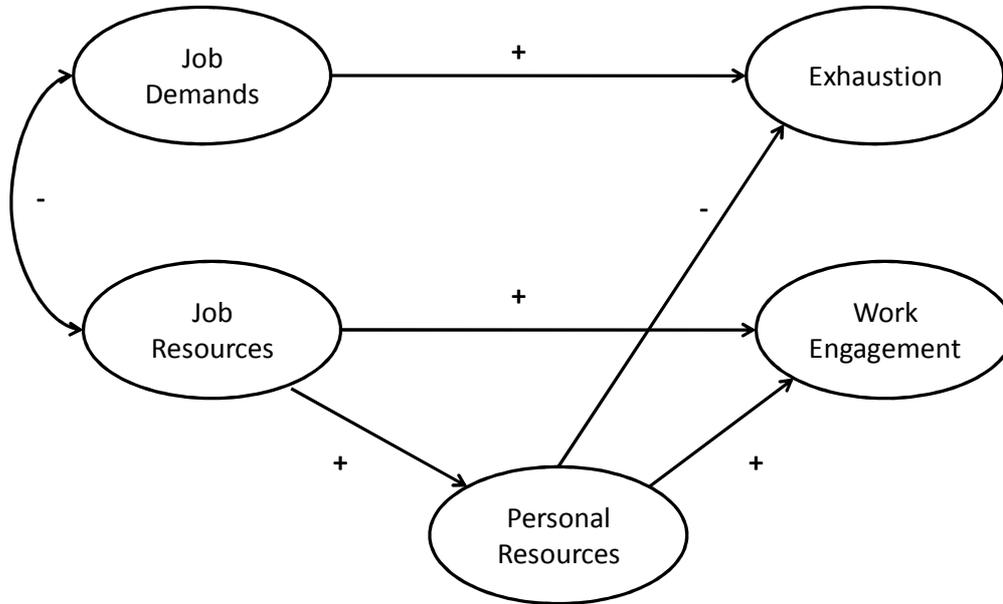| Item	Factor										
	1	2	3	4	5	6	7	8	9	10	11
Physician Support1	.83										
Physician Support2	.89										
Physician Support3	.80										
Physician Support4	.54										
Coworker Support1		.78									
Coworker Support2		.86									
Coworker Support3		.90									
Coworker Support4		.60									
Manager Support1			.92								
Manager Support2			.95								
Manager Support3			.93								
Manager Support4			.67								
Decision Involvement1				.69							
Decision Involvement2				.78							
Decision Involvement3				.80							
Decision Involvement4				.88							
Method Control1					.81						
Method Control2					.91						
Method Control3					.89						
Method Control4					.54						
Work Schedule Control1						.85					
Work Schedule Control2						.93					
Work Schedule Control3						.88					
Work Schedule Control4						.74					
Optimism1							.61				
Optimism2							.69				
Optimism3							.85				
Optimism4							.84				
Self-Efficacy1								.75			
Self-Efficacy2								.74			
Self-Efficacy3								.70			
Self-Efficacy4								.70			
Self-Esteem1									.50		
Self-Esteem2									.87		
Self-Esteem3									.88		
Self-Esteem4									.76		
Vigor1										.89	
Vigor2										.88	
Vigor3										.74	
Dedication1											.90
Dedication2											.86
Dedication3											.64

Figure 1. *Personal resources in the JD-R model.*

Figure is adapted from Xanthopoulou et al. (2007).

Figure 2. *Positive gain spiral of efficacy beliefs, resources, and engagement.*

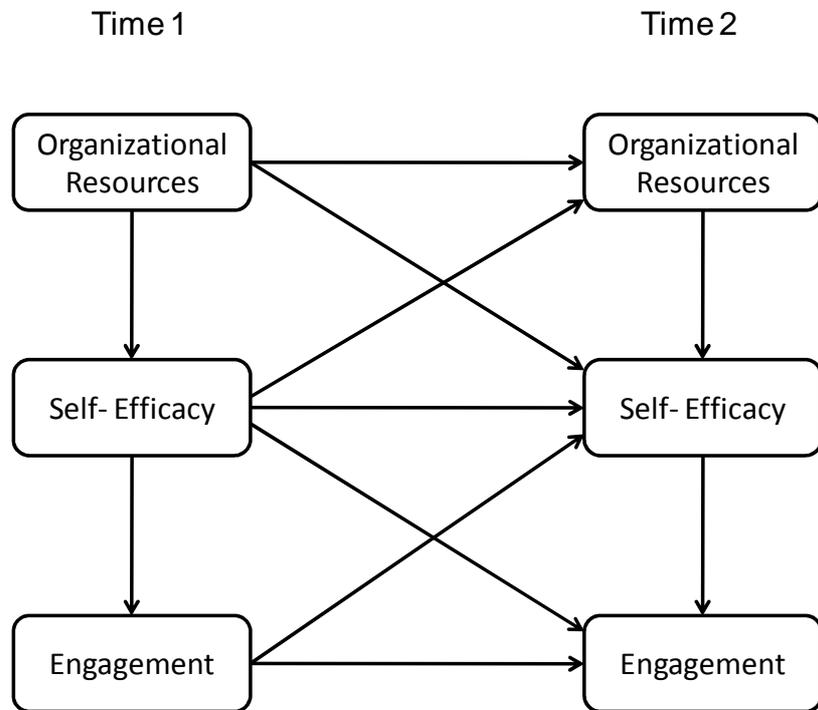Time 1   Time 2

Figure is adapted from Llorens, et al. (2008). All arrows indicate positive relationships.
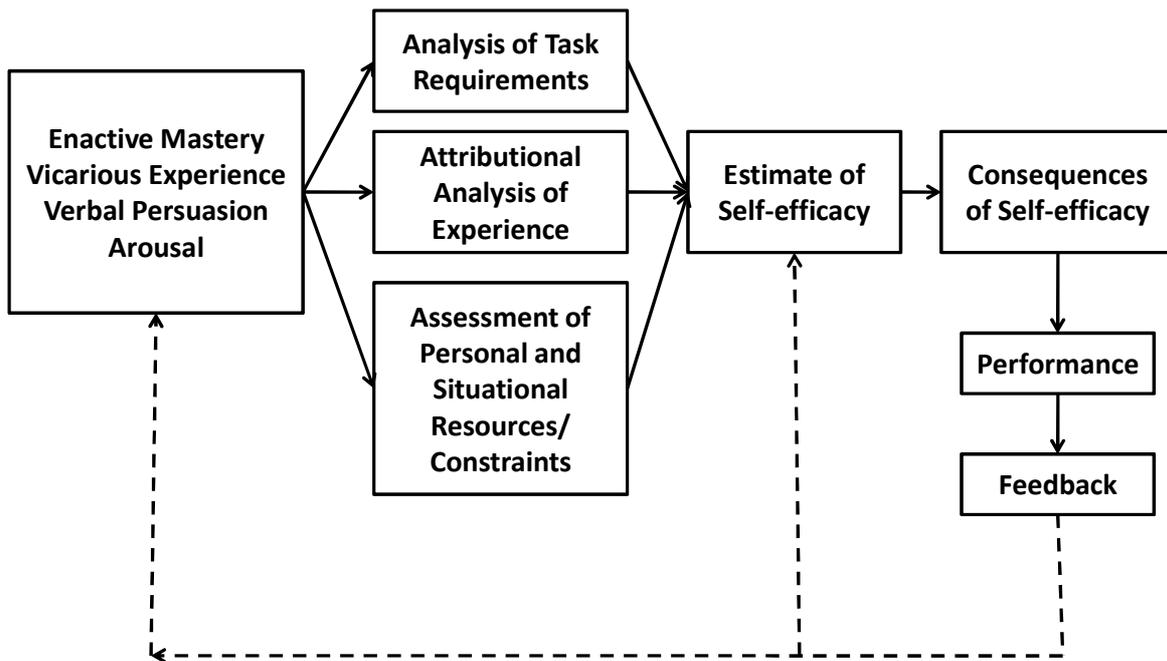
Figure 3. *Self-efficacy assessment model.*

Figure is adapted from Gist and Mitchell (1992) and indicates a simple model depicting self-efficacy assessments.
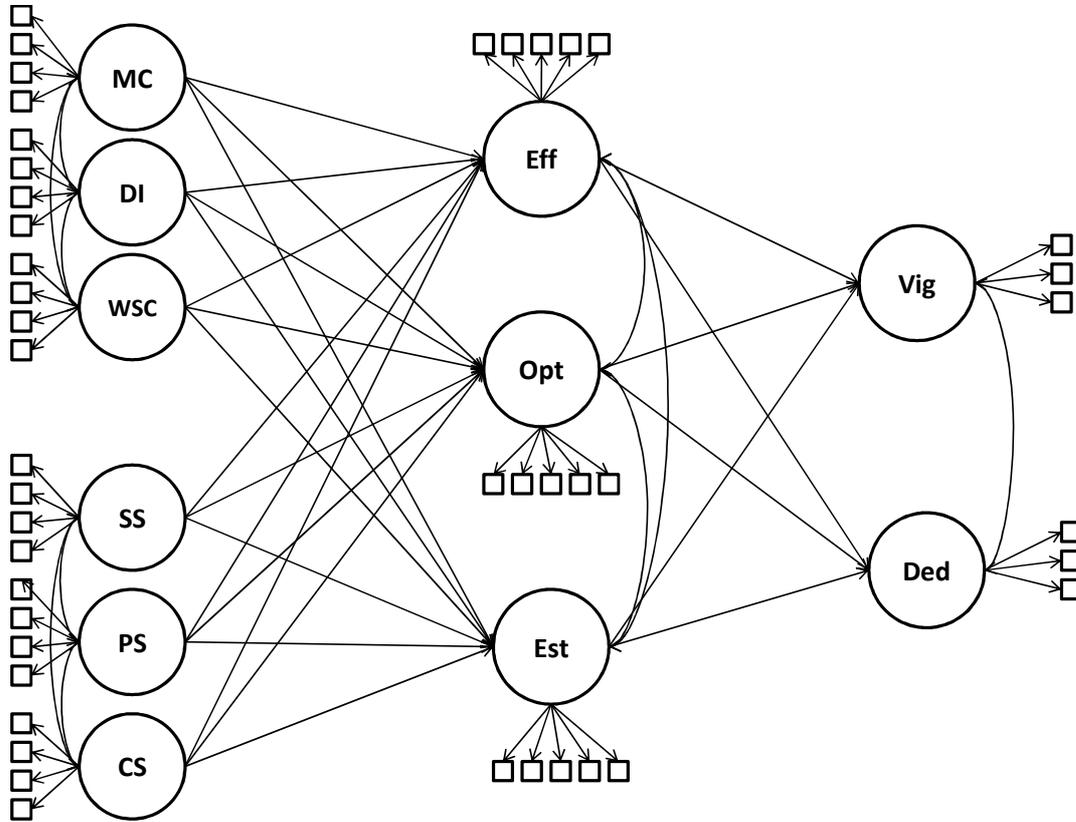
Figure 4. *Hypothesized model.*

Figure depicts expected results. Circles are latent factors, squares are measured items. All
hypothesized relationships are positive. Curved, double headed arrows indicate positive
correlations. MC = Method Control; DI = Decision Involvement; WSC = Work Schedule
Control; SS = Supervisor Support; PS = Physician Support; CS = Coworker Support; Eff
= Self-Efficacy; Opt = Optimism; Est = Self-Esteem; Vig = Vigor; Ded = Dedication.

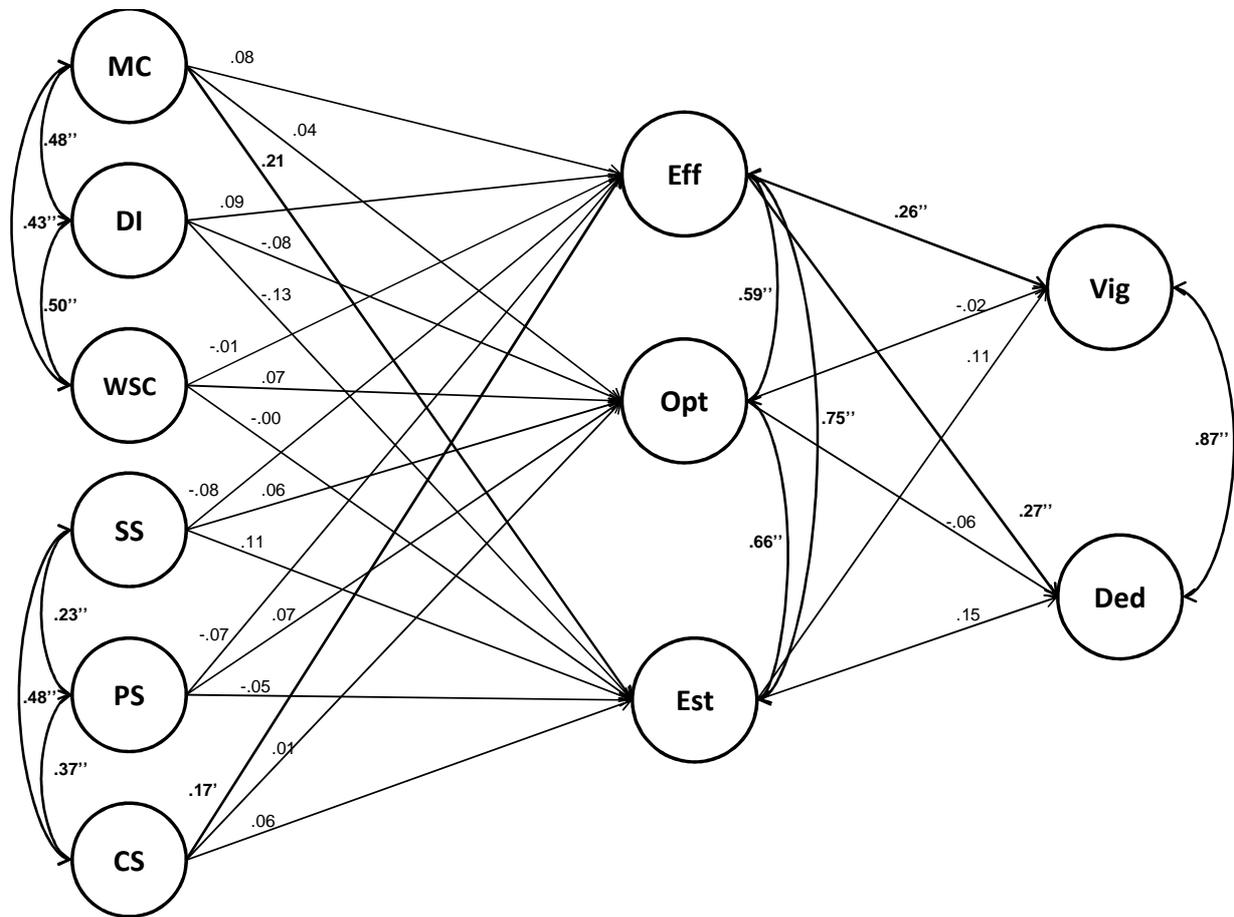Figure 5. *Full mediation model.*

Figure depicts full mediation model results. Circles are latent factors. Curved, double headed
arrows indicate correlations. MC = Method Control; DI = Decision Involvement; WSC =
Work Schedule Control; SS = Supervisor Support; PS = Physician Support; CS =
Coworker Support; Eff = Self-Efficacy; Opt = Optimism; Est = Self-Esteem; Vig =
Vigor; Ded = Dedication. Significant coefficients and paths are in bold.
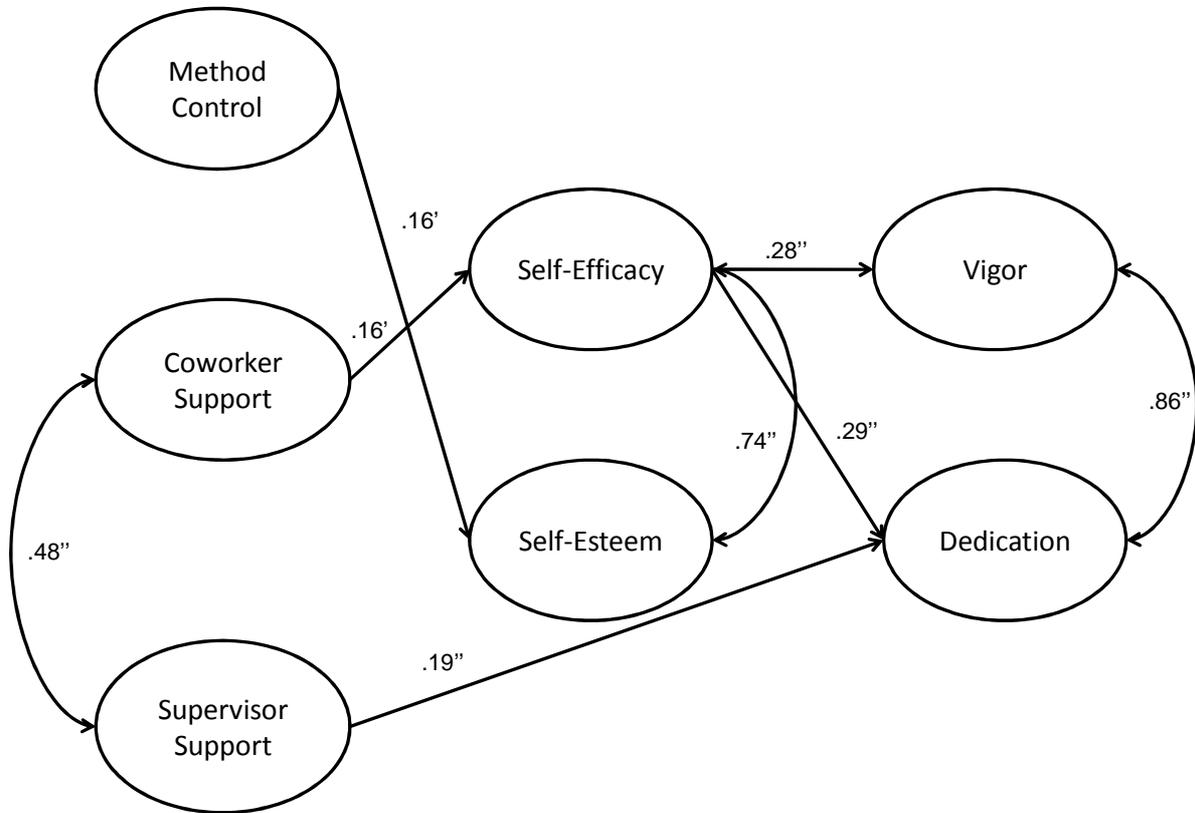
Figure 6. *Final Model.*

Figure depicts model with adequate fit. Curved, double headed arrows indicate correlations.

APPENDIX A

Study Measures

Gender

What is your sex? ___Male ___Female

Age

What is your age? ____

Race

What is your race?   (check all that apply)
- ☐ American Indian or Alaskan native
- ☐ Asian
- ☐ Black or African American
- ☐ Hispanic or Latino/Latina
- ☐ Native Hawaiian or other Pacific Islander
- ☐ White
- ☐ Some other race _____

Tenure

How long have you been working in nursing? _____years _____months

Setting

Which of the following health care settings is your PRIMARY/USUAL place of work?
- ☐ Hospital/Acute Care Facility
- ☐ Long-term care facility
- ☐ Home health agency
- ☐ Ambulatory/outpatient clinic/MD office
- ☐ Community or public health agency
- ☐ School of nursing
- ☐ Government Agency
- ☐ Public/private school (K – 12)
- ☐ Other

Social Support
Instructions: Please indicate to what extent you **agree** or **disagree** with each of the following statements about the **quality of your relationships** with other people at your primary job.
Rating Scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

| PPS1. The physicians I work with strongly consider my goals and values. |

PPS2. The physicians I work with really care about my well-being.
PPS3. The physicians I work with care about my opinion.
PPS4. The physicians I work with would ignore any complaint from me.(R)
PCS1. My coworkers strongly consider my goals and values.
PCS2. My coworkers really care about my well-being.
PCS3. My coworkers care about my opinion.
PCS4. My coworkers would ignore any complaint from me.(R)
PSS1. My manager strongly considers my goals and values.
PSS2. My manager really cares about my well-being.
PSS3. My manager cares about my opinion.
PSS4. My manager would ignore any complaint from me.(R)

Method Control

Instructions: Please indicate to what extent you **agree** or **disagree** with each of the following statements about **your primary job**.
Rating Scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

MC1. I can decide what methods I use to complete my work.
MC2. I have independence and freedom in how I do my work.
MC3. I can decide how to go about doing my work.
MC4. I can control the quality of my work.

Decision Involvement

Instructions: Please indicate to what extent you agree or disagree with each of the following statements about your primary job.
Rating Scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

DI1. I can influence my unit's decisions about staffing.
DI2. I can influence my unit's decisions about our professional practice.
DI3. I can influence my unit's decisions about the selection of unit leaders.
DI4. I can influence my unit's decisions about RN support staff management.

Work Schedule Control

Instructions: Please indicate to what extent you agree or disagree with each of the following statements about your primary job.
Rating Scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

WSC1. I have control over decisions about my work schedule.
WSC2. My needs are considered when setting my work schedule.
WSC3. I can influence how my work schedule is determined.
WSC4. If I have a problem with my schedule, my organization would help me address it.

Self-esteem

Instructions: Indicate the extent to which you **agree** or **disagree** with each of the following statements.
Rating Scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

CSE1.	I am confident I get the success I deserve in life.
CSE2.	Sometimes when I fail I feel worthless. (R)
CSE3.	Overall, I am satisfied with myself.
CSE4.	I take a positive attitude toward myself.
CSE5.	On the whole I am satisfied with myself.

Self-efficacy

Instructions: Indicate the extent to which you **agree** or **disagree** with each of the following statements.
Rating Scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

CSE6.	When I try, I generally succeed.
CSE7.	I complete tasks successfully.
CSE8.	I am filled with doubts about my competence.(R)
CSE9.	I believe I can succeed at most any endeavor to which I set my mind.
CSE10.	I will be able to successfully overcome many challenges.

Optimism

Instructions: Indicate the extent to which you **agree** or **disagree** with each of the following statements.
Rating Scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

O1. I don't expect things to go wrong for me.
O2. I am always optimistic about my future.
O3. I hardly ever expect things to go my way.(R)
O4. I count on good things happening to me.
O5. I expect more good things to happen to me than bad.

Engagement

Instructions: Please indicate **how often** you have experienced each of the following about your job over **the past 30 days**.
Rating Scale: Never, Almost Never, Sometimes, Often, Very Often

UWE1. I was enthusiastic about my job.

UWE2.	My job inspired me.
UWE3.	I was proud of the work that I did.
UWE4.	At my work, I felt bursting with energy.
UWE5.	At my job, I felt strong and vigorous.
UWE6.	When I got up in the morning, I felt like going to work.
UWE7.	I felt happy when I was working intensely.
UWE8.	I was immersed in my work.
UWE9.	I was absorbed in my work.